03- PLA - 80 - PM1.9/PM6.1 and 65-PM R4.8/PM R7.3
03-4E3200 - EFIS# 0300000696
PPNO 4894
Program Code 1302
National Corridor Infrastructure Improvement Program
MPO ID PLA25440
August 2016

Project Report
for the
I-80/SR 65 Interchange Improvements

On Route Interstate 80 and State Route 65

Between Douglas Boulevard and Rocklin Road (PM 1.9-6.1)

And Interstate 80 and Pleasant Grove Boulevard (PM R4.8-R7.3)

I have reviewed the right of way information contained in this report and the R/W Data Sheet attached hereto, and find the data to be complete, current and accurate:

JOHN BALLANTYNE, *CHIEF NORTH REGION, RIGHT OF WAY*

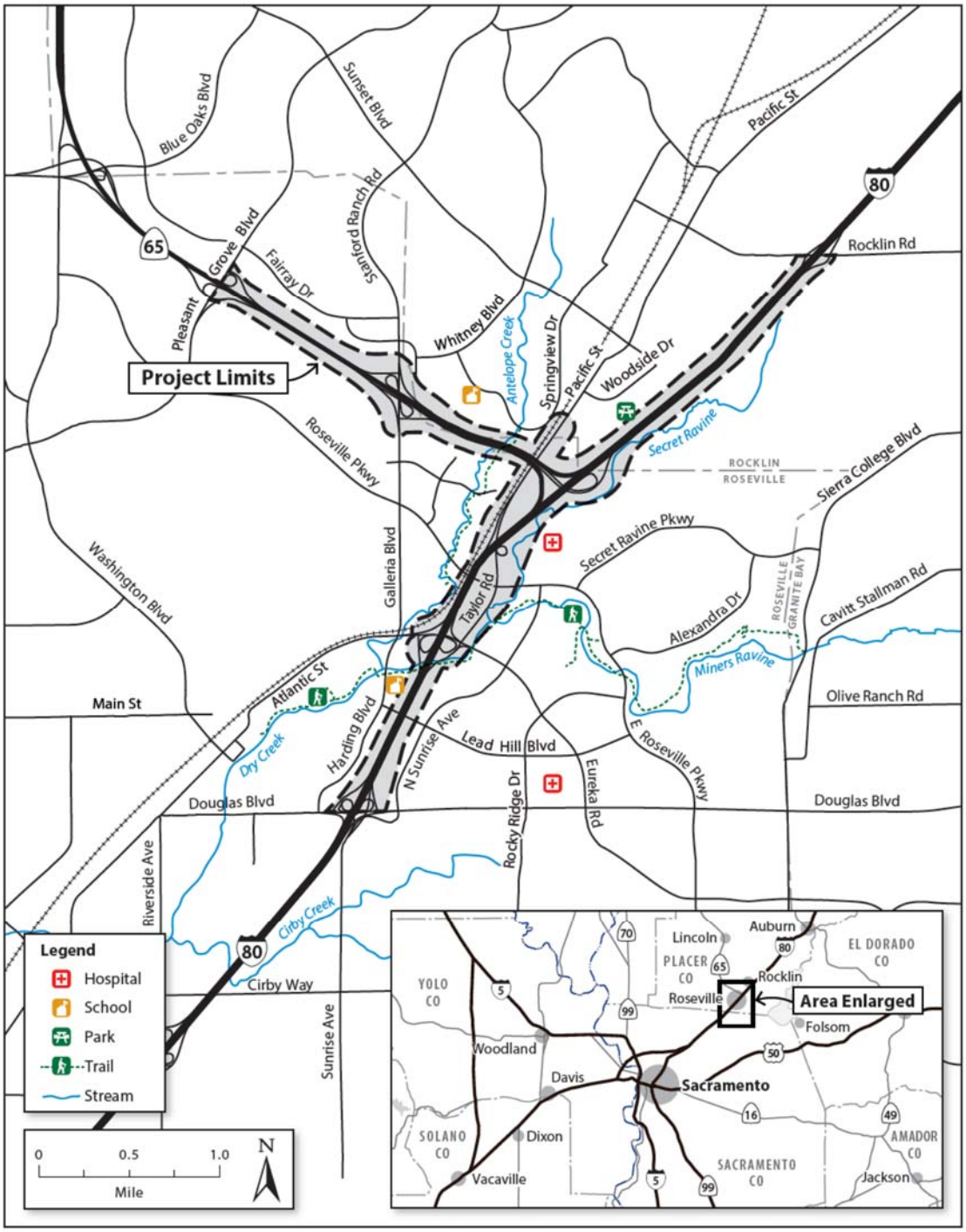
APPROVAL RECOMMENDED:

WAYNE A. LEWIS, P.E., *PROJECT MANAGER*

APPROVED:

AMARJEET S. BENIPAL, P.E., *DISTRICT 3 DIRECTOR* — *DATE* 9-8-2016

Vicinity Map



This project report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Lauren Proctor
REGISTERED CIVIL ENGINEER

08/24/2016
DATE

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1. INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes to improve the Interstate 80/State Route 65 (I-80/SR 65) interchange in Placer County, California, to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards.

The project proposes to improve the I-80/SR 65 interchange with high speed connector ramps, adding one additional lane to each connector ramp, the addition of a high-occupancy vehicle (HOV) direct connector between I-80 and SR 65, and local interchange ramp improvements and street widening to accommodate these improvements. The construction cost is estimated at $348 million for Alternative 2, which includes $7.9 million for right of way and utilities and $340 million for construction. The project will be constructed in phases. Three viable build alternatives have been considered. Each alternative improves I-80 and SR 65 as described above and includes additional unique improvements as follows:

Alternative 1 – Taylor Road Full Access Interchange. This alternative proposes to construct a new Taylor Road local interchange within the I-80/SR 65 interchange. The new access would provide for all four ramp movements between I-80 and Taylor Road as separate local ramps connecting directly to I-80. After evaluation, FHWA and Caltrans determined that Alternative 1 is not acceptable because it still allows weaving conditions between the Eureka Road/Atlantic Street, Taylor Road, and SR 65 interchanges that result in increased congestion and reduced safety on I-80 eastbound.

Alternative 2 – Collector-Distributor System Ramps. This alternative proposes to construct a separate eastbound collector-distributor system parallel to I-80 that collects the Eureka Road ramp traffic and distributes it to Taylor Road, eastbound I-80, and northbound SR 65, eliminating the weaving conditions on eastbound I-80 between Eureka Road and the I-80/SR 65 interchanges. This alternative maintains the Taylor Road partial interchange in its existing location.

Alternative 3 – Taylor Road Interchange Eliminated. This alternative proposes to remove the Taylor Road partial interchange and redirect the traffic to the adjacent local interchanges at Eureka Road/Atlantic Street, Rocklin Road, and Galleria Boulevard/Stanford Ranch Road. Some local intersections would also be improved.

Alternative 2 was found to meet all aspects of the need and purpose by maintaining the Taylor Road interchange access while improving the operational needs of I-80 eastbound, over and above Alternatives 1 and 3. After comparing and weighing the benefits and impacts of all feasible alternatives and considering feedback provided by the public, Alternative 2 has been identified as the preferred alternative.

The project is subject to state and federal environmental review requirements because the use of federal funds from the Federal Highway Administration is proposed. Accordingly, project documentation is being prepared in compliance with both the

California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under NEPA and CEQA. This project is included in the Placer County 2035 Regional Transportation Plan (RTP) and the Sacramento Area Council of Governments (SACOG) 2035 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). Phase 1 of the project is programmed in the SACOG 2015/2018 Metropolitan Transportation Improvement Program (MTIP). The complete project (i.e., Phases 1 through 4) will be included in the upcoming 2036 MTP/SCS.

The project is located in Placer County in the cities of Roseville and Rocklin at the I-80/SR 65 interchange (See Location Map in Attachment A). The project limits consist of I-80 from the Douglas Boulevard interchange to the Rocklin Road interchange (post miles 1.9–6.1) and SR 65 from the I-80/SR 65 interchange to the Pleasant Grove Boulevard interchange (post miles R4.8–R7.3). The total length of the project is 4.2 miles along I-80 and 2.5 miles along SR 65. The project area also includes various local roads—specifically, portions of Eureka Road/Atlantic Street, East Roseville Parkway, and Taylor Road.

Project Limits	03-PLA-80 and 03-PLA-65 PM 1.9 to 6.1 and PM R4.8 to R7.3
Number of Alternatives	5 (3 Build, TSM, No-Build)
Current Capital Outlay Construction Estimate	$338.6M to $348.3M (2014 Dollars) $404.3M to $410.2M (2020 Dollars)
Current Capital Outlay Right of Way Estimate	$5.3M to $7.9 (2014 Dollars)
Funding Source	NCIIP, Local Agency, SHOPP
Funding Year	2016
Type of Facility	Interstate and freeway
Number of Structures	9-11
Environmental Determination or Document	EIR/complex EA leading to FONSI
Legal Description	Interchange
Project Development Category	4A

2. RECOMMENDATION

It is recommended that the project be approved and advance to the PS&E phase of project development using the preferred alternative, which is Alternative 2- Collector-Distributor System Ramps.

The affected local agencies have been consulted with respect to the recommended plan, their views have been consulted, and are in general accord with the plan as presented.

3. BACKGROUND

Project History

I-80/SR 65 Interchange Project Study Report

In 2009, Caltrans completed a Project Study Report (PSR) for upgrading the interchange to remedy operational problems caused by high peak-period traffic volumes and less-efficient geometry. The PSR identified three build alternatives that would add a bi-directional HOV direct connector ramp, replace the existing loop connector, widen the East Roseville Viaduct, replace the Taylor Road overcrossing, and increase capacity on the connector ramps. Other interchanges and local roads within the project area would also be affected to accommodate the proposed upgrades identified in the PSR.

The proposed alternatives described in this Draft Project Report build upon the alternatives presented in the PSR, and have been expanded to incorporate results and feedback from the technical advisory committees, traffic analysis, environmental technical studies, and public input.

Right of way has not yet be acquired for this project and will be performed during the PS&E phase.

Other Projects

I-80 Bottleneck Project

In 2011, Caltrans completed construction of the I-80 Bottleneck Project to improve congestion along the I-80 corridor by providing HOV and auxiliary lanes in both directions from the Placer/Sacramento county line to one mile east of the I-80/SR 65 interchange.

I-80/Eureka Road Interchange Improvements

In 2013, the City of Roseville completed improvements to Eureka Road including the Taylor Road, Sunrise Boulevard, and eastbound I-80 on- and off-ramp intersections.

I-80/Rocklin Road PSR

The City of Rocklin is proposing to improve Rocklin Road and the on- and off-ramps at the I-80 Interchange. The PSR-PDS has been completed and PA&ED is in progress.

I-80 Auxiliary Lanes

The PA&ED phase, led by PCTPA, is in progress to reduce congestion, improve traffic operations, and enhance safety. The improvements include providing auxiliary lanes on eastbound I-80 from SR 65 to Rocklin Road and on westbound I-80 from Douglas Boulevard to Riverside Avenue. A fifth lane alternative on westbound I-80 is also being considered.

Galleria Boulevard/Stanford Ranch Road Interchange Project

The Highway 65 Joint Powers Authority and the City of Roseville are in the planning phase of a project at the northbound Galleria Boulevard/Stanford Ranch Road Interchange. The project will include reconfiguration and widening of the northbound ramps to improve operations and add capacity.

SR 65 Capacity and Operational Improvements Project

PCTPA is currently completing the PA&ED phase to provide capacity and operational improvements to SR 65. The alternatives include adding general purpose lanes, carpool lanes, and auxiliary lanes in both directions from the Galleria Boulevard Interchange to Lincoln Boulevard. The proposed geometrics have been coordinated with the I-80/SR 65 Interchange Improvements Project to provide the appropriate and contiguous improvements along the SR 65 corridor.

Community Interaction

Public involvement has helped to shape the project and the alternatives that were considered in the draft environmental document. Extensive coordination has been conducted with project stakeholders to provide updates on the status of the proposed project, obtain public and agency input, and resolve issues. The following public outreach efforts were made through December 2014:

- Three Community Public Workshops
- Four Stakeholder Meetings
- Website Creation and Updates
- Four Project Newsletters
- Flyers
- Online Engagement Tools and Survey
- Social Media Updates

More than 100 stakeholders expressed interest in the proposed project and key stakeholders were identified and invited to the various stakeholders meetings. The project stakeholders consist of a cross section of project-vicinity property and business owners/tenants, residents, and other interested organizations/individuals that may be directly affected by the project. The following parties were active participants in the various stakeholder meetings:

- All American Self Storage
- Building Industry Association
- Bodycraft Collision
- California Trucking Association
- Caltrans
- City of Lincoln
- City of Rocklin
- City of Roseville
- Dry Creek Conservancy
- Evergreen Company
- FitzGerald LLC
- The Fountains
- Lund Construction
- PCTPA
- Pillar Hotels
- Regal Cinema UA Theatre
- Roseville Chamber of Commerce
- Roseville Coalition of Neighborhood Associations
- Rocklin Chamber of Commerce
- Sacramento Area Bicycle Advocates
- Stonehouse Property
- Sun City Roseville

- Flooring Liquidators
- Golfland Sunsplash
- Hewlett Packard
- Hilton Garden Inn
- Taylor Road Self Storage
- Westfield Galleria Mall
- William Jessup University

Support and Opposition

In addition to stakeholders meetings, individual meetings were held with local businesses and local agencies to obtain focused feedback. In general, the local agencies, businesses, and residents agree that the Taylor Road interchange ramps should not be closed due to concerns that their closure would negatively impact local businesses along Taylor Road, and cut off access to some of the City of Rocklin neighborhoods that utilize Taylor Road/Pacific Street.

PCTPA received letters from the City of Rocklin and local business owners supporting the overall project but expressing concerns with any alternatives that remove the Taylor Road interchange ramps. PCTPA also received a letter from Caltrans District 3 stating that Alternative 1 does not meet established Caltrans and FHWA requirements and is considered high risk. Caltrans and FHWA have also indicated that Alternative 2 appears to be the design that best meets both the local agency partner preferences and addresses Caltrans' operations and safety concerns.

Existing Facility

Interstate 80

I-80 is the principal east−west route in northern California, providing all-weather access across the Sierra Nevada for major goods movement into the Sacramento and San Francisco Bay areas. The interstate accommodates high commute, interregional, and recreational traffic volumes, as well as high levels of truck freight traffic within the greater Sacramento region.

Within Placer County, I-80 begins at the Sacramento County/Placer County line in Roseville as a ten-lane freeway—including two carpool/HOV lanes, one in each direction. It extends east through the Riverside Boulevard interchange where it narrows to nine lanes (five eastbound and four westbound). At the Douglas Boulevard interchange, I-80 widens to a ten-lane freeway and remains as ten-lanes through the Lead Hill Boulevard overcrossing, the Eureka Road/Atlantic Street interchange, the Roseville Parkway overcrossing, the Taylor Road interchange, and the I-80/SR 65 interchange. East of SR 65, I-80 narrows to six lanes, the HOV lanes end, and the interstate continues into the city of Rocklin past the Rocklin Road interchange.

Constrained Area along I-80

The minimum existing right of way width within the project limits along the I-80 corridor is 198 feet. Between the Eureka Road/Atlantic Street and I-80/SR 65 interchanges, westbound I-80 is directly adjacent to the Union Pacific Railroad (UPRR) tracks, an abandoned and capped landfill, and local businesses including Cattlemens Restaurant and Flooring Liquidators. Eastbound I-80 is adjacent to several properties including Golfland Sunsplash, Larkspur Landing Hotel, Hilton

Garden Inn, two 230 kV towers owned by PG&E and SMUD, and a conservation area adjacent to Sutter Roseville Medical Center. The existing Roseville Parkway Overcrossing, over I-80 and the UPRR tracks, and associated columns provide limited available width for future mainline lanes.

Secret Ravine and Miners Ravine meander through the project limits and also serve as an additional constraint for future improvements. See the Constraints Map in Attachment B for the various constraints along the I-80 corridor.

State Route 65

SR 65 is an important interregional route that serves both local and regional traffic. The route serves as a major connector for both automobile and truck traffic originating from the I-80 corridor in the Roseville/Rocklin area to the SR 70/99 corridor in the Marysville/Yuba City area. SR 65 is a vital economic link from residential areas to shopping and employment centers in southern Placer County. It is also an important route for transporting aggregate, lumber, and other commodities.

In the northbound direction, SR 65 begins at I-80 as a three-lane facility joining the two eastbound I-80 to northbound SR 65 connector ramp lanes with the single-lane westbound I-80 to northbound SR 65 connector ramp. The outside lane immediately ends along the East Roseville Viaduct and SR 65 continues north with two lanes through the Galleria Boulevard/Stanford Ranch Road interchange. A partial auxiliary lane begins prior to the Pleasant Grove Boulevard interchange and ends at the northbound off-ramp with an overall length of approximately 1,300 feet. Past the Pleasant Grove Boulevard interchange, northbound SR 65 continues toward the city of Lincoln as a two-lane facility with occasional auxiliary lanes.

In the southbound direction from the city of Lincoln, SR 65 has two lanes and occasional auxiliary lanes through the Pleasant Grove Boulevard interchange. A third southbound lane develops under the Galleria Boulevard/Stanford Ranch Road interchange prior to the southbound Galleria Boulevard on-ramp. The three lanes continue across the East Roseville Viaduct and split into four lanes, two serving the southbound SR 65 to westbound I-80 connector ramp, and two serving the southbound SR 65 to eastbound I-80 connector ramp. The minimum existing right of way width on SR 65 is approximately 270 feet, allowing adequate space to add capacity to the facility.

I-80/SR 65 System Interchange

The existing I-80/SR 65 interchange is a type F-6 freeway-to-freeway interchange with a low-speed loop connector serving eastbound I-80 to northbound SR 65. The existing geometry and insufficient capacity causes traffic to queue along I-80 in both directions.

Eureka Road/Atlantic Street Interchange

The Eureka Road and Atlantic Street Interchange serves traffic trying to access East Roseville and downtown Roseville and also serves as a parallel local facility to I-80. The interchange is located 1.1 miles west of the I-80/SR 65 interchange, spans Miners Ravine, and is adjacent to local businesses including In-N-Out Burger and Brookfields Restaurant. The intersection of the eastbound ramps, Taylor Road, and

Eureka Road was expanded in 2013 to improve operations and serve additional demand.

Taylor Road Interchange

The existing Taylor Road interchange is a partial interchanges that provides an eastbound loop off-ramp and a westbound slip on-ramp. The interchange is located between the Eureka Road/Atlantic Street and I-80/SR 65 interchanges, with half-mile spacing between each. The interchange provides access to and from the cities of Rocklin and Roseville, as well as several local businesses along Taylor Road and Pacific Street.

Galleria Boulevard/Stanford Ranch Road Interchange

The Galleria Boulevard/Stanford Ranch Road interchange along SR 65 provides access to and from the Roseville and Rocklin areas including the Galleria at Roseville shopping center. The interchange is located one mile from the I-80/SR 65 Interchange.

4. PURPOSE AND NEED

The project proposes to improve the I-80/SR 65 interchange in Placer County, California, to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards.

Termini (i.e., limits) for the project were developed through an iterative process involving engineering design and traffic operations analysis. Preliminary design concepts were tested with the traffic operations analysis model to evaluate how lane transitions and vehicle weaving influenced peak-hour conditions. Refinements were made to ensure that mainline lane balance was logical and that transitions did not cause unacceptable traffic operations such as extensive queuing or reduced speeds.

Purpose:

The purpose and objectives of the project are listed below:

- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to reduce no-build traffic congestion;
- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to comply with current Caltrans and local agency design standards for safer and more efficient traffic operations while maintaining and, if feasible, improving the current level of community access, at a minimum;
- Consider all travel modes and users in developing project alternatives;

Need:

The project is needed for the following reasons:

- Recurring morning and evening peak-period demand exceeds the current design capacity of the I-80/SR 65 interchange and adjacent transportation facilities, creating traffic operations and safety issues. These issues result in high delays, wasted fuel, excessive air pollution, and greenhouse gas emissions, all of which will be exacerbated by traffic from future population and employment growth.

- Interchange design features do not comply with current Caltrans design standards for safe and efficient traffic operations and limit existing community access to nearby land uses.
- Travel choices are limited in the project area because the transportation network does not include facilities for all modes and users consistent with the complete streets policies of Caltrans and local agencies.

4A. Problem, Deficiencies, Justification

Since the I-80/SR 65 interchange was constructed in 1985, the area has grown and the interchange no longer operates efficiently and effectively, which necessitates the need for replacement. Some of the existing features within the project limits do not meet current Caltrans design standards including interchange spacing, weaving distance, and preferred freeway-to- freeway direct connector ramps and associated design speeds. Accident data show that collisions in the project area are higher than state averages and traffic congestion is expected to worsen by 2040. The proposed improvements are expected to improve operations and safety.

A 2-mile minimum separation is required between system and local interchanges; however, the existing spacing between the Eureka Road/Atlantic Street interchange and the I-80/SR 65 interchange is 1.1 miles. The nonstandard interchange spacing creates a critical weave area between traffic entering and exiting I-80 between the Eureka Road/Atlantic Street, Taylor Road, and I-80/SR 65 interchanges. Along SR 65, the existing spacing between the I-80/SR 65 interchange and the Galleria Boulevard/Stanford Ranch Road interchange is one mile, also causing a critical weave area between traffic entering and exiting SR 65 between I-80 and the Galleria Boulevard/Stanford Ranch Road interchange.

The existing Taylor Road interchange is located between the Eureka Road/Atlantic Street and I-80/SR 65 interchanges, with approximately half-mile spacing between each. The close proximity of ramps creates an undesirable critical weave area between the interchanges and restricts traffic flow in this section of I-80. The interchange is an important connection to the local stakeholders as it provides connectivity to local businesses and residents in the Rocklin area.

The existing eastbound I-80 to northbound SR 65 loop connector currently has a posted speed of 25 mph which does not provide a high-speed connection in this direction of travel, causing traffic to reduce travel speed by as much as 40 mph while approaching the loop.

The existing merge between the westbound I-80 to northbound SR 65 and eastbound I-80 to northbound SR 65 does not have adequate capacity, resulting in a bottleneck, causing traffic to queue back onto the connector ramps as well as the I-80 mainline in both directions.

Currently, a significant portion of Taylor Road within the project limits has no sidewalks or bicycle facilities. There is a gap in the bicycle and pedestrian network between Roseville Parkway and Plumber Way. A gap closure is proposed along Taylor Road, consistent with the City of Roseville Bicycle Master Plan, which would

provide improved bicycle and pedestrian connections between Roseville and Rocklin, as well as improved access to the Class I trails along Secret Ravine, Miners Ravine, and Antelope Creek.

4B. Regional and System Planning

I-80 is on the National Highway System and is part of the Eisenhower Interstate System. It is on the National Truck Network, the Interregional Road System, the extra legal load network (ELLN) and a Surface Transportation Assistance Act (STAA) route. The 2009 I-80 Corridor System Management Plan identifies I-80, within the project limits, as a ten-lane facility.

SR 65 is identified as a principal arterial route on the National Highway System and is a Terminal Access (STAA) route. The 2001 Caltrans SR 65 Transportation Concept Report (TCR) identifies SR 65 as an ultimate eight-lane facility.

4C. Traffic

The transportation analysis for the I-80/SR 65 interchange project used an integrated modeling approach that has three different levels of detail: macro, meso, and micro. At the macro level, the regional travel forecasting model (SACMET) was used to forecast peak period origin-destination (OD) traffic volume flows between traffic analysis zones both internal and external to the study area. At the meso level, the peak period OD flows were divided into four one-hour trip tables and disaggregated into three modes—single occupant vehicle (SOV), HOV, and truck—and then assigned to the sub-area roadway network using the VISUM software. The assignment process was based on congested travel times that reflect roadway link speeds and capacity. At the micro level, the traffic volumes were converted to individual vehicles that were assigned to the operational study area using the VISSIM software that contains detailed inputs governing traffic controls (signal timings), geometrics (lane configurations), and driver behavior.

The traffic forecasts were developed using the first two modeling platforms (macro and meso). The first platform is a modified version of the regional SACMET model developed by the Sacramento Area Council of Governments (SACOG) for the Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS). The second platform is the VISUM sub-area trip assignment model, which was used to assign the trips generated from the SACMET model to a detailed roadway network within the study area.

The SACMET and VISUM models were calibrated and validated according to the *2010 California Regional Transportation Guidelines (*California Transportation Commission, 2010) and criteria approved by the PDT. Both models passed applicable static and dynamic validation tests. The detailed validation results are included in the Transportation Analysis Report in Attachment C.

Traffic volume forecasts were developed for construction year (2020) and design year (2040) conditions. The forecasts relied on modified inputs to the MTP/SCS SACMET

model based on PDT refinements to land use projections and the planned roadway network as explained below.

The traffic volume forecasts were derived from future socioeconomic projections that started with regional socioeconomic projections developed by SACOG for the regional MTP/SCS. These were reviewed by the PDT and modified to better reflect local plans. Socioeconomic projections are the largest single influence on traffic volume forecasts, so they affect volume projections to a greater extent than the roadway network changes or any other modeling component. If the socioeconomic forecasts vary in reality, it will have a direct effect on future traffic volumes.

The traffic volume forecasts are also influenced by modifications to the existing transportation network according to improvement projects anticipated to be constructed by the construction (2020) and design (2040) years. These projects are based on the financially constrained project list contained in the MTP/SCS, but also consider projects the PDT agreed would likely be constructed by the design year. The rationale for adding projects to the MTP/SCS list was that the design year is five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements.

The roadway system in the project area currently experiences peak-period congestion, which will worsen in the future according to the traffic volume forecasts summarized in the I-80/SR 65 Interchange Improvements Transportation Analysis Report approved in September 2014 and included in Attachment C. Increased capacity along I-80, SR 65, at the system interchange, and on Taylor Road is needed to reduce forecasted congestion.

Freeway Operations

The traffic data show that no-build design year conditions will lead to increased congestion. Table 1 shows average annual daily traffic volumes on the freeway network for existing (year 2012) and design year (2040) conditions. The design year analysis includes traffic forecasts for both a no-build (i.e., no project) and a build (i.e., plus project) alternative.

Table 1. Average Annual Daily Traffic Volumes for Existing (Year 2012) and Design Year (2040) Conditions

		Existing Conditions		Design Year No Build	
Freeway	Segment	Total	Trucks	Total	Trucks
I-80	Douglas Blvd to Eureka Rd	155,000	9,000	197,400	14,200
	Eureka Rd to Taylor Rd	158,700	9,600	203,800	14,400
	Taylor Rd to SR 65	150,000	8,700	194,200	13,900
	SR 65 to Rocklin Rd	109,600	6,400	139,500	9,900
SR 65	I-80 to Galleria Blvd	106,100	3,500	151,500	6,000
	Galleria Blvd to Pleasant Grove Blvd	104,400	3,500	159,100	6,600

Source: Fehr & Peers 2014, Table 16.

Table 2 summarizes the existing and design year freeway operations in the AM and PM peak hours for selected freeway segments. Bold and underlined font indicate LOS F conditions. Conditions at the Eureka Road, Taylor Road, and Galleria Boulevard ramps worsen as well as at the SR 65 and I-80 merge and diverge ramps under no-build conditions. In some cases traffic operations improve between existing and design year no-build conditions, resulting from upstream bottlenecks preventing traffic from reaching downstream locations during the peak hours.

Table 2. Selected Freeway Operations Results –Existing and Design Year Conditions

Freeway	Location	Type	Existing (LOS/Average Density)		Design Year No Build (LOS/Average Density)	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
EB I-80	Eureka Rd Off-ramp	Diverge	C / 26	**F / 46**	**F / 114**	**F / 149**
	Eureka Rd Off to On-ramp	Basic	C / 21	C / 23	**F / 138**	**F / 141**
	Eureka Rd EB On-ramp	Merge	B / 19	B / 20	**F / 132**	**F / 96**
	Eureka Rd to Taylor Rd	Weave	C / 23	E / 42	**F / 131**	**F / 142**
	Taylor Rd to SR 65	Basic	D / 28	E / 42	**F / 123**	**F / 133**
	SR 65 Off-ramp	Diverge	C / 28	**F / 52**	**F / 86**	**F / 65**
WB I-80	SR 65 Off-ramp	Diverge	B / 199	E / 35	C / 27	**F / 114**
	Douglas Blvd Off-ramp	Diverge	D / 32	C / 26	C / 21	**F / 108**
	Douglas Blvd WB On-ramp	Merge	E / 36	D / 34	C / 25	C / 20
	Douglas Blvd EB On-ramp	Merge	E / 42	E / 37	C / 23	B / 15
	Douglas Blvd to Riverside Ave	Basic	D / 33	D / 31	D / 28	C / 21
	Riverside Ave Off-ramp	Diverge	E / 40	E / 36	C / 20	B / 16
NB SR 65	I-80 WB On-ramp	Merge	**F / 53**	**F / 95**	**F / 57**	**F / 84**
	I-80 to Stanford Ranch Rd	Basic	D / 32	**F / 77**	D / 35	E / 36
	Stanford Ranch Rd Off-ramp	Diverge	D / 33	**F / 62**	D / 31	D / 32
SB SR 65	Blue Oaks Blvd WB On-ramp	Merge	**F / 60**	B / 20	D / 34	C / 28
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	**F / 75**	C / 21	D / 29	C / 26
	Pleasant Grove Blvd Off to On-ramp	Basic	**F / 89**	C / 25	D / 32	D / 29
	Pleasant Grove Blvd WB On-ramp	Merge	**F / 72**	D / 31	C / 28	C / 22
	Pleasant Grove Blvd EB On-ramp	Merge	**F / 53**	E / 39	E / 44	D / 29
	Pleasant Grove Blvd to Galleria Blvd	Basic	E / 36	D / 32	**F / 49**	D / 32
	Galleria Blvd Off-ramp	Diverge	E / 35	D / 32	**F / 55**	D / 33
	Galleria Blvd On-ramp	Merge	D / 30	C / 24	**F / 77**	E / 39
	I-80 Off-ramp	Diverge	C / 24	C / 22	D / 33	D / 31

Note: **Bold** and underline font indicate LOS F conditions.
Source: Fehr & Peers 2014, Technical Appendix Part 1

Local Intersection Operations

Table 3 summarizes existing and design year conditions of key local intersection operations. In the design year, traffic shows to generally operate at LOS F for the no-build condition. The majority of local intersections will operate at an equal or worse

LOS by the design year compared to existing conditions. The unacceptable conditions highlighted in the table are based on LOS policies in the General Plans of the City of Roseville (Updated in October 2012), the City of Rocklin (adopted April 1991) and the City of Lincoln (adopted March 2008)

Table 3. Existing and Design Year Conditions of Key Local Intersection Operations

	Existing Conditions (2012)		Design Year No-Build (2040)	
Intersection	AM	PM	AM	PM
Blue Oaks Blvd / Washington Blvd	**D / 43**	C / 33	**F / 136**	**F / >240**
Blue Oaks Blvd / SR 65 NB Ramps	C / 24	C / 23	**F / 116**	**F / 115**
Stanford Ranch Rd / Five Star Blvd	B / 19	C / 32	**F / 151**	**D / 36**
Stanford Ranch Rd / SR 65 NB Ramps	A / 9	B / 15	**F / 127**	D / 36
Galleria Blvd / SR 65 SB Ramps	B / 13	B / 19	D / 38	C / 29
Galleria Blvd / Roseville Pkwy	C / 30	D / 36	D / 39	**F / 213**
Roseville Pkwy / Creekside Ridge Dr	A / 6	B / 17	B / 10	C / 24
Roseville Pkwy / Taylor Rd	C / 30	C / 28	**F / 98**	D / 48
Atlantic St / I-80 WB Ramps	A / 7	B / 11	B / 12	**D / 51**
Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 26	E / 61	E / 55	**F / 92**
Eureka Rd / Sunrise Ave	C / 24	C / 30	C / 29	**F / 184**
Douglas Blvd / Harding Blvd	B / 19	C / 28	C / 25	**F / >240**
Douglas Blvd / Sunrise Ave	C / 26	D / 35	C / 35	**F / >240**
Rocklin Rd / Granite Dr	B / 15	D / 37	D / 29	**F / >240**

Note: **Bold** and underline font indicate unacceptable conditions.
Source: Fehr & Peers 2014, Technical Appendix Part 1

Collision Analysis

Caltrans Traffic Accident Surveillance and Analysis System (TASAS) traffic collision data for mainline I-80 and SR 65, and the ramp connections were compiled for a three-year period from April 1, 2009 to March 31, 2012.

Mainline I-80

A total of 578 collisions were reported on the freeway sections in both directions of I-80, including 4 fatalities and 228 injuries. As shown in Table 4, the actual accident rate on eastbound I-80 from Douglas Boulevard to SR 65 is 1.52, which is higher than the statewide average of 0.90 for a similar type facility. Westbound I-80 for the same limits has an accident rate of 1.08 which is also higher than the statewide average. The data show that fatality and injury rates are also higher than comparable statewide averages.

During the 3-year period, the types of accidents that occurred on I-80 were as follows:

- 353 rear-ends (61%)
- 113 sideswipes (19%)
- 73 hit objects (13%)

- 11 broadsides (2%)
- 11 overturns (2%)
- 11 other factors (2%)
- 6 auto-pedestrian (1%)

The majority of accidents took place in the travel lanes, with only 11.5% of accidents occurring in the left or right shoulder areas or the recovery areas beyond the shoulders. Rear-end accidents account for 61% of all of the accidents, which are generally congestion-related. The next most frequent accident types are side-swipes and hit objects (31%). The other accident types are collectively less than 10% of all accidents.

Mainline SR 65

A total of 150 accidents were reported within the freeway section in both directions of SR 65, including 1 fatality and 52 injuries. As shown in Table 4, the actual accident rate on SR 65 is lower than the statewide average for a similar type facility. The accident rates for fatal and injury accidents are also lower than comparable state averages.

During the 3-year period, the types of accidents that occurred on SR 65 are as follows:

- 101 rear-ends (67%)
- 19 sideswipes (13%)
- 24 hit objects (16%)
- 2 broadsides (1%)
- 1 overturns (1%)
- 2 other factors (1%)
- 1 auto-pedestrian (1%)

I-80/SR 65 Connector Ramps

A total of 63 accidents were reported at four different connector locations. There are three locations that have accident rates higher than the statewide average for a similar type of facility, as shown in Table 5. The three locations that have actual accident rates higher than the statewide rate are as follows:

- Southbound SR 65 to Westbound I-80 Connector (PM 3.95) – A total of 21 accidents were reported with no fatalities. The actual accident rate on the connector ramp is 0.75, which is higher than the statewide average of 0.32 for a similar type facility.

  The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turning movements, resulting in rear-end, hit objects, and sideswipe types of collisions. These accidents are congestion related and are consistent with short weaving distances, number of lanes, and turning roadways of the existing facilities.

- Eastbound I-80 to Northbound SR 65 (PM 4.22) – A total of 31 accidents were reported at this location with no fatalities. The actual accident rate on the connector ramp is 0.98, which is higher than the statewide average of 0.68 for a similar type of facility.

  The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects, sideswipe, and head-on types of collisions. These accidents are congestion related and are consistent with number of lanes, turning roadways, and configuration of the existing facilities.

- Westbound I-80 to Northbound SR 65 (PM 4.32) – A total of nine accidents were reported at this location with one fatality. The actual accident rate on the connector is 0.63, which is higher than the statewide average of 0.38 for a similar type of facility.

  The types of accidents involved mostly passenger cars that were speeding, under the influence of alcohol and made improper turns, resulting in rear-end, hit objects, and sideswipe types of collisions. These accidents are congestion related and consistent with number of lanes and turning roadways of the existing facilities.

Interchange Ramps to and from I-80, Eureka Road/Atlantic Street and Taylor Road

A total of 43 accidents were reported at seven different ramp locations within the project limits for the Eureka Road/Atlantic Street interchange and the Taylor Road interchange. With exception of three locations, all have accident rates lower than the statewide average for a similar type of facility, as shown in Table 5. All three ramps are in the eastbound direction.

The three ramp locations that have actual rates equal to or higher than statewide rates are as follows:

- Eastbound Off-ramp to Eureka Road/Atlantic Street/Taylor Road Intersection (PM 2.85) – A total of 13 accidents were reported with no fatalities. The actual accident rate on the off-ramp is 1.01, which is equal to the statewide average for a similar type of facility. The types of accidents involve passenger cars that were speeding and involved in rear-end and hit objects type collisions. These accidents are congestion related and consistent with short weaving distances, number of ramps and turning roadways, and short acceleration/deceleration distances of the existing facilities. It should be noted that improvements to this off-ramp were completed in 2013, after the 3-year accident data period.

- Eastbound Loop On-ramp from Atlantic Street (PM 3.01) – A total of three accidents were reported at this location with no fatalities. The actual accident rate on the on-ramp is 1.10, which is higher than the statewide average of 0.73 for a similar type facility.

The types of accidents involve passenger cars that hit object, sideswipe, and overturn type collisions due to speeding. These accidents are consistent with the types of vehicles movements of the existing facility.

- Eastbound Loop Off-ramp to Taylor Road (PM 3.60) – A total of seven accidents were reported at this location with no fatalities. The actual accident rate on the off-ramp is 1.44, which is higher than the statewide average of 1.03 for a similar type facility.

  The types of accidents involved mostly passenger cars that were under the influence of alcohol and made improper turns, resulting in the vehicles hitting object and overturning.

Interchange Ramps to and from SR 65, Galleria Boulevard/Stanford Ranch Road and Pleasant Grove Boulevard

A total of 42 accidents were reported at four different ramp locations within the project limits for the Galleria Boulevard/Stanford Ranch Road interchange. Two of the ramps have accident rates lower than the statewide average for a similar type of facility, as shown in Table 5.

The two ramp locations that have actual accident rates higher than the statewide rate are as follows:

- Southbound On-ramp from Galleria Boulevard/Stanford Ranch Road (PM 5.7) – A total of 16 accidents were reported with no fatalities. The actual accident rate on the on-ramp is 0.90, which is higher than the statewide average of 0.63 for a similar type of facility.

  The types of accidents involve passenger cars that were speeding and involved rear-end and sideswipe type collisions. These accidents are congestion related and consistent with number of ramps and turning roadways of the existing facilities.

- Northbound On-ramp from Galleria Boulevard/Stanford Ranch Road (PM 6.2) – A total of 22 accidents were reported at this location with no fatalities. The actual accident rate on the on-ramp is 2.15, which is higher than the statewide average of 0.63 for a similar type of facility.

  The types of accidents involved passenger cars and pickup trucks that were speeding, made improper turns resulting in rear-end type collisions. These accidents are congestion related and consistent with short weaving distances, number of ramps and turning roadways, and short acceleration distances of existing facilities.

Table 4. Actual and Average Accident Rates on Mainline from 4/1/2009 to 3/31/2012

Direction/ Location	Number of Accidents		Accident Rates					
			Actual			Average		
	Total	F*	F*	F+I***	Total	F*	F+I***	Total
EB I-80 (PM 2.2 to 4.2): Douglas Blvd On to SR 65 Off	256	2	**0.012**	**0.56**	**1.52**	0.004	0.28	0.900
EB I-80 (PM 4.2 to 5.9): SR 65 Off to Rocklin Rd Off	52	0	0.000	0.15	0.48	0.004	0.27	0.87
WB I-80 (PM 4.3 to 5.9): Rocklin Rd On to SR 65 Off	81	1	**0.010**	**0.34**	0.81	0.004	0.27	0.87
WB I-80 (PM 2.2 to 4.3): SR 65 Off to Douglas Off	189	1	**0.006**	**0.31**	**1.08**	0.004	0.28	0.90
NB SR 65 (PM R4.9 to R6.9): I-80 On to Pleasant Grove Blvd Off	55	1	**0.009**	0.15	0.5	0.006	0.33	1.02
SR 65 (PM R4.9 to R7.1): Pleasant Grove Blvd WB On to I-80 Off	95	0	0.000	0.29	0.77	0.006	0.34	1.04
TOTAL	728	5						

Note: Accident rates on mainline are per million vehicle miles.

* Fatalities

** Injuries

*** Fatalities plus injuries

Bold and underlined font indicate actual accident rates that are higher than the statewide average for similar facilities.

Table 5. Actual and Average Accident Rates on Ramps from 4/1/2009 to 3/31/2012

Direction/ Location	Number of Accidents		Accident Rates					
			Actual			Average		
	Total	F*	F*	F+I***	Total	F*	F+I***	Total
EB I-80 Off to Eureka Rd (PM 2.9)	13	0	0.000	0.16	1.01	0.003	0.34	1.01
EB I-80 On from EB Eureka Rd (PM 3.0)	3	0	0.000	**0.37**	**1.10**	0.002	0.21	0.73
EB I-80 On from WB Eureka Rd (PM 3.2)	6	0	0.000	**0.25**	0.51	0.003	0.18	0.57
EB I-80 Off to Taylor Rd (PM 3.6)	7	0	0.000	**0.62**	**1.44**	0.003	0.30	1.03
EB I-80 Off to SR 65 (PM 4.5)	31	0	0.000	**0.29**	**0.98**	0.004	0.20	0.68
EB I-80 On from SR 65 (PM 4.5)	2	0	0.000	**0.17**	0.17	0.003	0.14	0.41
WB I-80 Off to SR 65 (PM 4.3)	9	1	**0.070**	**0.42**	**0.63**	0.005	0.13	0.38
WB I-80 On from SR 65 (PM 4.0)	21	0	0.000	**0.18**	**0.75**	0.003	0.11	0.32
WB I-80 On from Taylor Rd (PM 3.6)	3	0	0.000	0.000	0.54	0.003	0.18	0.57
WB I-80 Off to WB Atlantic St (PM 3.2)	2	0	0.000	0.23	0.46	0.004	0.24	0.75
WB I-80 Off to EB Atlantic St (PM 3.0)	0	0	0.000	0.000	0.00	0.003	0.30	1.06
WB I-80 On from Atlantic St (PM 2.8)	9	0	0.000	**0.32**	**0.71**	0.002	0.22	0.63
NB SR 65 Off to Stanford Ranch Rd (PM R5.7)	2	0	0.000	0.06	0.11	0.002	0.08	0.25
NB SR 65 On from Stanford Ranch Rd (PM R6.2)	22	0	0.000	**0.88**	**2.15**	0.002	0.22	0.63
SB SR 65 Off to Galleria Blvd (PM R6.2)	2	0	0.000	0.09	0.18	0.002	0.08	0.25
SB SR 65 On from Galleria Blvd (PM R5.7)	16	0	0.000	**0.45**	**0.90**	0.002	0.22	0.63
TOTAL	148	1						

Note: Accident rates on mainline are per million vehicle miles.

* Fatalities

** Injuries

*** Fatalities plus injuries

Bold and underlined font indicate actual accident rates that are higher than the statewide average for similar facilities.

5. ALTERNATIVES

5A. Viable Alternatives

The project proposes to improve the I-80/SR 65 interchange with high-speed connector ramps, adding one additional lane to each connector ramp, the addition of an HOV direct connector between I-80 and SR 65, and local interchange ramp improvements and street widening to accommodate these improvements. Three build alternatives have been considered. Each alternative improves I-80 and SR 65 in the same manner and includes additional unique improvements:

Alternative 1 – Taylor Road Full Access Interchange. This alternative proposes to construct a new Taylor Road local interchange within the I-80/SR 65 interchange. The new access would provide for all four ramp movements between I-80 and Taylor Road as separate local ramps connecting directly to I-80. After evaluation, FHWA and Caltrans determined that Alternative 1 is not acceptable because it still allows weaving conditions between the Eureka Road/Atlantic Street, Taylor Road, and SR 65 interchanges that result in increased congestion and reduced safety on I-80 eastbound.

Alternative 2 – Collector-Distributor System Ramps. This alternative proposes to construct a separate eastbound collector-distributor system parallel to I-80 that collects the Eureka Road ramp traffic and distributes it to Taylor Road, eastbound I-80, and northbound SR 65, eliminating the weaving conditions on eastbound I-80 between Eureka Road and the I-80/SR 65 interchanges. This alternative maintains the Taylor Road partial interchange in its existing location.

Alternative 3 – Taylor Road Interchange Eliminated. This alternative proposes to remove the Taylor Road partial interchange and redirect the traffic to the adjacent local interchanges at Eureka Road/Atlantic Street, Rocklin Road, and Galleria Boulevard/Stanford Ranch Road. Some local intersections would also be improved.

Common Features to Build Alternatives

The three Build alternatives studied have the same or similar improvements on I-80 and SR 65 except in how access to Taylor Road is addressed. These common features are described in detail below.

State Route 65

The proposed improvements to the SR 65 corridor are the same for all three Build Alternatives. These include:

- Widen northbound SR 65 to three to five lanes
- Widen southbound SR 65 to three to five lanes
- Add one HOV lane in each direction of travel
- Reconstruct Galleria Boulevard/Stanford Ranch Road interchange on-ramp
- Widen the northbound 65 to eastbound Stanford Ranch Road off-ramp to two lanes
- Reconstruct southbound Pleasant Grove Boulevard interchange ramps

- Widen the East Roseville Viaduct Structure
- Add soundwalls at two locations
- Construct or reconstruct ramp metering and preferential bypass lanes at on-ramps

SR 65 would be widened to include one HOV lane and one additional general purpose lane in each direction of travel. Auxiliary lanes would be provided between the I-80/SR 65 interchange and the Galleria Boulevard/Stanford Ranch Road interchange. Widening would occur on both the inside and outside of the existing pavement in both directions. The median would be fully paved and divided by a concrete median barrier. An additional concrete barrier would be added in the northbound direction separating the HOV and general purpose lanes to prevent HOV access between the I-80/SR 65 interchange and the Galleria Boulevard/Stanford Ranch Road interchange.

In the southbound direction, a 4-foot-wide, pavement-delineated soft barrier would separate the HOV and general purpose lanes to prohibit HOV access between the southbound Galleria Boulevard/Stanford Ranch Road on-ramp and the HOV direct connector ramp.

The SR 65 mainline widening would require reconstruction of the ramp connections for all of the Galleria Boulevard/Stanford Ranch Road interchange ramps. The northbound Stanford Ranch Road slip off-ramp would be widened to two lanes to accommodate a future project at the ramp terminus. Due to the proximity of the mainline widening to the northbound Galleria Boulevard/Stanford Ranch Road loop off-ramp, a concrete barrier would separate the mainline and ramp under the overcrossing where traffic runs adjacent and parallel. The northbound Galleria Boulevard loop off-ramp would also need to be reconfigured at the ramp terminus to accommodate the future project. Both of the northbound ramps would accommodate the future improvements at the ramp termini, proposed by a separate project.

The southbound Galleria Boulevard/Stanford Ranch Road on-ramp would be reconstructed to provide two general purpose lanes plus an HOV preferential lane. Although access to the HOV direct connector would be restricted from traffic entering at this ramp, the HOV preferential lane would serve as an incentive to carpool.

The southbound Pleasant Grove Boulevard loop on-ramp would serve as the beginning of the third southbound general purpose lane and the southbound slip on-ramp would be reconfigured to accommodate the mainline widening.

The East Roseville Viaduct would be widened in both directions to both the inside and the outside, spanning the existing Union Pacific Railroad tracks, Antelope Creek, and Taylor Road. Bridge design requires that the widened portion of the structures be configured similarly to the existing structure to provide consistent performance in regards to structure stiffness, deflection control, and seismic performance; therefore, the additional columns would be placed parallel to the existing columns along the entire length of the viaduct. Due to a combination of variable widening and a curved alignment, the widening in the northbound direction would shift the edge of deck approximately 33 to 42 feet closer to the Hearthstone apartment complex. Currently,

the distance between the edge of deck of the viaduct and the Hearthstone apartment complex ranges from 57 to 65 feet. The proposed widening would result in a distance ranging from 23 to 24 feet. Similarly in the southbound direction, the proposed widening would shift the edge of deck approximately 4 to 17 feet closer to the Preserve at Creekside apartment complex. Currently, the distance between the edge of deck of the viaduct and the Preserve at Creekside apartment complex ranges from 77 to 129 feet. The proposed widening would result in a distance ranging from 60 to 125 feet. Soundwalls would be added to both sides of the East Roseville Viaduct to mitigate the increased noise caused by the project.

The proposed improvements to the SR 65 corridor, as shown in Attachment D, would remain within the existing right of way and have been coordinated with the future SR 65 Capacity and Operational Improvements Project.

Interstate 80

The proposed improvements to the I-80 corridor are the same for all three Build Alternatives. These include:

- Widen eastbound I-80 to three to six lanes
- Widen westbound I-80 to three to six lanes
- Add soundwalls at two locations

I-80 would be widened to add at least one lane in each direction of travel. A retaining wall would be constructed in the eastbound direction between the Eureka Road/Atlantic Street interchange and the Roseville Parkway overcrossing but the overall width and impacts to the existing right of way would vary by alternative. A tie-back wall would be constructed under the East Roseville Parkway Overcrossing to maximize the pavement width on I-80 without impacting the overcrossing. In all three Build alternatives, the Eureka Road/Atlantic Street Overcrossing and the Roseville Parkway Overcrossing would remain in place.

I-80/SR 65 Interchange

The proposed improvements to the I-80/SR 65 interchange are the same for all three Build Alternatives. These include:

- Construct a new eastbound to northbound connector ramp with three lanes
- Widen the westbound to northbound connector ramp to two lanes
- Widen the southbound to eastbound connector ramp to two lanes
- Widen the southbound to westbound connector ramp to three lanes
- Add a bi-directional HOV direct connector ramp with one lane in each direction

To accommodate the future demand, one lane of capacity would be added to each connector ramp and realigned to accommodate the mainline widening. The westbound I-80 to northbound SR 65 connector (“WN” Line) would be constructed on fill with a retaining wall along portions of the outside shoulder to avoid right of

way encroachments. The ramp diverge would remain in relatively the same location but would be shifted out to accommodate the mainline widening.

The existing eastbound I-80 to northbound SR 65 loop connector would be removed and replaced with a high-speed three lane flyover, diverging from mainline approximately 2,200 feet farther west than its existing location. The two existing connector ramp structures over I-80 would be removed.

The Southbound SR 65 to Eastbound I-80 connector ramp ("SE" Line) and Eastbound I-80 to Northbound SR 65 connector ramp ("EN" Line) would consist of a combination of fill, retaining walls, and structures but the location where it enters the mainline facility varies by alternative. The southbound SR 65 to westbound I-80 connector ("SW" Line) also varies by alternative.

A bi-directional, direct connecting HOV flyover ramp would be added to serve high occupancy vehicle traffic traveling from eastbound I-80 to northbound SR 65 and from southbound SR 65 to westbound I-80. The HOV connector would be located in the I-80 median and retained by mechanically stabilized earth (MSE) walls before transitioning to a structure spanning westbound I-80 and other local and/or connector ramps. The HOV connector would transition back to fill with a cast-in-place retaining wall along the shoulder before conforming to the proposed HOV lanes along the East Roseville Viaduct.

Taylor Road

The proposed improvements to Taylor Road are similar for all three Build Alternatives. These include:

- Widen and realign Taylor Road to four lanes with a center two-way left turn lane
- Construct a new four-lane Taylor Road over I-80 overcrossing structure

The existing Taylor Road ramp connections (eastbound off-ramp and westbound on-ramp) would be modified and access to Taylor Road would be removed, reconfigured, or relocated depending on the alternative. Taylor Road, within the project limits, would be widened and improved, including replacement of the Taylor Road Overcrossing to accommodate the mainline widening. Length and width of the structure would vary by alternative. Curb, gutter, and sidewalk would be constructed along the south side of Taylor Road and would accommodate bicycle traffic via shoulders or bicycle lanes depending on the alternative. The driveways into the various local businesses along Taylor Road would be modified to conform to the roadway widening. Any impacts to access are described within each alternative summary below.

Structures

The proposed improvements to structures are similar for all three Build Alternatives. See Attachment E for the structures advanced planning studies. These include:

- East Roseville Viaduct widening
- Eastbound I-80 to northbound SR 65 connector ramp structure

- Southbound SR 65 to eastbound I-80 connector ramp structure
- Bidirectional HOV direct connector structure
- Taylor Road Overcrossing
- Tie-back wall under Roseville Parkway Overcrossing
- Retaining Walls at:
    - Eastbound I-80 from Eureka Road/Atlantic Street to the Roseville Parkway Overcrossing
    - Westbound I-80 from Eureka Road Atlantic to the Roseville Parkway Overcrossing
    - Southbound SR 65 to Westbound I-80 Connector Ramp
    - Westbound I-80 to Northbound SR 65 Connector Ramp
    - Southbound SR 65 to Eastbound I-80 Connector Ramp
    - HOV Connector
- Soundwalls at:
    - NB/SB East Roseville Viaduct
    - Eastbound I-80 near the eastern project limits
    - Westbound I-80 near the eastern project limits

The widening of the East Roseville Viaduct would be the same across all three Build Alternatives. The widening would include a cross slope correction in the southbound direction to maintain a standard vertical clearance over the UPRR tracks.

The other structures are the same or similar across the Build Alternatives. Any differences are described with the unique features of the alternatives.

To avoid potential impacts on fish, pile driving would not be used as a construction method, for any of the Build alternatives, in or immediately adjacent to Secret Ravine, Miners Ravine, and Antelope Creek.

Right of Way

The existing right of way conditions surrounding the project limits consist of a combination of commercial, residential, landscape, open space preserve, and vacant lots. The alternatives were designed to avoid significant right of way acquisitions and are summarized in each alternative description. Right of way impacts vary by alternative but all three propose impacts to the existing access to the Stone House on parcel 015-162-007. Although the Build alternatives do not directly impact the Stone House, the parcel is proposed as a full take due to the percentage of the parcel that would be impacted and the inability to continue to provide access to the parcel after the project is constructed. The right of way impacts are summarized with each alternative.

Utilities

Existing utility information was provided by the following companies:

- City of Roseville
- City of Rocklin
- Kinder Morgan
- Pacific Gas and Electric (PG&E)
- Placer County Water Agency (PCWA)
- Sacramento Municipal Utility District (SMUD)
- South Placer Municipal Utility District (SPMUD)
- Consolidated Communications (formerly Surewest)
- Western Area Power Administration (WAPA)

  Existing facilities within the project limits should be protected in place unless otherwise specified as a unique feature to an alternative.

Features Unique to Each Alternative

Alternative 1 – Taylor Road Full Access Interchange

This alternative proposes to construct a new Taylor Road local interchange within the I-80/SR 65 interchange. The new access would provide for all four ramp movements between I-80 and Taylor Road as separate local ramps connecting directly to I-80. After evaluation, FHWA and Caltrans determined that Alternative 1 is not acceptable because it still allows weaving conditions between the Eureka Road/Atlantic Street, Taylor Road, and SR 65 interchanges that result in increased congestion and reduced safety on I-80 eastbound. See Alternative 1 exhibits in Attachment D.

Taylor Road Interchange

The proposed improvements to the Taylor Road interchange unique to Alternative 1 include:

- Relocate the existing partial interchange at Taylor Road
- Construct a Taylor Road full access interchange to the east, reconstructing the eastbound off and westbound on-ramps, and providing new westbound off and eastbound on-ramps

Taylor Road Full Access Interchange would improve spacing and vehicle lane-weaving movements between the Eureka Road/Atlantic Street and Taylor Road interchanges in both directions along I-80. The two existing Taylor road interchange ramps would be relocated approximately 3,000 feet to the east and reconstructed into a Type L-1/L-12 interchange configuration, providing two additional ramp connections, improving access between the local streets and freeway system. The Taylor Road interchange ramp termini would be located below I-80 mainline and connect to a new local road serving the ramps and Taylor Road. The new connection with Taylor Road would require a new signal along Taylor Road with two left-turn

lane pockets to be added from the westbound direction. The Taylor Road Overcrossing would have four lanes, and bicycles would utilize the shoulders.

Interstate 80

The proposed improvements to the I-80 corridor unique in Alternative 1 include:

- Extend the eastbound 4th mainline lane to an eastbound exit only ramp to the relocated Taylor Road interchange
- Reconstruct four of the six Eureka Road/Atlantic Street interchange ramps to conform with the widened I-80
- Construct or reconstruct ramp metering and preferential bypass lanes at on-ramps where feasible

Along eastbound I-80, there would be one HOV lane, five general purpose lanes, and one auxiliary lane between the eastbound Eureka slip on-ramp ("E2" Line) and the eastbound I-80 to northbound SR 65 connector ramp ("EN" Line). In addition to the auxiliary lane, one general purpose lane would exit to the northbound SR 65 connector and one would exit at the eastbound Taylor loop off-ramp ("T1" Line), leaving one HOV and three general purpose lanes conforming to the existing condition and continuing on towards the Rocklin Road interchange.

From the city of Rocklin in the westbound direction, there would be one HOV lane, three general purpose lanes and one partial auxiliary lane of approximately 1,300 feet between the Rocklin Road interchange and the westbound I-80 to northbound SR 65 connector ramp ("WN" Line). The third general purpose lane would have optional exits at the "WN" connector ramp and the new westbound Taylor Road off-ramp ("T3" Line). The westbound Taylor Road on-ramp ("T4" Line) would merge with mainline prior to the three lanes entering the facility from the southbound SR 65 to westbound I-80 connector ramp ("SW" Line). One lane would exit to the Atlantic Street off-ramp ("E3" Line), and one would exit at the westbound Eureka Road loop off-ramp. The HOV and four general purpose lanes would tie into the existing condition and continue west towards the Douglas Boulevard interchange. A continuous retaining wall would be required from the southbound SR 65 to westbound I-80 ramp to maximize the available pavement width while avoiding impacts to UPRR right of way.

Alternative 1 proposes a 2-foot pavement-delineated soft barrier separating the HOV lanes and general purpose lanes to prohibit weaving between the critical weaving area from the Eureka Road/Atlantic Street interchange to the I-80/SR 65 interchange. The soft barrier is proposed in both the eastbound and westbound directions for Alternative 1. The facility would be signed and pavement delineated such that traffic utilizing the HOV lanes would be restricted from accessing the Eureka Road/Atlantic Street, Taylor Road, or Galleria Boulevard/Stanford Ranch Road interchanges.

I-80/SR 65 Interchange

The proposed improvements to the I-80/SR 65 interchange unique to Alternative 1 include:

- Eastbound to northbound connector ramp length and alignment

- Westbound to northbound connector ramp length and alignment
- Southbound to eastbound connector ramp length and alignment
- Southbound to westbound connector ramp length and alignment

The Eastbound I-80 to Northbound SR 65 Connector ("EN" Line) would be realigned into a flyover and widened to three lanes. In Alternative 1, three lanes (two trap and one optional) would diverge from eastbound I-80 to create the high-speed flyover. Retaining walls would be constructed on both sides to minimize impacts to Secret Ravine and right of way. The "EN" Line would span I-80, Secret Ravine, and the local Taylor Road interchange ramps before transitioning back to fill and conforming to the East Roseville Viaduct.

The westbound I-80 to northbound SR 65 Connector ("WN" Line) is generally the same across all three Build alternatives with the exception of the ramp diverge. The "WN" Line would diverge approximately 1,000 feet farther east compared to the existing condition, closer to the Rocklin Road interchange, to allow adequate spacing between the connector and the westbound Taylor off-ramp ("T3" Line).

The southbound SR 65 to eastbound I-80 connector ramp ("SE" Line) would merge with I-80 approximately 930 feet farther east compared to the existing condition, closer to the Rocklin Road interchange, to allow adequate spacing between the connector and the eastbound Taylor Road on-ramp ("T2" Line),.

The southbound SR 65 to westbound I-80 connector ramp ("SW" Line) would merge with I-80 approximately 1,700 feet farther west compared to existing, closer to the Eureka Road/Atlantic Street interchange, to provide adequate spacing between the connector and westbound Taylor on-ramp ("T4" Line).

Alternative 1 would have four levels to accommodate the various ramps and relocated Taylor Road interchange. The first level would be constructed below I-80 mainline, serving local traffic accessing Taylor Road. The "EN" and "HOV" connectors would be one level above I-80 mainline, and the SE connector would be the top level.

HOV and Other Modes

The proposed HOV improvements unique to Alternative 1 include:

- Construction of ramp metering and preferential bypass lanes on Taylor Road On-Ramps

In addition, HOV enforcement areas would be added to the Taylor Road on-ramps. The improvements to Taylor Road would close the existing sidewalk gaps, providing contiguous access within the project limits, and shoulders would be improved to provide room for bicycles.

Structures

The proposed improvements to structures unique to Alternative 1 include:

- New I-80 Mainline bridges (EB and WB) spanning new Taylor Interchange Ramps
- Southbound SR 65 to Westbound I-80 Bridge spanning "T" Line

- 4-lane Taylor Road Overcrossing Structure spanning I-80 and "SW" Line
- Retaining Walls at:
    - Eastbound Eureka Loop On-Ramp to minimize floodplain impacts
    - Southbound SR 65 to Eastbound I-80 to avoid Eastbound Taylor On-Ramp

Alternative 1 improvements include seven new bridges, the East Roseville Viaduct widening, and one tie-back wall. The APS reports, included in Attachment E, provide more detailed structures information.

Utilities

The proposed Alternative 1 improvements would avoid the existing 230 kV towers owned by PG&E and SMUD. Overhead lines from these towers as well as WAPA facilities span I-80 and would need to be protected in place during construction.

Right of Way

Alternative 1 would impact a total of 11 parcels, nine partial takes, and two full takes totaling 11.93 acres. Unique to Alternative 1, the "SE" connector would encroach on the Secret Ravine ordinary high water mark and require right of way acquisition. The Alternative 1 proposed improvements would also have the greatest impact on the Cattlemens parking lot but would not impact the Golfland Sunsplash parking lot. Alternative 1 would also avoid impacts to the landscaping along the Larkspur Landing and Hilton Garden Inn hotels. The new connection with Taylor Road would cause the access to Stone Court to be relocated to the south, impacting the parking lot of the Seventh Day Adventist Church. See Right of Way Data Sheets in Attachment K.

Cost

The estimated construction cost for Alternative 1 is $343.5 million. See Attachment F for the preliminary cost estimate.

Alternative 2 – Collector-Distributor System Ramps

This alternative proposes to construct a separate eastbound collector-distributor system parallel to I-80 that collects the Eureka Road ramp traffic and distributes it to Taylor Road, eastbound I-80 and northbound SR 65, eliminating the weaving conditions on eastbound I-80 between Eureka Road and the I-80/SR 65 interchanges. This alternative maintains the Taylor Road interchange in its existing location. See Alternative 2 exhibits in Attachment D.

Collector-Distributor System Ramps

The proposed Collector-Distributor System Ramps in Alternative 2 include:

- Relocate the existing eastbound Taylor off-ramp exit to be combined with the eastbound Eureka Ro
- ad off-ramp

- Construct a new Taylor Road eastbound off-ramp alignment separate from I-80 as the collector distributor system
- Reconstruct the existing Eureka Road loop on-ramp to I-80 to combine with the collector distributor system
- Reconstruct the existing Eureka Road slip on-ramp to combine with the collector distributor system
- Reconstruct the existing Taylor loop off-ramp to diverge from the collector distributor system
- Construct a new exit only ramp from the collector distributor system to the I-80/SR 65 interchange eastbound to northbound connector ramp
- Construct a new collector distributor on-ramp to eastbound I-80
- Construct new structures:
    - CDS ramp over Miners Ravine
    - Eureka Road over CDS
    - Eureka slip on-ramp over CDS
    - CDS over Secret Ravine

Collector-Distributor (C-D) System Ramps would improve spacing and vehicle lane-weaving movements between the interchanges on I-80 by collecting and redirecting eastbound ramp traffic onto a barrier separated collector-distributor ramp system, parallel to I-80 mainline. The collector-distributor system would provide eastbound access to Taylor Road, eastbound I-80, and northbound SR 65 from Eureka Road at the Eureka Road/Atlantic Street interchange and would restrict local traffic from leaving or entering I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. The two existing Taylor Road interchange ramps would remain in relatively the same place as existing conditions, but the eastbound loop ramp would be accessed from the collector-distributor road instead of the I-80 mainline.

The collector-distributor ramp (“CD1”) would diverge from I-80 near the existing eastbound Eureka off-ramp. Traffic traveling on eastbound I-80 trying to access Taylor Road would exit at the collector-distributor ramp near the Eureka Road Interchange. The eastbound Eureka loop ramp would be realigned to merge with the C-D to form a cut-and-cover tunnel under the Eureka Road Overcrossing. The eastbound Eureka slip on-ramp would braid over the tunnel, aligning the ramps such that minimal weaving would need to occur. The two ramps would join to form a two-lane C-D road parallel to eastbound I-80. Once past the Taylor loop off-ramp, the two lanes would split and transition to separate structures, spanning Secret Ravine. One would exit to SR 65 by merging with the “EN” connector, and one would serve as an on-ramp to eastbound I-80.

Interstate 80

The proposed improvements to the I-80 corridor unique in Alternative 2 include:

- Provide one less eastbound mainline lane between the Eureka off-ramp and the eastbound to northbound connector exit
- Reconstruct the westbound Taylor Road on-ramp to conform with the widened I-80
- Remove the Eureka Road eastbound loop and slip on-ramps from eastbound I-80
- Widen the eastbound Eureka Road off-ramp to two lanes, one serving Eureka Road/Atlantic street, one serving the C-D ramp. The existing off-ramp structure over Miners Ravine would remain one lane and a new structure would be constructed over Miners Ravine for the C-D ramp.
- Remove the Taylor Road eastbound loop off-ramp from eastbound I-80
- Reconstruct the Eureka Road/Atlantic Street westbound slip and loop off-ramps to conform with the widened I-80
- Construct or reconstruct ramp metering and preferential bypass lanes at on-ramps, where feasible.

Along eastbound I-80, there would be one HOV lane and four general purpose lanes from the project conform to the eastbound I-80 to northbound SR 65 connector ramp ("EN" Line). Two lanes would diverge from I-80 to form the EN Connector (one trap lane, one optional exit lane). The HOV lane and three remaining general purpose lanes would continue eastbound towards Rocklin. The eastbound I-80 on-ramp from the collector-distributor ("CD4" Line) would merge with I-80 as would the SE Connector lanes and the improvements would conform to existing conditions.

From the City of Rocklin in the westbound direction, there would be one HOV lane, three general purpose lanes and one partial auxiliary lane of approximately 2,200-feet between the Rocklin Road Interchange and the westbound I-80 to northbound SR 65 connector ramp ("WN" Line). The third general purpose lane would have an optional exit at the "WN" connector ramp. Three lanes would enter the facility from the southbound SR 65 to westbound I-80 connector ramp ("SW" Line) and the existing westbound Taylor on-ramp ("T2" Line) would merge in relatively the same location as existing except be realigned to accommodate the mainline widening. One lane would exit to the Atlantic Street off-ramp ("E3" Line), and one would exit at the westbound Eureka Road loop off-ramp. The HOV and four general purpose lanes would tie into the existing condition and continue west towards the Douglas Boulevard interchange. A continuous retaining wall would be required along the outside shoulder from the south to west connector to the Atlantic off-ramp to maximize the available pavement width while avoiding impacts to UPRR right of way.

Alternative 2 proposes a 2-foot pavement delineated soft barrier in the westbound direction, separating the HOV lanes and general purpose lanes, to prohibit weaving between the critical area from I-80/SR 65 Interchange to the Eureka Road/Atlantic Street Interchange. The soft barrier is proposed only in the westbound direction because the barrier between eastbound I-80 and the collector-distributor facility

would physically prevent traffic entering from Eureka Road from accessing the HOV lanes.

To avoid impacts to UPRR right of way, costly impacts to the Roseville Parkway Overcrossing, and to provide at least 60 MPH stopping sight distance on mainline, the HOV lane entering from SR 65 would have a non-standard entrance and auxiliary lane length. The HOV lanes would taper at 30:1 to maximize the length of the auxiliary lane shown in the HOV Guidelines and the standard merge escape area would not be provided. Design focus meetings were held with Caltrans and the design team to develop the geometrics shown in Attachment D.

Taylor Road

The proposed improvements to the Taylor Road interchange unique to Alternative 2 include:

- Maintain the existing partial interchange at Taylor Road
- Construct a new five-lane Taylor Road over I-80 overcrossing structure

Alternative 2 would not require a new intersection or turn pockets along Taylor Road nor would it require a new driveway location for Stonehouse Court. The Taylor Road overcrossing would have five lanes because the third northbound lane would be added from the loop off-ramp and would become an auxiliary lane between the ramp and the turn lane into the Cattlemens parking lot.

I-80/SR 65 Interchange

The proposed improvements to the I-80/SR 65 interchange unique in Alternative 2 include:

- Provide a two-lane exit for the eastbound to northbound connector
- Provide a one-lane slip on-ramp from the CDS to the eastbound to northbound connector, providing the third lane for the connector
- Eastbound to northbound connector ramp length and alignment
- Westbound to northbound connector ramp length and alignment
- Southbound to eastbound connector ramp length and alignment
- Southbound to westbound connector ramp length and alignment

The Eastbound I-80 to Northbound SR 65 Connector (“EN” Line) would be realigned into a flyover and widened to three lanes. In Alternative 2, two lanes (one trap and one optional) would diverge from eastbound I-80 to create the high-speed flyover. The third lane would be added from the collector-distributor ramp (“CD3” Line). Retaining walls would be constructed on both sides to minimize impacts to the Secret Ravine area and right of way. The “EN” Line would span I-80, and Secret Ravine before transitioning back to fill and conforming to the East Roseville Viaduct.

The westbound I-80 to northbound SR 65 Connector (“WN” Line) is generally the same across all three Build alternatives with the exception of the ramp diverge. The

"WN" Line would diverge in approximately the same location as the existing condition.

The southbound SR 65 to eastbound I-80 connector ramp ("SE" Line) would merge with I-80 approximately 200-feet farther east compared to the existing condition, closer to the Rocklin Road interchange.

The southbound SR 65 to westbound I-80 connector ramp ("SW" Line) would merge with I-80 approximately 550-feet farther west compared to existing, closer to the Eureka Road/Atlantic Street interchange, to accommodate the mainline widening.

Alternative 2 would have three levels to accommodate the various connectors. The first level would be the I-80 mainline grade, the "EN" and "HOV" connectors would be one level above I-80 mainline, and the SE connector would be the top level.

HOV and Other Modes

The proposed bicycle and pedestrian improvements unique to Alternative 2 include:

- Northbound bicycle lane between Taylor Road #2 lane and auxiliary lane
- Tight radius curves at ramp termini to reduce pedestrian conflicts with high speed vehicles.

Due to the limited available right of way, an HOV preferential and enforcement area would not be provided on the westbound Taylor Road on-ramp.

The improvements to Taylor Road would close the existing sidewalk gaps, providing contiguous access within the project limits.

Structures

The proposed improvements to structures unique to Alternative 2 include:

- 5-lane Taylor Road Overcrossing
- Cut-and-Cover Tunnel under Eureka Road/Atlantic Street Overcrossing
- Collector-Distributor Road over Miners Ravine
- Retaining Walls at:
    - Along Collector-Distributor ramps to minimize right of way impacts
    - Retaining wall along westbound Taylor On-Ramp

Alternative 2 improvements include seven new bridges, the East Roseville Viaduct widening, a cut-and-cover tunnel, and one tie-back wall. The APS reports, included in Attachment E, provide more detailed structures information.

Utilities

The proposed utility impacts unique to Alternative 2 include:

- Relocate PG&E transmission tower
- Relocate SMUD transmission tower

The proposed Alternative 2 improvements would impact the existing 230 kV towers, located in the Golfland Sunsplash parking lot, that are owned by PG&E and SMUD. The towers are proposed to be relocated and their shift would require the parking lot to be reconfigured. The new location of the towers would need to be coordinated with the facility owners. Overhead lines from these towers as well as WAPA facilities span I-80 and UPRR and would need to be protected in place during construction.

Right of Way

Alternative 2 would impact a total of 12 parcels, ten partial takes, and two full takes totaling 12.71 acres. Alternative 2 would impact the Golfland Sunsplash parcel as well as require sliver acquisitions along the landscaping of the Larkspur Landing and Hilton Garden Inn Hotels. See Right of Way Data Sheets in Attachment K for more details. Several retaining walls are proposed in close proximity to the right of way limits. The walls can be constructed and maintained within existing and proposed right of way within the project limits but may be require temporary construction easements to facilitate construction, depending on the design refinements made during PS&E.

In the area near the collector-distributor merge with the EB Eureka Road slip on-ramp, a cut retaining wall of approximately 5 feet is required within existing Caltrans right of way. The wall type will most likely be a Caltrans Standard Type 5 to keep the footing within existing right of way, but will need to be confirmed during PS&E. Additionally, drainage and barrier details will need to be determined prior to setting the temporary construction easement limits, but approximately 10 feet is anticipated to be needed along the Brookfields parcel to provide adequate room for construction.

A temporary construction easement will also most likely be needed along WB I-80 to construct the wall between mainline and the UPRR tracks. The location of the wall is relatively the same location as the existing wall that runs along the shoulder in this location.

In the area near the SB SR 65 to EB I-80 Connector, the geometrics are constrained by the proximity of the Secrete Ravine. There should be adequate room to construct the wall within Right of Way and an additional 5-foot swath between the existing right of way and Secrete Ravine has been assumed for temporary impacts during construction. The constraint is relatively short, approximately 100 feet, and maintenance access can be provided from both the Rocklin Road interchange to the east and the system interchange to the west.

Cost

The estimated construction cost for Alternative 2 is $351.9 million. See Attachment F for the preliminary cost estimate.

Alternative 3 – Taylor Road Interchange Eliminated

This alternative proposes to remove the Taylor Road partial interchange and redirect the traffic to the adjacent local interchanges at Eureka Road/Atlantic Street, Rocklin Road, and Galleria Boulevard/Stanford Ranch Road. Some local intersections would also be improved.

Taylor Road Interchange

The proposed improvements to the Taylor Road interchange unique to Alternative 3 include:

- Eliminate the existing partial interchange at Taylor Road

Alternative 3 will remove the eastbound loop off-ramp to Taylor and the westbound on-ramp to I-80 and not replace them. The traffic demands would be accommodated by the adjacent local interchanges at the Eureka Road/Atlantic Street, Rocklin Road, and Galleria Boulevard/Stanford Ranch Road Interchanges.

I-80 and the I-80/SR 65 Interchange

The proposed improvements to the I-80 corridor unique in Alternative 3 include:

- Remove the Taylor Road on-ramp from westbound I-80
- Remove the Taylor Road loop off-ramp from eastbound I-80
- Relocate the Eureka Road loop on-ramp and the Eureka Road slip on-ramps
- Reconstruct the Eureka Road/Atlantic Street westbound slip and loop off-ramps to conform with the widened I-80
- Construct or reconstruct ramp metering and preferential bypass lanes at on-ramps where feasible

Alternative 3 would improve spacing and eastbound weaving movements between the Eureka Road/Atlantic Street Interchange and the I-80/SR 65 interchange. Eureka On-ramp traffic would be redirected onto a barrier separated two-lane collector-distributor ramp, parallel to I-80 facility, restricting traffic from entering mainline until past the critical weave area between Eureka Road/Atlantic Street and the I-80/SR 65 system interchange. Similar to Alternative 2, the parallel two-lane collector-distributor facility would split into two on-ramps, one to the Eastbound I-80 to Northbound SR 65 Connector to access northbound SR 65, and the other to access eastbound I-80. These ramps would be on structure, spanning Secret Ravine.

Because the westbound Taylor Road on-ramp would be eliminated, weaving in the westbound direction would be improved between the “SW” connector and the westbound Atlantic Street Off-ramp.

The connector ramps serving I-80 and SR 65 (“SW”, “EN”, “SE”, “WN”, and “HOV” Lines) would be the same as in Alternative 2.

Alternative 3 would not include a 2-foot painted delineated soft barrier in the eastbound direction between the HOV and general purpose lanes due to the proposed barrier the between mainline and the ramp collector-distributor system would physically restrict traffic entering at Eureka to weave into the HOV lanes. A 2-foot soft barrier would be proposed in the westbound direction to restrict weaving between the HOV and general purpose lanes.

Taylor Road

Alternative 3 would not require a new intersection or turn pockets along Taylor Road and does require a new driveway location for Stonehouse Court. The Taylor Road Overcrossing would consist of four lanes because the eastbound Taylor loop off-ramp would be eliminated.

Eureka Road/Atlantic Street Interchange

The proposed improvements to the Eureka Road/Atlantic Street interchange unique in Alternative 3 include:

- Realign the Eureka Road loop eastbound on-ramp, separate from I-80
- Realign the Eureka Road slip eastbound on-ramp, separate from I-80
- Construct a new two-lane Eureka Road eastbound on-ramp with ramp entrances to the eastbound to northbound connector ramp and to eastbound I-80
- Widen the Eureka Road eastbound off-ramp to two lanes
- Improve the Eureka Road/Taylor Road intersection
- Improve the Taylor Road/East Roseville Parkway intersection

The westbound Eureka Road/Atlantic Street Ramps would remain in the same location and would only be adjusted to accommodate the mainline I-80 widening. The eastbound Eureka Road/Atlantic Street Ramps would tie in to the new separated ramp system instead of merging with I-80 mainline. Unlike Alternative 2, the ramps would not braid near the Eureka Road/Atlantic Street overcrossing and would not require a cut-and-cover tunnel, nor a new bridge over Miners Ravine.

Because Taylor Road traffic demands would be partially shifted to the Eureka Road/Atlantic Street interchange, the eastbound Eureka Road off-ramp would need to be widened to two lanes with added left turn pockets to accommodate future traffic demands. Intersection improvements, including dual right turn pockets would also be warranted at the Eureka Road/Taylor Road and Taylor Road/East Roseville Parkway intersections.

HOV and Other Modes

The proposed bicycle and pedestrian improvements unique to Alternative 3 include:

- Lower the trail adjacent to Miners Ravine to provide standard vertical clearance under widened bridge

The improvements to Taylor Road would close the existing sidewalk gaps, providing contiguous access within the project limits and bicycles could utilize the proposed shoulders.

Structures

The proposed improvements to structures unique to Alternative 3 include:

- Widening of eastbound Eureka Road slip off-ramp bridge

Alternative 3 improvements include six new bridges, the East Roseville Viaduct widening, the eastbound Eureka Road off-ramp structure widening, and two tie-back walls. The APS reports, included in Attachment E, provide more detailed structures information.

Utilities

The proposed utility impacts unique to Alternative 3 include:

- Relocate PG&E transmission tower
- Relocate SMUD transmission tower

The proposed Alternative 3 improvements would impact the existing 230 kV towers, located in the Golfland Sunsplash parking lot, that are owned by PG&E and SMUD. The towers are proposed to be relocated and their shift would require the parking lot to be reconfigured. The new location of the towers would need to be coordinated with the facility owners. Overhead lines from these towers as well as WAPA facilities span I-80 and would need to be protected in place during construction.

Right of Way

Alternative 3 would impact a total of 12 parcels, ten partial takes, and two full takes totaling 12.59 acres. Alternative 3 would impact the Golfland Sunsplash parcel as well as require sliver acquisitions along the landscaping of the Larkspur Landing and Hilton Garden Inn hotels.

Cost

The estimated construction cost for Alternative 3 is $344.2 million. See Attachment F for the preliminary cost estimate.

5B. Preferred Alternative

Substantial contributions from many different disciplines at FHWA and Caltrans assisted the Project Development Team in developing the three build alternatives considered. As a result of this collaboration and feedback from the public, PCTPA and Caltrans have identified Alternative 2 - Collector–Distributor (C-D) System Ramps as the preferred alternative.

Because the engineering design is limited by the available area in and adjacent to the interchange, the impact footprint of the three build alternatives are not substantially different from each other. Further, Alternative 2 is a solution to the need for the project that is acceptable to the local agencies, Caltrans, and FHWA.

After extensive engineering and traffic analysis efforts and review and screening of 22 design concepts, three build alternatives surfaced for consideration and analysis that would meet the project’s purpose and need. All of the alternatives studied involve the same or similar improvements on I-80 and SR 65, except for how access to the existing Taylor Road interchange is addressed.

Alternative 2 - Collector-Distributor (C-D) System Ramps was found to meet all aspects of the need and purpose, over and above Alternatives 1 and 3, by providing a separation of the ramp and freeway movements on I-80 eastbound, which will reduce

traffic congestion compared to Alternative 1, and maintain the existing Taylor Road ramps, access that would be eliminated under Alternative 3.

Nonstandard Features

Caltrans design standards were used in development of the preliminary geometrics within state right of way. Alternative 2 fact sheet exceptions to mandatory and advisory design standards are included in Attachment G. AASHTO and City of Roseville Standards were used for proposed improvements along Taylor Road because it is a local roadway.

There are two physically constrained areas within the project limits that contain 87% of all exceptions identified. These are the I-80/SR 65 system interchange ramps and the I-80 Eureka Road-Taylor Road segment along I-80. The system interchange ramp area is constrained on all sides by the following conditions:

- The East Roseville Viaduct structure over Taylor Road, UPRR, and Antelope Creek
- The existing residential and commercial development in the northeast quadrant of the interchange
- The existing residential and commercial development in the northwest quadrant of the interchange
- Secret Ravine Creek and Open Space Preserve on the south side of I-80

The mandatory and advisory exceptions at this location comprise 40% of all exceptions and are associated with avoiding replacement of the viaduct, impacts to apartment and townhome structures, single family residences, a public storage business, and added impacts to the Preserve area.

The I-80 Eureka-Taylor Segment is constrained on both sides of I-80 by the following conditions:

- The UPRR transcontinental railroad corridor and utility corridor on the north side of I-80
- A capped and monitored landfill on the north side of I-80
- The existing commercial development on the south side of I-80
- The Roseville Parkway overcrossing and overhead crossing I-80
- The Eureka Road/Atlantic Street overcrossing

The mandatory and advisory exceptions at this location comprise 47% of all exceptions and are associated with avoiding replacement of the overcrossings and streets, impacts to a hotel, a restaurant, a miniature golf course and waterpark, a parking garage and landfill, and avoiding relocating the UPRR railroad tracks and utility facilities.

The remaining 13% of the exceptions are advisory. All mandatory exceptions are in these two constrained areas.

The proposed curve geometrics at the "E1" EB Eureka Rd Loop on-ramp entrance will be finalized during the next phase of the project; however, the proposed design will satisfy ADA requirements. The risk of project delay is not anticipated.

The following exceptions to Mandatory Caltrans design standards are as follows:

A. Mandatory Design Exception Feature #1

Non-standard Feature: Standards for Superelevation

Location A: EB Eureka Road on-ramp, "E2" station 78+39.95 to 81+42.95, the proposed 200-foot radius curve will have a superelevation rate of 6 percent.

The standard superelevation required for 200-foot curve is 12 percent.

Location B: The "E1" EB Eureka Road Loop on-ramp entrance will comply with ADA standards; therefore, the superelevation rate will be 4.5 percent.

Location C: EB Taylor Road Loop off-ramp, "T1" station 107+53.12 to 109+01.84, the proposed 100-foot curve will have a superelevation rate varying from 4 percent to 5 percent.

The standard superelevation required for 100-foot curve is 12 percent.

Location D: WB Taylor Road on-ramp, "T2" station 8+91.54 to 11+81.10, the proposed 850-foot curve will have superelevation rate of 6 percent.

The standard superelevation required for an 850-foot curve is 10 percent.

Location E: SB SR 65 to EB I-80 Connector, "SE" station 105+95.49 to 110+58.44, the proposed 860-foot curve will have a superelevation rate of 4 percent.

The standard superelevation required for an 860-foot curve is 10 percent.

Location F: SB SR 65 to WB I-80 Connector, "SW" station 27+91.06 to 30+98.79, the proposed 930-foot curve will have a superelevation rate of 4 percent.

The standard superelevation required for 930-foot curve is 10 percent.

Location G: HOV Direct Connector, "HOV" station 131+21.31 to 131+94.99, the proposed 880-foot curve will have superelevation rate of 4 percent.

The standard superelevation required for an 880-foot curve is 10 percent.

B. Mandatory Design Exception Feature #2

Nonstandard Feature: Curve Radius

Location A: The curve radius for EB Eureka Road slip on-ramp "E2" will be 200' between station 78+39.95 and 81+42.95.

The standard curve radius for 40 mph design speed is 550'.

Location B: The curve radius for EB Taylor Road loop on-ramp "T1" will be 100' between station 107+53.12 and 109+01.84.

The standard curve radius for 20 mph design speed is 130'.

C. Mandatory Design Exception Feature #3

Non-standard Feature: Lane Width

Location A: The width of all general purpose lane EXCEPT the outside lane of eastbound I-80 will be 11 feet between station "ME1" 61+78 and station "ME1" 102+57, a total length of 4,079 feet.

Location B: The width of the HOV lane along westbound I-80 will be 11 feet between station "MW1 85+25 and station "MW1" 101+56 for a total length of 1,631 feet. All general purpose lanes EXCEPT the outside/auxiliary lane of westbound I-80 will be 11 feet wide between station "MW1" 65+64 and station "MW1" 104+53, a total length of 3,889 feet.

Location C: The width of the collector-distributor lanes will be 11 feet from station "CD1" 82+36 and station "E2" 83+68 to station "CD3" 92+60, a total length of 960 feet.

Location D: The width of the Taylor Road WB on-ramp lane will be 11 feet from station "T2" 5+72 to station"T2" 11+81, a total length of 609 feet.

D. Mandatory Design Exception Feature #4

Non-standard Feature: Shoulder Width and Horizontal Clearance

Location A: The width of the inside shoulder and horizontal clearance to the inside shoulder of eastbound I-80 will vary from 4 feet to 10 feet between station "ME1" 71+56 and station "ME1" 94+78, a total length of 2,322 feet.

The shoulder width transitions from 10 feet wide to 8 feet wide between station "ME1" 71+56 and station 74+00. The inside shoulder remains a constant 8-foot width until station "ME1" 92+48 where it begins transitioning down to a 4-foot width. This is a spot location where Caltrans R/W is reduced toward the south, creating a pinch point. From this point, the inside shoulder immediately starts opening up and reaches a standard 10-foot width at station "ME1" 94+78.

Location B: The width of the inside shoulder and horizontal clearance to the inside shoulder of westbound I-80 will vary from 2.5 feet to 10 feet between station "MW1" 65+64 and station "MW1" 91+58, a total length of 2,594 feet.

The shoulder width at station "MW1" 65+64 is a standard 10 feet and begins transitioning down to 8.1 feet before the Eureka Road/Atlantic Street Overcrossing. Under the overcrossing, the shoulder width is reduced to a minimum of 4.35 feet because of the center pier of the bridge. Once past the overcrossing, the inside shoulder transitions from 4.35 feet to 4 feet until station "MW1" 85+25.10. The shoulder then opens up from 4 feet wide to 5.5 feet wide from station "MW1" 85+25.10 to station "MW1" 86+74.96.

Location C: The width of the outside shoulder and horizontal clearance to the outside shoulder of westbound I-80 will vary from 7.4 feet to 9-feet from station "MW1" 77+57 to station "MW1" 95+75, a total length of 1,818 feet

The shoulder width at station "MW1" 77+57 is 7.4 feet and widens to 9 feet at station "MW1" 81+02. Once past the East Roseville Parkway Overcrossing, the shoulder width is reduced to 8 feet until station "MW1" 95+75.

Location D: The width of the outside shoulder and horizontal clearance to the outside shoulder of the collector-distributor road will vary from 8 feet to 10 feet between station "CD1" 83+02 and station "CD3" 91+97, a total length of 890 feet.

E. Mandatory Design Exception Feature #5

Non-standard Feature: Stopping Sight Distance

Location A: The proposed stopping sight distance for the westbound HOV lane will be 595 feet from station "MW1" 87+85 to "MW1" 97+75 due to the obstructed view caused by the median barrier. The corresponding speed for the 595 feet stopping sight distance is 60 mph.

The 60 mph stopping sight distance provided matches the stopping sight distance of the existing facility for this location.

Location B: The proposed stopping sight distance for SB SR 65 to WB I-80 Connector will be 360 feet from station "SW" 14+98 to "SW" 30+98 due to obstructed view caused by the barrier. The corresponding speed for the 360 feet stopping sight distance is 45 mph.

Location C: The proposed stopping sight distance for SB SR 65 to EB I-80 Connector will be 354 feet from station "SE" 114+08 to "SE" 135+69 due to an obstructed view caused by the crest vertical

curve. The corresponding speed for the 354 feet stopping sight distance is approximately 45 mph.

Location D: The proposed stopping sight distance for the HOV Connector will be 365 feet from station "HOV" 115+91 to "HOV" 131+95 due to obstructed view caused by the crest vertical curve. The corresponding speed for the 365 feet stopping sight distance is approximately 45 mph.

Location E: The proposed stopping sight distance for the EB I-80 to NB SR 65 Connector will be 361 feet from station "EN" 116+30 to "EN" 132+12 due to obstructed view caused by the barrier. The corresponding speed for the 361 feet stopping sight distance is 45 mph.

Location F: The proposed stopping sight distance for the WB I-80 to NB SR 65 Connector will be 361 feet from station "WN" 123+87 to "WN" 134+97 due to an obstructed view caused by the barrier. The corresponding speed for the 361 feet stopping sight distance is 45 mph.

F. Mandatory Design Exception Feature #6

Non-standard Feature: Median Standards

The median width will vary from 16 feet to 22 feet, between station "MW1" 65+64 to 93+13, a total length of 2,749 feet.

G. Mandatory Design Exception Feature #7

Non-standard Feature: Interchange Spacing

Below is the list of non-standard spacing between interchanges:

- Eureka Rd/Atlantic St I/C to Taylor Rd I/C: 0.6 mile
- Eureka Rd/Atlantic St I/C to I-80/SR 65 I/C: 1.1 mile
- Taylor Rd I/C to I-80/SR 65 I/C: 0.5 mile
- Galleria Boulevard/Stanford Ranch Rd I/C to I-80/SR 65 I/C: 1.0 mile

H. Mandatory Design Exception Feature #8

Non-standard Feature: Weaving Length

Location A: The weaving length between the WB Taylor Road on-ramp and WB Atlantic Street off-ramp is 1,720 feet.

Location B: The weaving length between the SB SR 65 to WB I-80 Connector and WB Atlantic Street off-ramp is 2,750 feet.

Location C: The weaving length between the EB Eureka Road on-ramp and EB Taylor Road off-ramp is 1,300 feet.

Location D: The weaving length between the WB I-80 to NB SR 65 Connector and the NB Galleria Boulevard/Stanford Ranch Road off-ramp is 2,815 feet.

Location E: The weaving length between the SB Galleria Boulevard/Stanford Ranch Road on-ramp and the SB SR 65 to WB I-80 Connector is 2,145 feet.

I. Mandatory Design Exception Feature #9

Non-standard Feature: Local Street Interchanges

Taylor Road interchange is a partial interchange with an isolated off-ramp.

Exceptions to Advisory Caltrans design standards are as follows:

A. Advisory Design Exception Feature #1

Non-standard Feature: Vertical Curve

The realigned EB Eureka Road off-ramp "E5" will have a vertical curve length of 310 feet.

B. Advisory Design Exception Feature #2

Superelevation of Compound Curves

Location A: The proposed superelevation compound curve transition for the HOV Connector, "HOV" line will not occur at the PCC.

Location B: The proposed superelevation compound curves transition for the SB SR 65 to WB I-80 Connector, "SW" line will occur within the second curve and not at the PCC.

C. Advisory Design Exception Feature #3

Non-standard Feature: Compound Curves

Location A: The proposed HOV Connector, "HOV" line will have a compound curve of R = 880 feet which is less than 2/3 of R = 3,012 feet.

Location B: The proposed EB I-80 to NB SR 65 Connector, "EN" line will have a compound curve of R = 900 feet which is less than 2/3 of R = 3,052 feet.

Location C: The proposed SB SR 65 to EB I-80 Connector, "SE" line will have a compound curve of R = 860 feet which is less than 2/3 of R = 2,985 feet and the smaller radius follows the larger radius.

Location D: The proposed SB SR 65 to WB I-80 Connector, "SW" line will have a compound curve of R = 930 feet which is less than 2/3 of R = 2,750 feet and the smaller radius follow the larger radius.

Location E: The proposed SB SR 65 to EB I-80 Connector, "SE" line will have a compound curve of R = 930 feet which is less than 2/3 of R = 3,000 feet.

D. Advisory Design Exception Feature #4

Non-standard Feature: Median Width

Location A: The proposed I-80 mainline will have a median width varying from 22 feet to 36 feet between station "ME1" 128+73 and "ME1"134+47.

Location B: The proposed SR 65 mainline will have a median width 22 feet between station "MS" 170+66 and "MS" 236+62.

E. Advisory Design Exception Feature #5

Non-standard Feature: Gore Width

The proposed gore width for the WB Taylor Road on-ramp will be 18 feet.

F. Advisory Design Exception Feature #6

Non-standard Feature: Diverge Angle for Off-Ramp

Location A: The proposed diverge angle from I-80 mainline to the collector-distributor road "CD1" is 2 degrees.

Location B: The proposed diverge angle from the collector-distributor road "CD1" to the EB Eureka Road off-ramp "E5" is 2 degrees.

G. Advisory Design Exception Feature #7

Non-standard Feature: Deceleration Length for Off-Ramp

Location A: NB off-ramp to Galleria Boulevard, "G2" will be a single-lane ramp 1,660-feet long.

Location B: SB off-ramp to Stanford Ranch Road, "G4" will be a single-lane ramp 1,650-feet long.

Location C: NB HOV Connector, "HOV" will be a single-lane connector 5,800-feet long.

Location D: SB HOV Connector, "HOV" will be a single-lane connector 2,400-feet long.

H. Advisory Design Exception Feature #8

Non-standard Feature: Side Slope

The proposed side slope along SB SR 65 mainline from station "MS" 217+00 to station "MS" 222+00 will be 2:1.

5C. Other Build Alternatives Considered

Alternative 1 - Taylor Road Full Access Interchange provides for an improved Taylor Road interchange access but has unacceptable effects on I-80 and the system interchange. Alternative 1 is not acceptable to FHWA and Caltrans because it still allows weaving conditions between the Eureka Road/Atlantic Street, Taylor Road, and SR 65 interchanges that result in increased congestion and reduced safety on I-80 eastbound. Alternative 2 would solve this issue by separating the Eureka Road/Atlantic Street and Taylor Road weaving movements from the I-80 freeway, while still maintaining the existing access to Taylor Road.

Alternative 3 - Taylor Road Interchange Eliminated would eliminate the Taylor Road interchange, transferring the local access to the adjacent Eureka Road/Atlantic Street, Galleria Boulevard/Stanford Ranch Road, and Rocklin Road interchanges. Construction of the original I-80/SR 65 interchange and adjacent interchanges has reduced local access to Taylor Road, resulting in a strain on the local roadways, especially Eureka Road/Atlantic Street. Alternative 3 results in negative impacts to businesses with significant out-of-direction travel that is unacceptable to local agencies. Alternative 2 would solve this issue by maintaining the existing access to Taylor Road.

5D. No Build Alternative

The No Build alternative is the basis for comparison of the Build alternatives. It satisfies the statutory requirements under CEQA and NEPA for an alternative that does not include any new action or project beyond what is already committed. The No Project Alternative represents the state and local transportation system in its current state. It includes implementation of programs or projects projected in regional transportation plans that have identified funds for implementation and that are expected to be in place by 2040; it also reflects any major planned land use changes. The figure in Attachment H illustrates the existing transportation infrastructure that currently serves these major travel markets and the proposed projects planned for implementation within the project area by the year 2040.

The No Build alternative includes programs and projects identified in the SACOG financially constrained project list in the 2035 Metropolitan Transportation Plan/Sustainable Communities Strategy, (SACOG 2012) and input from the PDT regarding projects that would be built by the design year.

5E. Rejected Alternatives

A total of 22 concepts were developed and screened by the project development team. Four technical working group meetings were held to screen the concepts to balance the competing demands of design, environmental impact, cost, and function using the following criteria:

- Improve Freeway Operations
- Reduce Congestion
- Enhance Safety
- Preserve Access
- Consider Alternative Modes
- Maintain Consistency with Regional and local Plans (including phasing and funding)
- Minimize Community Impacts
- Minimize Adverse Environmental Impacts
- Maximize Cost Effectiveness

Concepts were ranked with a score of 0-5 with each criteria weighted equally. The screening process and details of each concept is summarized in the Alternatives Analysis Memo prepared in May of 2012.

The screening process resulted in three Build alternatives, the TSM, and the No-Build. The three Build Alternatives were:

1. Full Access Taylor Interchange – Diamond Shaped
2. Full Access Taylor Interchange – Trumpet Shaped
3. Taylor Road Interchange Eliminated

Through discussions with the PDT and feedback provided by Caltrans and FHWA, the Alternatives were modified to provide improved design features. Concerns with weaving distance and interchange spacing triggered several focus meetings with Caltrans, FHWA, local agencies, and the design team, resulting in changes to the Alternatives as well as the development of a new alternative proposing a collector-distributor system in the eastbound direction. Features from Alternatives 1 and 2 were combined to maximize the available weaving distance for a full access interchange alternative. On December 4, 2013, the PCTPA board approved moving forward with the five alternatives listed below, for analysis in the environmental document:

1. Taylor Road Full Access Interchange
2. Collector-Distributor System Ramps
3. Taylor Road Interchange Eliminated
4. Transportation System Management (TSM)
5. No-Build

Alternative 4 – Transportation system Management (TSM) was eliminated after further consideration. Alternative 4 proposed to manage the design year traffic volumes without increasing capacity or modifying the current interchange configurations and surrounding transportation facilities within the project area. The project footprint impacts would be significantly lower than with the Build alternatives; however, the TSM measures alone do no satisfy the purpose and need of the project. Several features identified for the TSM alternative have been incorporated into the Build alternatives as listed below:

Common to all Build Alternatives:

- Freeway auxiliary lanes in both directions between I-80 and the Galleria Boulevard/Stanford Ranch Road interchange
- Ramp widening for storage and HOV bypass lane on the southbound Galleria Boulevard/Stanford Ranch Road on-ramp

Alternative 1 TSM Features:

- Ramp widening for storage and HOV bypass lane on the westbound Taylor Road on-ramp
- Ramp widening for storage and HOV bypass lane on eastbound Taylor Road on-ramp

Alternative 2 TSM Features:

- Eastbound I-80 auxiliary lane between Douglas Boulevard interchange and Eureka Road/Atlantic Street interchange

Alternative 3 TSM Features:

- Eastbound auxiliary lane between Douglas Boulevard interchange and Eureka Road/Atlantic Street interchange
- Ramp widening for storage at the Eureka Road/Taylor Road intersection
- Ramp widening for storage at the East Roseville Parkway/Taylor Road intersection

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. Hazardous Waste

The following summarizes the hazardous waste evaluation conducted during the Initial Site Assessment (ISA). The complete ISA report is included in Attachment I.

Aerially Deposited Lead (ADL)

Sampling results indicate the average levels of lead found within the project limits studied are below the levels requiring regulatory action, and soils excavated from the surface to any depth up to 3-ft can be reused or disposed as non-hazardous soil with respect to lead content. An appropriate Lead Compliance Plan and Lead Awareness Training Plan must be prepared by the contractor to prevent or minimize exposure to lead.

Yellow and White Traffic Stripe

Due to potentially hazardous levels of lead and chromium in yellow and white color traffic paint and/or thermoplastic stripes, removal shall be removed and disposed of in accordance with the Caltrans Special Provision.

Asbestos Containing Materials (ACM) and Lead Based Paint (LBP)

The as-built plans for the bridges impacted by the project indicate no asbestos containing materials (ACMs) or Lead Based Paint (LBP) on the structures. However, utilities running through the utility openings may contain ACMs and it is recommended that a properly certified inspector survey the bridges for ACM and LBP.

Midwest Guardrail System (MGS) Wood Post

The contractor shall prepare and submit a safety and health work practices plan for handling treated wood waste approved by an ABIH Certified Industrial Hygienist. Treated wood waste must be disposed of in an approved treated wood waste facility.

Parcel Acquisitions

APN 015-162-007: Stonehouse Court—Review of historical aerial photography and fence line reconnaissance shows a residence at the end of Stonehouse Court. Real estate records indicate the home was built in 1928. Common issues associated with homes of this era include asbestos containing materials, lead based paints, leach fields, septic tanks, and heating oil tanks. Acquisition of this parcel should include a site inspection, owner interview, and county file review.

APN 015-162-005: Alta Sierra Body Shop/Venture Out Recreational Vehicles—This parcel is immediately adjacent to the project footprint. Records indicate six registered Underground Fuel Storage Tanks (USTs) exist at the site. The tanks were installed in 1971 and are listed as two 1,000 gallon unleaded gasoline tanks and four 1,000 gallon regular gasoline tanks. A gasoline release from a leaking underground storage tank (LUST) was discovered in 1990. No information on the quantity of release or corrective action was noted in the file. The release was listed as "soil only" and the case was closed in 1992. This parcel is adjacent to all three Build alternatives. Consequently, to reduce the potential of encountering unexpected contamination additional information should be obtained about the contamination history of this parcel and should include a site inspection, owner interview, and county file review.

APN 015-450-079: Roseville Golfland Sunsplash—A 1,000-gallon, aboveground fuel storage tank (AST) is located between the parking structure and the racetrack. The AST is stored within a spill containment area and risk of hazardous material impacts is low. If the project limits change and additional acquisition areas of the parcel are to occur, further assessment is recommended including a site inspection, owner interview, and county file review.

Utilities

Two power towers are planned to be relocated in the Golfland Sunsplash parking lot. Existing transformers should be checked for the presence of polychlorinatedbiphenyls (PCBs) or other hazardous materials by the utility owner, and if present, should be properly remediated and disposed. Identification and remediation of old transformers is the responsibility of the utility owner.

6B. Value Analysis

A five day value analysis workshop was held during the week of August 4, 2014 at the Caltrans Rocklin Field Office. The workshop was led by a certified value specialist and conducted through guidance published by the Society of American Value Engineers (SAVE) to efficiently provide resources to the project and make a contribution to its success. The value team was tasked to identify design concepts that were more cost-effective than the original proposal. The value team developed the following four VA alternatives:

1. VA Alternative No. R-1, Realign Secret Ravine, Eliminate Collector-Distributor Structure
2. VA Alternative No. R-2, Replace Transfer Ramp with Loop
3. VA Alternative No. S-1, Narrow Viaduct
4. VA Alternative No. S-2, Alternative Transpose South SR 65/I-80 Ramp

All four of the VA alternatives and three strategies were rejected and not implemented based on discussions held during the VA Implementation Meeting on October 15, 2014 as well as subsequent analysis provided to the meeting participants. A summary of the discussion can be found in the VA Implementation Meeting Minutes and a detailed summary of the VA Study can be found in the Final Value Analysis Study Report, November 2014 included in Attachment J.

6C. Resource Conservation

Features aimed at reducing wasteful, inefficient, and unnecessary consumption of energy and nonrenewable resources in construction, operations and maintenance of the project will be included wherever possible including: recycling the existing structural sections and concrete structures as aggregate base through provisions in the contract documents. Other measures include recycling the structural steel and other steel materials within the project limits, using concrete washout materials on the job site, not idling construction equipment and adding high occupancy vehicle lanes and HOV bypass lanes to encourage carpooling.

6D. Right of Way Issues

The existing right of way along the I-80 corridor within the project drove the viable alternatives presented in this report. Prohibitive costs associated with potential impacts to adjacent businesses, including hotels, resulted in several of the non-standard features in the alternatives. Standard lane and shoulder widths, stopping sight distance, and median width are not provided within the constrained right of way area for any of the Build alternatives in an attempt to avoid extensive and costly acquisitions. The Right of Way Data Sheets, figures, and spreadsheets included in Attachment K show the detailed costs associated with the various parcel impacts.

Railroads

The Build Alternatives would widen the existing East Roseville Viaduct over the Union Pacific Railroad tracks, requiring an encroachment permit from UPRR. For the next phase of the project, master agreements will need to be negotiated for Construction and Maintenance (i.e. C&M agreement) of structures over UPRR right of way.

Taylor Road is currently located within UPRR right of way and Placer County's easement. Limits of the proposed improvements would remain within Placer County's existing easement.

Utilities

The utility impacts described in Section 5 will require permanent relocation and right of way easements.

6E. Environmental Issues

The Draft Environmental Impact Report/Environmental Assessment has been prepared in accordance with Caltrans' environmental procedures, as well as State and federal environmental regulations. The attached Draft Environmental Impact Report/Environmental Assessment in Attachment L is the appropriate document for the proposal.

Wetlands

A wetland delineation was conducted encompassing approximately 490 acres, covering the project alternatives footprint plus a 100-foot-wide buffer zone. Table 6 below summaries the 6.651 acres of wetlands and other waters identified in the delineation area. A detailed summary of the wetland delineation can be found in the

Delineation of Potential Waters of the United States, Including Wetlands for the Interstate 80/State Route 65 Interchange Improvements Project, October 2014

Table 6. Summary of Potential Wetlands and Other Waters Identified in the Delineation Area	
Wetlands and Other Waters	Acreage in Delineation Area
Wetlands	
Riparian Forest/Shrub Wetland	1.210
Vernal Pool	0.528
Seasonal Wetland	0.276
Emergent Wetland	1.045
Wetlands Subtotal	*3.059*
Other Waters	
Perennial Stream	4.116
Intermittent Stream	0.258
Ephemeral Stream	0.080
Other Waters subtotal	*4.454*
Total	**7.513**

Floodplains

There are six waterways that flow through or along the Project's vicinity that may be impacted by the Project. Impervious area would be added within the project limits causing increased flows and impacts to the existing drainage patterns. The project would improve, replace or add storm drain systems to mitigate these changes to the existing drainage patterns. A detailed summary of the drainage impacts can be found in the Drainage Impact Summary Report, January 2015.

6F. Air Quality Conformity

The complete project (i.e., Phases 1 through 4) will be included in the regional emissions and conformity analysis for the upcoming 2036 MTP/SCS. Adoption and federal approval of the 2036 MTP/SCS is expected in early 2016, prior to the final environmental document for the project. Table 7 provides a summary of the impacts; avoidance, minimization, and/or measures; and significance conclusions discussed in the Air Quality Study Report, November 2014.

Table 7. Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures Associated with the Project		
Impact	Conclusions	Avoidance, Minimization, and/or Mitigation Measures
AQ-1: Conformity of the Regional Transportation Plan with the State Implementation Plan	Phase 1 of the project is listed in the 2035 MTP/SCS and the 2013-2016 MTIP Air Quality Conformity analysis. The complete project will be included in the regional emissions and conformity analysis for the upcoming 2036 MTP/SCS and 2015-2018 MTIP	None Required
AQ-2: Potential Violations of the Carbon Monoxide NAAQS or CAAQS	The Build Alternatives are note anticipated to exceed 1-or 8-hour CO NAAQS or CAAQS	None Required
AQ-3: Potential Violations of PM2.5, NAAQS, or CAAQS	Placer County is currently classified as a nonattainment area with regards to the federal PM2.5 NAAQS. However, due to minimal increases in AADT between the No Build and Build Alternatives, the project is determined not to a Project of Air Quality Concern.	None Required
AQ-4: Potential for Generation of Mobile Source Air Toxics (MSAT) Emissions	The project would result in incremental increases in MSATs under construction (2020) and design (2040) year conditions. Localized MSAT at highly trafficked intersections may also slightly increase.	None Required
AQ-5: Generation of Operation-Related Emissions of O_3 Precursors, Carbon Monoxide, and Particulate Matter	The project would result in minor increases in O_3 precursors, CO, PM10, and PM2.5 under construction (2020) and design (2040) year conditions. Emissions increases are a result of induced vehicle travel growth in VMT under Build Alternatives	None Required
AQ-6: Potential Temporary Increase in O_3 Precursors (ROG and NO_X), CO, and PM10 Emissions during Grading and Construction Activities	The project would result in temporary increases in O_3 precursors, CO, PM10, and PM2.5 during construction.	Addressed by construction related PM10 emission minimization measures in Caltrans Standard Specifications Section 14
AQ-7: Potential for Generation of Greenhouse Gas Containment Emissions	The project would result in minor increases to GHG emissions during construction and long-term operation Operational emissions increase are a result of induced vehicle travel and growth in VMT under the Build Alternatives	Please review the section Greenhouse Gas Reduced Strategies in Chapter 3 of the Air Quality Study Report, November 2014

6G. Title VI Considerations

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have been included in this project. Caltrans' commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director.

6H. Noise Abatement Decision Report

This section represents the Noise Abatement Decision Report (NADR) which:

- Is an evaluation of the reasonableness and feasibility of incorporating noise abatement measures into this project;
- Constitutes the preliminary decision on noise abatement measures to be incorporated into the Draft Environmental Document; and
- Is required for Caltrans to meet the conditions of Title 23 Code of Federal Regulations, Part 772 in accordance with the Federal Highway Administration noise standards.

The noise abatement decision report does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best available information at the time the draft environmental document is published. If a project is subject to federal review, but does not have a circulated environmental document, the noise abatement decision report section documents the final noise abatement decision.

The noise abatement decision report does not address noise barriers or other noise reducing treatments required as mitigation for significant adverse environmental effects identified under CEQA.

Modeling results in the NSR indicate that a substantial increase in noise levels over existing conditions is not predicted under any of the build alternatives. Predicted traffic noise levels for design-year with-project conditions approach or exceed NAC of 67 dBA-L_{eq} (h) for Activity Category B and Activity Category C land uses; therefore, traffic noise impacts are predicted to occur and noise abatement was considered. Tables 8 through 15 below summarize the eight barriers and their calculated noise reduction and reasonable allowances for each barrier. Detailed results and a summary of the cost reasonableness of evaluated barriers are provided in the Noise Study Report, May 2015 and the Noise Abatement Decision Report, May 2015.

Table 8. Summary of Reasonableness Determination Data—Noise Barrier A (I-80 Eastbound off-ramp to Atlantic Street STA 3+40 to STA 12+10)						
Location: Olympus Pointe Sculpture Park, Roseville						
Predicted Sound Level without Barrier						
Design year noise level, dBA L_{eq}(h): 67 dBA (Alternatives 1–3)						
Design year noise level minus existing noise level: 1 dBA						
Design Year with Barrier	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**	**16-Foot Barrier**	**18-Foot Barrier**	**20-Foot Barrier**
Barrier noise reduction, dB	2	4	5	5	6	6
Barrier design goal met?	No	No	No	No	No	No
Number of benefited receivers	0	0	1	1	1	1
Reasonable allowance per benefited receiver	$64,000	$64,000	$64,000	$64,000	$64,000	$64,000
Total reasonable allowance	$0	$0	$64,000	$64,000	$64,000	$64,000

Table 9. Summary of Reasonableness Determination Data—Noise Barrier B (I-80 Eastbound STA 84+00 to STA 87+70)					
Location: Golfland miniature golf course, Roseville					
Predicted Sound Level without Barrier					
Design year noise level, dBA L_{eq}(h): 68 dBA (Alternatives 1–3)					
Design year noise level minus existing noise level: 2 dBA					
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**	**16-Foot Barrier**
Barrier noise reduction, dB	5	5	6	6	7
Barrier design goal met?	No	No	No	No	Yes
Number of benefited receivers	1	1	1	1	1
Reasonable allowance per benefited residence	$64,000	$64,000	$64,000	$64,000	$64,000
Total reasonable allowance	$64,000	$64,000	$64,000	$64,000	$64,000

Table 10. Summary of Reasonableness Determination Data—Noise Barrier C (I-80 Eastbound STA 175+50 to STA 193+30)					
Location: Rustic Hills Drive, Rocklin					
Predicted Sound Level without Barrier					
Design year noise level, dBA L_{eq}(h): 72 dBA (Alternatives 1–3)					
Design year noise level minus existing noise level: 2 dBA					
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**	**16-Foot Barrier**
Barrier noise reduction, dB	5	6	8	9	9
Barrier design goal met?	No	No	Yes	Yes	Yes
Number of benefited receivers	2	4	7	10	10
Reasonable allowance per benefited residence	$64,000	$64,000	$64,000	$64,000	$64,000
Total reasonable allowance	$128,000	$256,000	$448,000	$640,000	$640,000

Table 11. Summary of Reasonableness Determination Data—Noise Barrier D (I-80 Westbound STA 186+80 to 201+00)					
Location: Rocklin Mobile Home Park					
Predicted Sound Level without Barrier					
Design year noise level, dBA L_{eq}(h): 78 dBA (Alternatives 1–3)					
Design year noise level minus existing noise level: 2 dBA					
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**	**16-Foot Barrier**
Barrier noise reduction, dB	3	5	7	10	11
Barrier design goal met?	No	No	Yes	Yes	Yes
Number of benefited receivers	0	4	13	13	20
Reasonable allowance per benefited residence	$64,000	$64,000	$64,000	$64,000	$64,000
Total reasonable allowance	$0	$256,000	$832,000	$832,000	$1,280,000

Table 12. Summary of Reasonableness Determination Data—Noise Barrier E (SR 65 Northbound STA 133+00 to 151+70)				
Location: North of SR 65, east of Stanford Ranch Road				
Predicted Sound Level without Barrier				
Design year noise level, dBA L_{eq}(h): 69 dBA (Alternatives 2 and 3); 67 dBA (Alternative 1)				
Design year noise level minus existing noise level: 4 dBA				
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**
Barrier noise reduction, dB	6	7	7	8
Barrier design goal met?	No	Yes	Yes	Yes
Number of benefited receivers	235	250	263	279
Reasonable allowance per benefited residence	$64,000	$64,000	$64,000	$64,000
Total reasonable allowance	$15,040,000	$16,000,000	$16,832,000	$17,856,000

Table 13. Summary of Reasonableness Determination Data—Noise Barrier F (SR 65 Northbound STA 151+70 to STA 161+20)						
Location: Destiny Christian Church						
Predicted Sound Level without Barrier						
Design year noise level, dBA L_{eq}(h): 71 dBA (Alternatives 1-3)						
Design year noise level minus existing noise level: 2 dBA						
Design Year with Barrier	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**	**16-Foot Barrier**	**18-Foot Barrier**	**20-Foot Barrier**
Barrier noise reduction, dB	3	4	5	5	6	6
Barrier design goal met?	No	No	No	No	No	No
Number of benefited receivers	0	0	1	1	1	1
Reasonable allowance per benefited residence	$64,000	$64,000	$64,000	$64,000	$64,000	$64,000
Total Reasonable Allowance	$0	$0	$64,000	$64,000	$64,000	$64,000

Table 14. Summary of Reasonableness Determination Data—Noise Barrier G (SR 65 Southbound STA 130+00 to STA 151+00)				
Location: South of SR 65, east of Stanford Ranch Road				
Predicted Sound Level without Barrier				
Design year noise level, dBA L_{eq}(h): 74 dBA (Alternatives 2 and 3); 73 dBA (Alternative 1)				
Design year noise level minus existing noise level: 4 dBA				
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**
Barrier noise reduction, db	6	7	7	8
Barrier design goal met?	No	Yes	Yes	Yes
Number of benefited receivers	128	128	128	128
Reasonable allowance per benefited residence	$64,000	$64,000	$64,000	$64,000
Total reasonable allowance	$8,192,000	$8,192,000	$8,192,000	$8,192,000

Table 15. Summary of Reasonableness Determination Data—Noise Barrier H (I-80 Westbound STA 8+00 to STA 16+60)					
Location: John Adams Academy, Harding Boulevard					
Predicted Sound Level without Barrier					
Design year noise level, dBA L_{eq}(h): 69 dBA (Alternatives 1–3)					
Design year noise level minus existing noise level: 2 dBA					
Design Year with Barrier	**8-Foot Barrier**	**10-Foot Barrier**	**12-Foot Barrier**	**14-Foot Barrier**	**16-Foot Barrier**
Barrier noise reduction, dB	4	5	7	8	8
Barrier design goal met?	No	No	Yes	Yes	Yes
Number of benefited receivers	0	1	1	1	1
Reasonable allowance per benefited residence	$64,000	$64,000	$64,000	$64,000	$64,000
Total reasonable allowance	$0	$64,000	$64,000	$64,000	$64,000

7. OTHER CONSIDERATIONS AS APPROPRIATE

7A. Public Hearing Process

The Draft EIR/EA was circulated for public review and comments in August of 2015. All comments received during the public review period of the Draft EIR/EA were responded and incorporated into the Final EIR/EA. See Section 3, Community Interaction, for information related to public outreach.

7B. Route Matters

Alternative 1 proposes new connections to Interstate 80 at the Taylor Road Interchange. Alternative 2 modifies access near at the Eureka interchange and near the system interchange. Alternative 3 proposes to remove the existing Taylor Road Interchange Ramps. A Change of Access Report will be completed for FHWA review.

7C. Permits

The permits and coordination listed in Table 16 would likely be required for the project.

Table 16. Permits and Approvals Needed

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Coordination and Section 7 consultation regarding threatened and endangered species Amendment to City of Roseville Open Space Preserve Overarching Management Plan	Not yet initiated
National Marine Fisheries Service	Coordination and Section 7 consultation regarding threatened and endangered species	Informal consultation/ technical assistance initiated August 2014
U.S. Army Corps of Engineers	Section 404 authorization for fill of waters of the United States	Not yet initiated
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement	Not yet initiated
Central Valley Regional Water Quality Control Board	Section 401 Water Quality Certification and coverage under the existing Caltrans National Pollutant Discharge Elimination System Permit (Order No. 00-06-DWQ)	Not yet initiated
Placer County Air Pollution Control District	Formal notification prior to construction	Not yet initiated

7D. Cooperative Agreements

The project is a PCTPA lead effort. An existing cooperative agreement between PCTPA and Caltrans was executed on September 9, 2010 and covers Project Approval and Environmental Document (PA&ED) efforts. Cooperative Agreements for Plans, Specifications, and Estimate (PS&E), right of way, and construction will be executed prior to each phase.

Any additional cooperative agreements required will be in place as needed prior to construction.

7E. Transportation Management Plan for Use during Construction

Consistent with District policy and procedures, the design and construction of the project, especially staging and traffic control systems, will be coordinated closely with District Traffic Manager (DTM) and District Transportation Management Plan (TMP) coordinators. It is also anticipated that there will be a Construction Zone Enhanced Enforcement Program (COZEEEP) in place as part of traffic management during construction, including setting and removals of K-rails.

This project cannot be constructed without some impact to traffic during construction, primarily due to driver curiosity, temporary lane closures and/or transitions for falsework erection and removal, and ramp conform work; however, impacts can be reduced with a well-planned stage construction/traffic handling plan and aggressive public awareness during construction. Temporary railing (Type K) will be used to separate construction zones from traffic. Some work-period lane closures will be

required (i.e. for removal of existing and addition of temporary pavement delineation, setting temporary railing (Type K), pavement conforms, and bridge construction, dependent upon the alternative).

A TMP memo is included in Attachment M, serving as an update to the transportation management plan and data sheet included in the PSR approved 2009. The general description of construction phasing are discussed below. Each phase may have sub-phases and will be dependent on funding.

7F. Stage Construction

Phase 1 – SR 65: Widen the East Roseville Viaduct and perform widening along SR 65. Reconfigure Galleria Boulevard/Stanford Ranch Road and Pleasant Grove Boulevard interchange ramps to accommodate the widening.

Phase 2 – Southbound to Eastbound and Eastbound to Northbound Connector Ramps: Construct the southbound SR 65 to eastbound I-80 connector ramp, shift traffic onto the new connector to allow removal of the existing southbound SR 65 to eastbound I-80 connector.

Construct eastbound I-80 to northbound SR 65 connector ramp with temporary conforms to eastbound I-80.

Shift traffic onto the new flyover to remove the existing eastbound I-80 to northbound SR 65 loop connector ramp and structure.

Phase 3 – I-80 Mainline:

Construct the new Taylor Road Overcrossing in two stages and temporary conforms to maintain the existing ramp access. Shift traffic onto first half of the new bridge to demo the existing overcrossing. Construct the second stage of the bridge.

Perform I-80 mainline and widening and southbound SR 65 to westbound I-80 connector ramp.

Reconfigure Eureka Road/Atlantic Street Interchange ramps to accommodate the widening. Perform Taylor Road and ramp improvements as applicable.

Phase 4 – HOV Connector:

Construct the HOV direct connector ramp and conform to the future SR 65 Capacity and Operational Improvements Project.

Phase 1

Phase 1 Traffic Analysis:

A Phase 1 traffic operations analysis was performed and shows that the improvements will improve network-wide traffic operations to reduce freeway congestion compared to No Build conditions. Without the Phase 1 Alternative, existing vehicle hours of delay (VHD) will increase by over 300 percent during the AM peak period and almost 600 percent during the PM peak period by 2020. The Phase 1 Alternative will reduce these delays while also increasing the total number of persons able to travel through the study area during these periods. While this information demonstrates the effectiveness of the Phase 1 Alternative, some bottlenecks remain in the study area

that will adversely affect peak period traffic operations because this alternative only includes a portion of the larger capacity expansion project. The Phase 1 Traffic Analysis Memo is included in Attachment M.

Phase 1 Improvements

A conceptual Phase 1 layout was developed and is included in Attachment M. Improvements would include:

- Eliminate the merge between the EN and WN connectors
- Add a third northbound lane along the outside of SR 65 from the WN connector to the existing partial auxiliary lane just south of the northbound Pleasant Grove off-ramp
- Construct entire northbound outside viaduct widening to provide third lane and over-wide outside shoulder
- Temporary reconfiguration of northbound Galleria Boulevard/Stanford Ranch Road ramps to accommodate the widening
- Construct a third lane on southbound SR 65 from the Pleasant Grove Boulevard loop on-ramp connecting to the existing third lane near the Galleria Boulevard/Stanford Ranch Road overcrossing.
- Temporary reconfiguration of southbound Pleasant Grove Boulevard slip on-ramp to accommodate the widening

The proposed improvements would require lane shifts but would be constructed within the existing right of way limits. Inside widening would not be required for the Phase 1 improvements. Caltrans and PCTPA are currently coordinating to construct Phase 1A, which would include a third lane on northbound SR 65 from I-80 over the East Roseville Viaduct to Galleria Boulevard/Stanford Ranch Road. Subsequent phases (i.e. Phase 1B, etc.) would be constructed based on funding availability.

7G. Accommodation of Oversize Loads

The segment of I-80 and SR 65 within the project limits will maintain minimum required height capabilities during freeway operating hours through the duration of the project.

7H. Graffiti Control

Placer County is not considered a graffiti-prone area and no special measures need be taken on this project.

7I. Stormwater Quality

The project has been identified as Risk Level 2 with an anticipated disturbed soil area of 165 acres. Additional information regarding stormwater, including potential BMPs can be found in the Stormwater Data Report in Attachment N.

7J. Landscape Architecture

The landscape architecture assessment sheet is included in Attachment O. Because this is a capacity increasing project, landscaping is warranted. Caltrans reviewed the proposed impacts, evaluated for erosion control, and provided preliminary costs for

highway planting, erosion control, mitigation planting, design for roadside maintenance safety, design for roadside vegetation management treatment, and aesthetic treatment required by the project. Project phasing will be considered to minimize redundant landscaping work during each phase.

8. FUNDING/PROGRAMMING

This project is planned to be funded as a minimum of two separate projects. Phase 1 of the project is currently funded with a combination of National Corridor Infrastructure Improvement Program funds, savings from the I-80 Bottleneck Project in Roseville, and local dollars. PCTPA and Caltrans are currently coordinating to fund design, right of way, and construction for the Phase 1A project which will address a high accident concentration on I-80 by constructing an auxiliary lane between the westbound I-80 connector to northbound SR 65 and the Galleria Boulevard/Stanford Ranch Road interchange northbound ramps. Full funding for Phase 1 and subsequent phases is anticipated based on a Placer County transportation sales tax measure planned for 2016, as well as other available state and federal funding. As a contingency plan for Phase 1A, PCTPA would program an additional $8.3 million in I-80 Bottleneck savings, on top of the $3.9 million in I-80 Bottleneck savings already programmed to complete the Project Approval and Environmental Documents (PA&ED) for the entire interchange modification project. Caltrans contribution would consist of $15.20 million in State Highway Operation and Protection Program (SHOPP) funds and $6.5 million in capital outlay support. The balance of local funds required would come from the South Placer Regional Transportation Authority (SPRTA) fee program. Tables 17 through 19 summarize the Phase 1A programming.

Funding is currently not identified for the remaining project phases. The unfunded need is being programmed as part of the 2036 MTP/SCS updated.

It has been determined that this project is eligible for federal-aid funding.

Capital Outlay Support and Project Estimates

Table 17. Phase 1A National Corridor Infrastructure (I-80 Bottleneck) Programming

Fund Source	Fiscal Year Estimate							
National Corridor Infrastructure	Prior	2014/15	2015/16	2016/17	2017/18	2018/19	Future	Total
Component	In thousands of dollars ($1,000)							
PA&ED	*3,900							3,900
PS&E								
Right of Way Support								
Construction Support				1,000				1,000
Right of Way			350					350
Construction				6,950				6,950
Total	3,900		350	7,950				12,200

*Note that this $3.900 million represents PCTPA expenditure for PA&ED for entire interchange modification project.

Table 18. Phase 1A SHOPP Programming								
Fund Source	Fiscal Year Estimate							
SHOPP	Prior	2014/15	2015/16	2016/17	2017/18	2018/19	Future	Total
Component	In thousands of dollars ($1,000)							
PA&ED Support		1,100						1,100
PS&E Support			2,500					2,500
PS&E								
Right of Way Support			300					300
Construction Support				2,600				2,600
Right of Way			150					150
Construction				15,050				15,050
Total		1,100	2,950	17,650				21,700

Table 19. Phase 1A Local Fund Programming								
Fund Source	Fiscal Year Estimate							
Local Funds	Prior	2014/15	2015/16	2016/17	2017/18	2018/19	Future	Total
Component	In thousands of dollars ($1,000)							
PA&ED								
PS&E								
Right of Way Support								
Construction Support								
Right of Way								
Construction				2,950				2,950
Total				2,950				2,950

Excluding the $3.9 million for PA&ED that covered the entire interchange modification, the support cost ratio for Phase 1A is 29.47%.

9. SCHEDULE

Project Milestones		Scheduled Delivery Date (Month/Day/Year)
PROGRAM PROJECT	M015	07/20/2010
BEGIN ENVIRONMENTAL	M020	08/24/2011
NOTICE OF PREPARATION (NOP)	M030	01/02/2013
CIRCULATE DPR & DED EXTERNALLY	M120	07/27/2015
PA & ED	M200	09/01/2016
*DRAFT STRUCTURES PS&E	M378	10/30/2016
*PROJECT PS&E	M380	01/31/2017
*RIGHT OF WAY CERTIFICATION	M410	02/28/2017
*READY TO LIST	M460	03/31/2017
*AWARD	M495	08/31/2017
*APPROVE CONTRACT	M500	10/02/2017
*CONTRACT ACCEPTANCE	M600	03/01/2020
*END PROJECT	M800	03/01/2022

* Schedule listed for first construction package. Complete scope expected to be completed by 2035 if funding becomes available as currently anticipated.

10. RISKS

A total of 18 risks have been identified in the project risk management plan and vary among design, project management, and environmental functions that could have an effect on scope, schedule, and cost. The risk register is included in Attachment PP.

11. FHWA COORDINATION

This project is considered to be a High Profile Project (HPP) in accordance with the current Federal Highway Administration (FHWA) and Department of Transportation (Caltrans) Joint Stewardship and Oversight Agreement. FHWA is actively participating on the Project Development Team

12. PROJECT REVIEWS

District Program Advisor N/A. Local Capital Outlay Project		Date N/A
District Maintenance	*A. Brandt*	Date 03/16/2015
Headquarters Design Coordinator	*Jim Deluca*	Date 03/16/2015
Project Manager	*Wayne Lewis*	Date 03/16/2015
FHWA	*Cesar Perez*	Date 03/16/2015
District 3 TMP, Signing, and Striping	Narayan Selwal	Date 03/02/2015
District Landscape Architect	*T. Chris Johnson*	Date 04/30/2015
Design	*W. Keith Mack*	Date 03/16/2015
Design	*Kookjoon Ahn*	Date 1/27/2015

13. PROJECT PERSONNEL

Caltrans District 3

Samuel Jordan, P.E., Caltrans Project Manager
Wayne A. Lewis, P.E., Caltrans Project Manager
Jim DeLuca, P.E., Caltrans Headquarters
Timothy B. Sobelman, Caltrans Headquarters
Heidi Sykes, P.E., Caltrans Headquarters
Scott Mann, P.E., Caltrans District 3 Design
W. Keith Mack, P.E., Caltrans District 3 Design
Gina Lopez, P.E., Caltrans District 3 Design
Kendall Schinke, Caltrans North Region Environmental
Ken Lastufka, Caltrans North Region Environmental
Jim Calkins, P.E., Caltrans District 3 Traffic Operations
Christine Zdunkiewicz, P.E., Caltrans District 3 Traffic Operations
D. Mike Smith, P.E., Caltrans District 3 Traffic Operations
Carl Berexa, P.E., Caltrans District 3 Construction

PCTPA

Celia McAdam, AICP, PCTPA Executive Director
Luke McNeel-Caird, P.E., PCTPA Project Manager

Consultant Staff

Leonard Heuston, P.E., Consultant (CH2M HILL) Project Manager
Chris Benson, P.E., Consultant (CH2M HILL) Deputy Project Manager
Lauren Proctor, P.E., Consultant (CH2M HILL) Project Engineer

14. ATTACHMENTS

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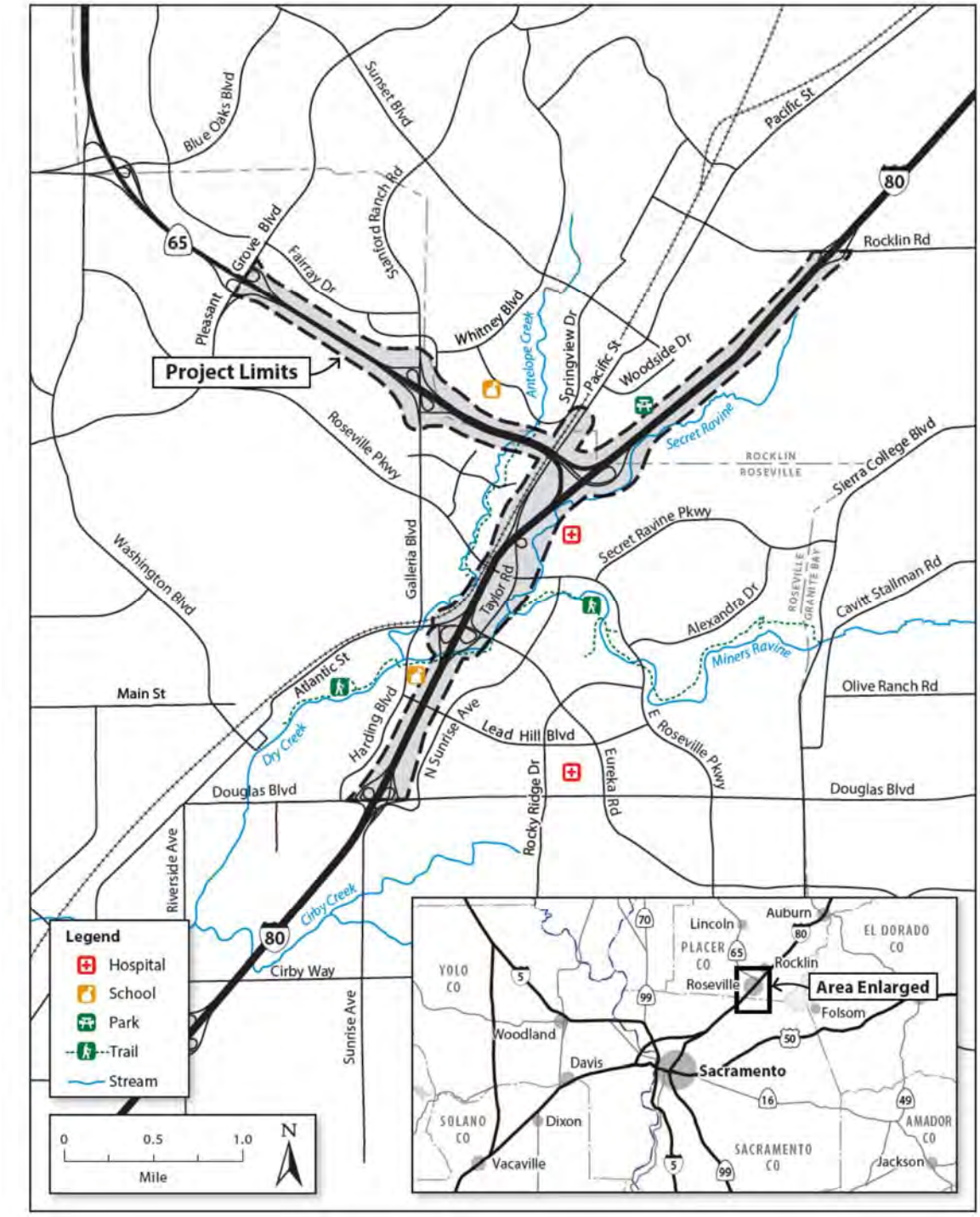
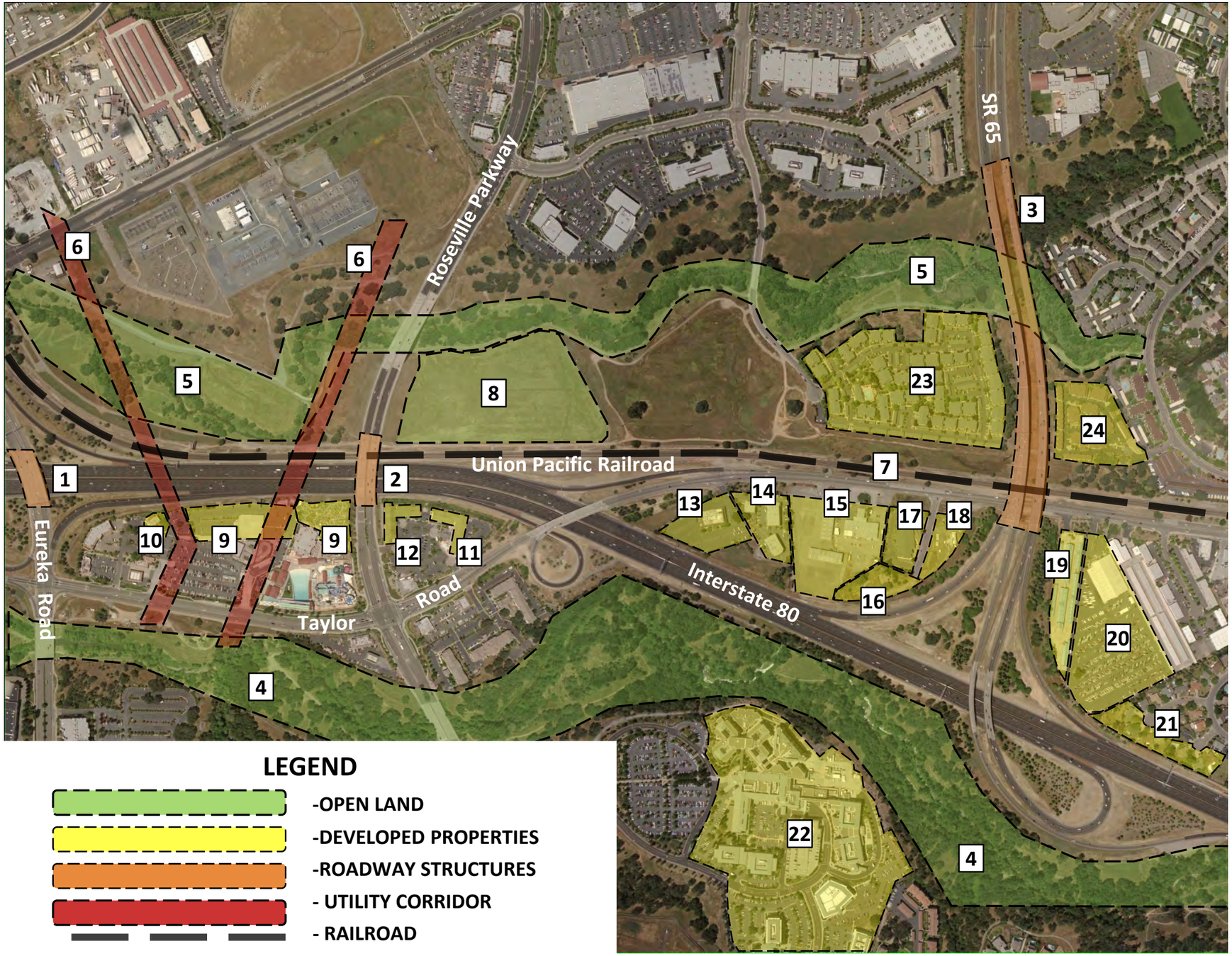
Attachment B – Constraints Map
Attachment C – Transportation Analysis Reports
Attachment D – Viable Alternatives Exhibits
Attachment E – Advance Planning Studies
Attachment F – Preliminary Cost Estimates
Attachment G – Exceptions to Design Standards
Attachment H – 2040 Planned Projects
Attachment I – Initial Site Assessment
Attachment J – Value Analysis
Attachment K – Right of Way
Attachment L –Environmental Document
Attachment M – Transportation Management Plan, Phase 1 Exhibit, Phase 1 Analysis Memo
Attachment N –Stormwater Data Report
Attachment O –Landscape Architecture Assessment Sheet
Attachment P – Risk Register

Attachment A
Location Map

Project Location Map



Attachment B
Constraints Map



LOCATION

1 - Eureka Rd Overcrossing
2 - Roseville Parkway Overcrossing
3 - East Roseville Viaduct
4 - Miners/Secret Ravine
5 - Antelope Creek
6 - Power transmission facilities
7 - Union Pacific Railroad
8 - Existing landfill
9 - Golfland Sunsplash
10 - Brookfield's Restaurant
11 - Hilton Garden Inn
12 – Larkspur Landing
13 - Cattlemens Restaurant
14 - Roseville Yamaha
15 - Enterprise Rental Car and Sierra Auto
16 - The Stonehouse
17 - Church building
18 - Miscellaneous buildings (2)
19 - Taylor Road Self Storage
20 - Future Ford
21 - Residential properties
22 - Sutter Roseville Medical Center
23 - Preserve at Creekside
24 - Hearthstone Townhomes

LEGEND

-OPEN LAND
-DEVELOPED PROPERTIES
-ROADWAY STRUCTURES
- UTILITY CORRIDOR
- RAILROAD

Placer County Transportation Planning Agency
U. S. Department of Transportation Federal Highway Administration
Caltrans
City of Lincoln
City of Rocklin California
City of Roseville California

INTERCHANGE IMPROVEMENTS
65
80

Attachment C
Transportation Analysis Report

I-80/SR 65 Interchange Improvements

Transportation Analysis Report

Placer County, CA

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

August 2014

Caltrans

PLACER COUNTY
TRANSPORTATION
PLANNING AGENCY

Transportation Analysis Report

I-80/SR 65 Interchange Improvements

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

August 2014

Prepared By: David Stanek, PE
Katie Jackson, PE
Ronald T. Milam, AICP, PTP

Date: August 15, 2014

Phone Number 916-773-1900
Firm Name Fehr & Peers
Location Roseville, CA

Planning
Approved By: _____ Date: 9/10/14

Name Nicholas Deal
Title Senior Transportation Planner
Phone Number 530-741-5151
Office Name Travel Forecasting & Modeling
District/Region District 3

Traffic Operations
Approved By: _____ Date: _____

Name _____
Title _____
Phone Number _____
Office Name _____
District/Region _____

Transportation Analysis Report

I-80/SR 65 Interchange Improvements

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

August 2014

Prepared By: David Stanek, PE
Katie Jackson, PE
Ronald T. Milam, AICP, PTP

Date: August 15, 2014

Phone Number 916-773-1900
Firm Name Fehr & Peers
Location Roseville, CA

Planning
Approved By: _____ Date: _____

Name _____
Title _____
Phone Number _____
Office Name _____
District/Region _____

Traffic Operations
Approved By: Date: September 10, 2014

Name Jim Calkins
Title Chief, Sac Ops
Phone Number (916) 859-7940
Office Name Freeway Operations, Sacramento
District/Region D-3/North Region

Transportation Analysis Report

I-80/SR 65 Interchange Improvements

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

August 2014

This report was prepared under my direction and responsible charge. I attest to the technical information contained herein and have judged the qualification of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.

David Stanek 8/15/14

David Stanek, P.E. Date
Registered Professional Civil Engineer
Fehr & Peers

RS11-2872

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Chapter 1. Introduction

This transportation analysis report was prepared for the Interstate 80 (I-80)/State Route 65 (SR 65) interchange improvements project. The report contains the results and findings of the traffic forecasts and traffic operation analysis, while the detailed analysis calculations are compiled in the separately bound Technical Appendix.

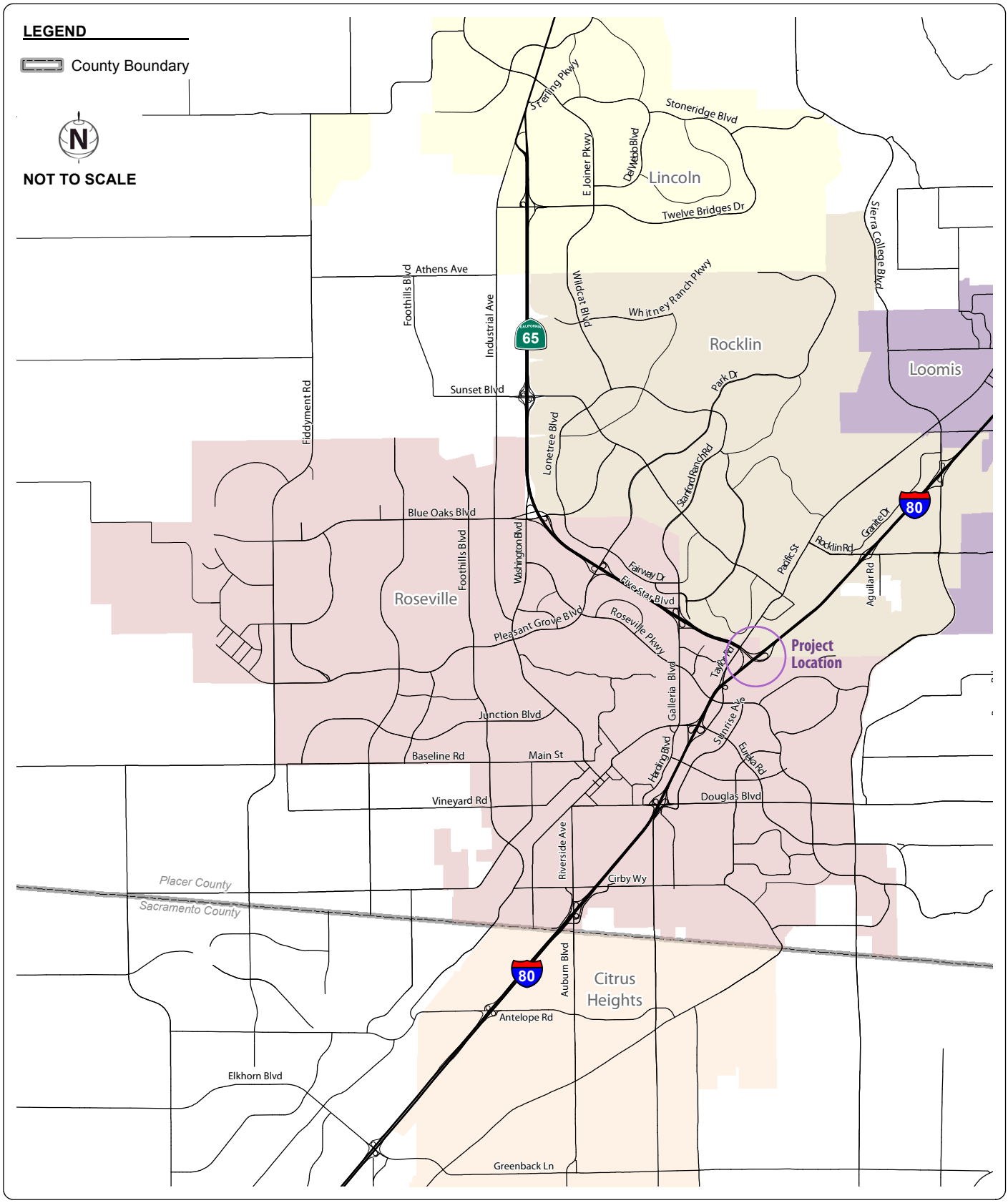
1.1. Purpose of the Transportation Analysis Report

The purpose of this report is to analyze project design alternatives and their effects on the highway and arterial transportation network. The report focuses on a comparison of alternatives that are each designed to improve future traffic operations and safety at the I-80/SR 65 interchange consistent with the purpose and need statement. Portions of the analysis results will also be used to comply with environmental impact analysis requirements for the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

1.2. Project Description

The proposed project is located at the I-80/SR 65 freeway-to-freeway interchange in Placer County. Figure 1 shows the project vicinity and location map. The project would increase capacity at the interchange with the following actions.

- Replace the eastbound I-80 to northbound SR 65 two-lane loop off-ramp with a three-lane direct flyover ramp.
- Construct new median direct connectors from eastbound I-80 to northbound SR 65 and from southbound SR 65 to westbound I-80. The median connectors would be restricted to high occupancy vehicles (HOVs) – vehicles with two or more occupants, motorcycles, or registered "Clean Air Vehicles" – during the AM and PM peak periods (weekdays 6:00 to 10:00 AM and 3:00 to 7:00 PM) to conform to HOV lane operation elsewhere in the Sacramento region. During off-peak times, the HOV lane would be available to all vehicles (except commercial trucks, which are restricted to the outside lanes).
- Widen the southbound SR 65 connector to westbound I-80 to three lanes, widen the southbound SR 65 connector to eastbound I-80 to two lanes, and widen the westbound I-80 connector to northbound SR 65 to two lanes.
- Taylor Road would be widened to four lanes from Roseville Parkway to the Rocklin city limits.



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PROJECT VICINITY

FIGURE 1

Widening or expansion of the adjacent freeway mainline segments and interchanges would be needed to facilitate some of these changes.

1.3. **Project Purpose and Need**

The current purpose and need statement for the I-80/SR 65 interchange improvements project is provided below.

The purpose and objectives of the project are listed below:

- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to reduce no-build traffic congestion.
- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to comply with current Caltrans and local agency design standards for safer and more efficient traffic operations while maintaining and, if feasible, improving the current level of community access, at a minimum.
- Consider all travel modes and users in developing project alternatives.

The project is needed for the following reasons:

- Recurring morning and evening peak-period demand exceeds the current design capacity of the I-80/SR 65 interchange and adjacent transportation facilities, creating traffic operations and safety issues. These issues result in high delays, wasted fuel, and excessive air pollution and greenhouse gas emissions, all of which will be exacerbated by traffic from future population and employment growth.
- Interchange design features do not comply with current Caltrans design standards for safe and efficient traffic operations and limit existing community access to nearby uses.
- Travel choices are limited in the project area because the transportation network does not include facilities for all modes and users consistent with the complete streets policies of Caltrans and local agencies.

1.3.1. Logical Termini and Independent Utility

Project limits for proposed improvements were developed through an iterative process involving engineering design and traffic operations analysis. Preliminary design concepts were tested with the traffic operations analysis model to evaluate how lane transitions and weaving influenced peak hour conditions. Refinements were made to ensure that mainline lane balance was logical and that transitions did not cause unacceptable traffic operations such as extensive queuing or reduced speeds.

1.4. **Project Alternatives**

The concept presented in the PSR replaced the eastbound to northbound loop ramp with a flyover ramp and added median HOV ramps from eastbound to northbound and southbound to westbound. Through an alternative generation and screening process, the project development team (PDT) developed and reviewed several alternatives. The final set of alternatives is listed below.

1. Taylor Road Full Access Interchange
2. Collector-Distributor System Ramps
3. Taylor Road Interchange Eliminated
4. Transportation System Management (TSM)
5. No Build

Each of the alternatives is described below.

The Taylor Road Full Access Interchange Alternative includes the I-80/SR 65 interchange expansion with a new Taylor Road interchange that has all four movements to and from I-80. A detailed drawing of this alternative is shown in Figure 2. The Taylor Road interchange would be co-located with the I-80/SR 65 interchange. The ramp connections to eastbound I-80 would be in approximately the same location as the existing SR 65 connector ramps. The westbound ramps would have a Tight Diamond configuration. To fit the Taylor Road ramps within the I-80/SR 65 interchange requires adjusting the location of the freeway-to-freeway connectors compared to the Collector-Distributor System Ramps and Taylor Road Interchange Eliminated Alternatives. Due to the close ramp spacing, traffic to and from the Eureka Road/Atlantic Street interchange on I-80 and the Galleria Boulevard/Stanford Ranch Road interchange on SR 65 would be prohibited from using the HOV direct connector ramps at the I-80/SR 65 interchange.

Figure 3 shows the Collector-Distributor System Ramps Alternative. In this alternative, the existing Taylor Road ramps are maintained. In the eastbound direction, a collector-distributor roadway would be constructed between the Eureka Road/Atlantic Street, Taylor Road, and SR 65 interchanges. The eastbound to northbound connector would start as two lanes at the I-80 mainline and a third lane would be added from the collector-distributor roadway. On-ramp traffic from Eureka Road/Atlantic Street would join the eastbound mainline between the SR 65 off-ramp and on-ramp connectors. In the westbound direction, the Taylor Road on-ramp would be maintained in its existing location.

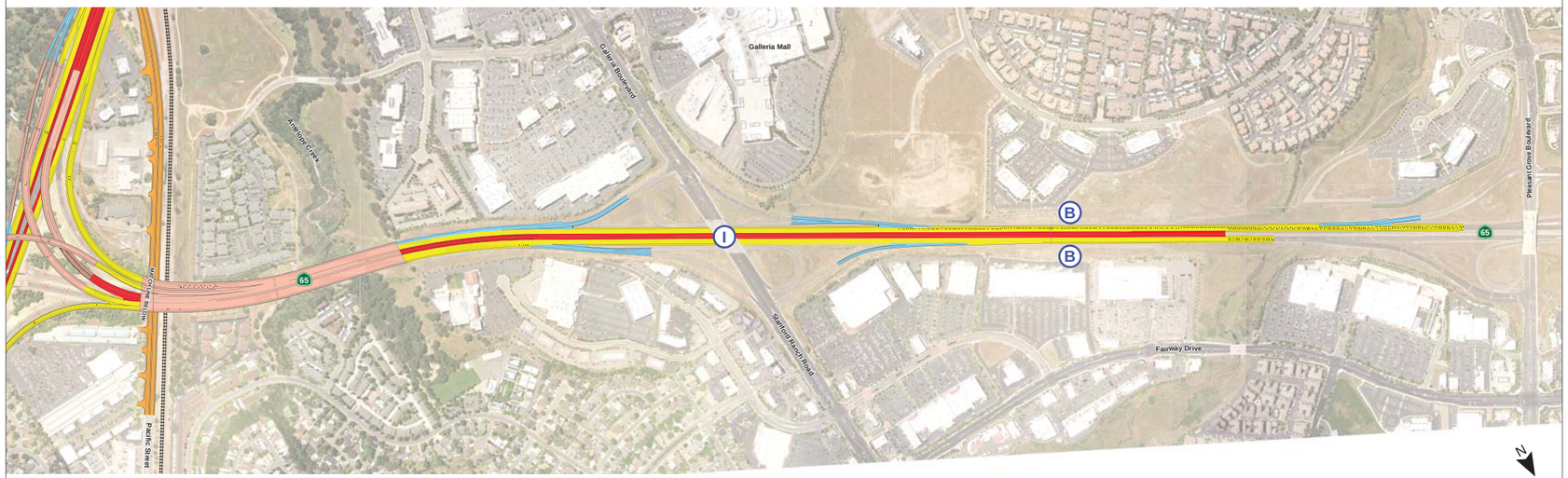
Alternative 1 Improvements:

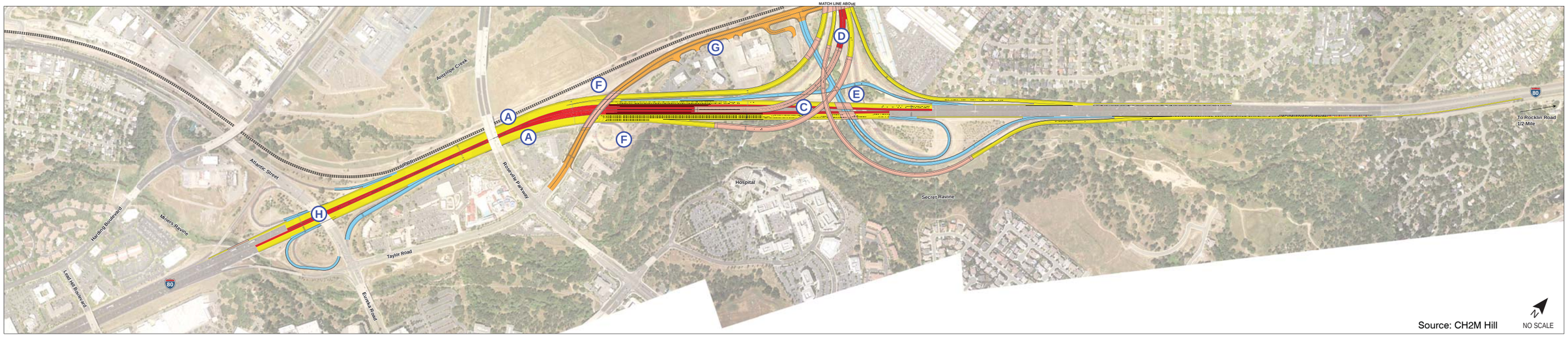
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 - add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange – add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Add a full access local interchange connection for I-80/Taylor Road
- (F) Remove existing I-80/Taylor Road ramp connections
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/ Stanford Ranch Road Interchange

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





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TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)

FIGURE 2

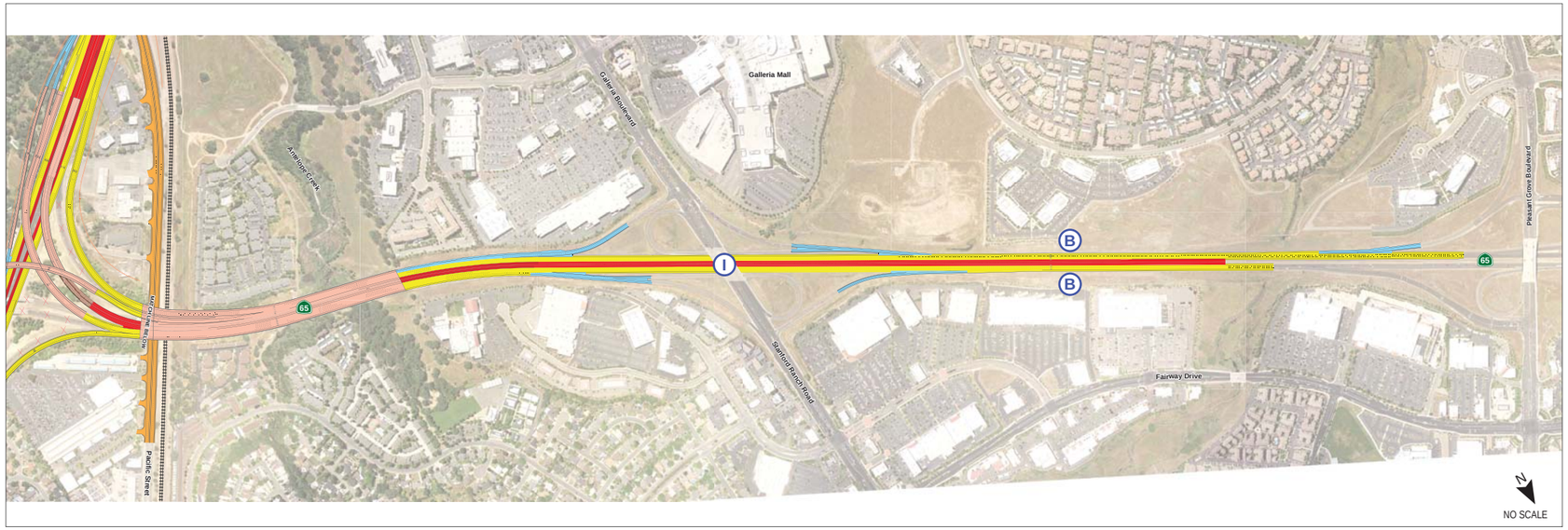
Alternative 2 Improvements:

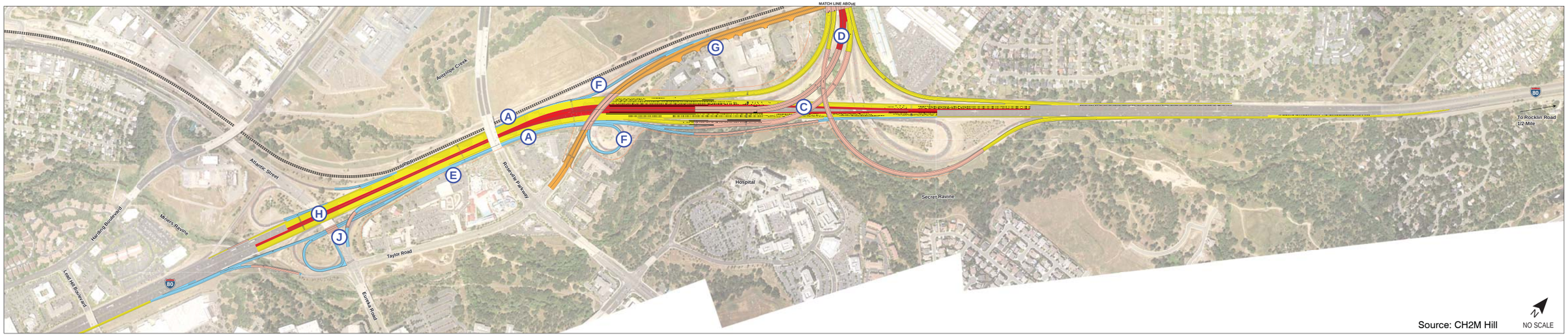
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 - add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange – add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Add eastbound collector-distributor road, separated from eastbound I-80
- (F) Modify ramps at I-80/Taylor Road Interchange
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/Stanford Ranch Road Interchange
- (J) Modify the eastbound I-80/Eureka Road ramps as part of the collector-distributor road

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





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COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)

FIGURE 3

The Taylor Road Interchange Eliminated Alternative is shown in Figure 4. The alternative is similar to the Collector-Distributor Roadway System Ramps Alternative. The primary difference is that the Taylor Road ramps are removed. As a result, the eastbound collector-distributor roadway starts further east at the Eureka Road/Atlantic Street on-ramps. To handle the traffic diverted from the closure of the Taylor Road ramps, two intersections would be widened. The Eureka Road/Taylor Road/I-80 Eastbound Ramps intersection would be widened to add a second northbound left turn lane and a second southbound right turn lane. At the Taylor Road/Roseville Parkway intersection, a second westbound right turn lane would be added.

The Transportation System Management Alternative would add operational enhancements to the planned transportation network. As shown in Figure 5, these enhancements include auxiliary lanes, increased ramp meter storage, signal coordination, and greater access control along major arterials.

Under the No Build (or No Project) Alternative, no improvements would be made at the I-80/SR 65 interchange. However, numerous transportation capacity expansion projects are planned to be constructed within the study area under construction year (2020) and design year (2040) conditions as displayed in Figures 6 and 7, respectively. All of these projects are assumed to be in place under all alternatives.

1.5. **Design Options**

As part of the alternative development process, two design options were evaluated at a conceptual level. The first option was the extension Antelope Creek Drive from its current terminus west of the Union Pacific Railroad to Taylor Road near I-80. This option would improve the efficiency of local circulation and access (that is, reduce VMT) and divert some traffic from the freeway.

The Antelope Creek Drive extension could be constructed in addition to any of the build alternatives. Design year traffic forecasts and meso-scale network performance measures were prepared for the Taylor Road Full Access Interchange Alternative with this design option as reported in the Technical Appendix. The diversion of freeway traffic would not affect bottleneck locations, so the option would not provide substantial congestion relief to the I-80 and SR 65 freeway mainline beyond that of the build alternatives. This option would be costly to construct given the railroad overpass, and its alignment would conflict with a recently approved development. For these reasons, this option was not justified for detailed analysis, but it could be pursued as a separate local project.

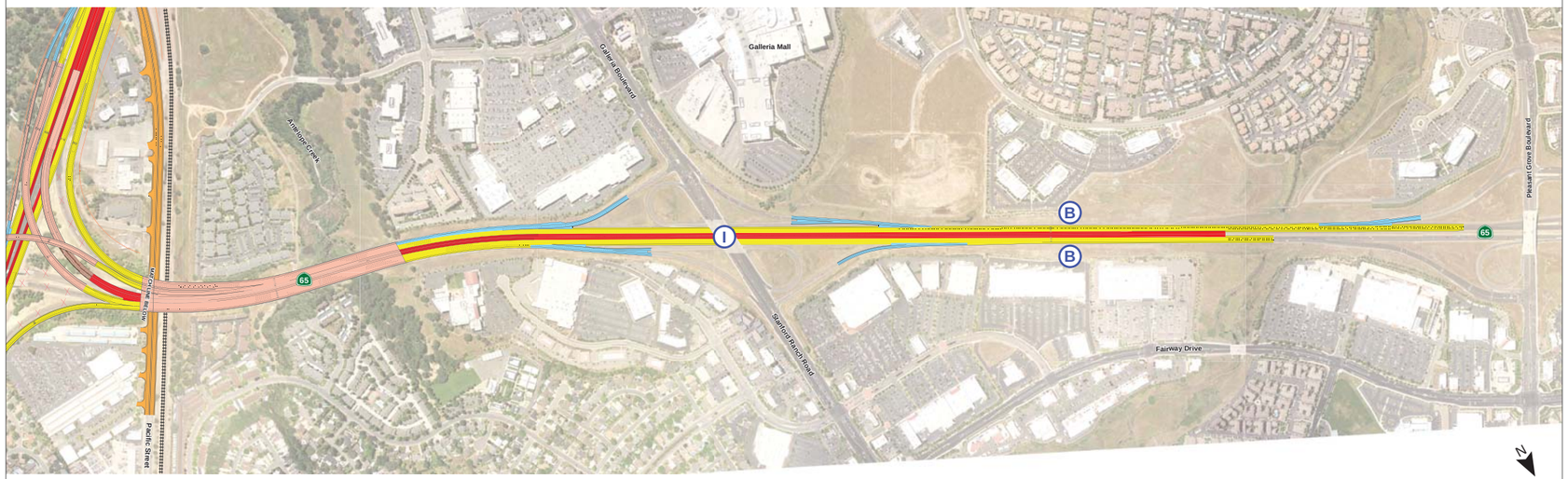
Alternative 3 Improvements:

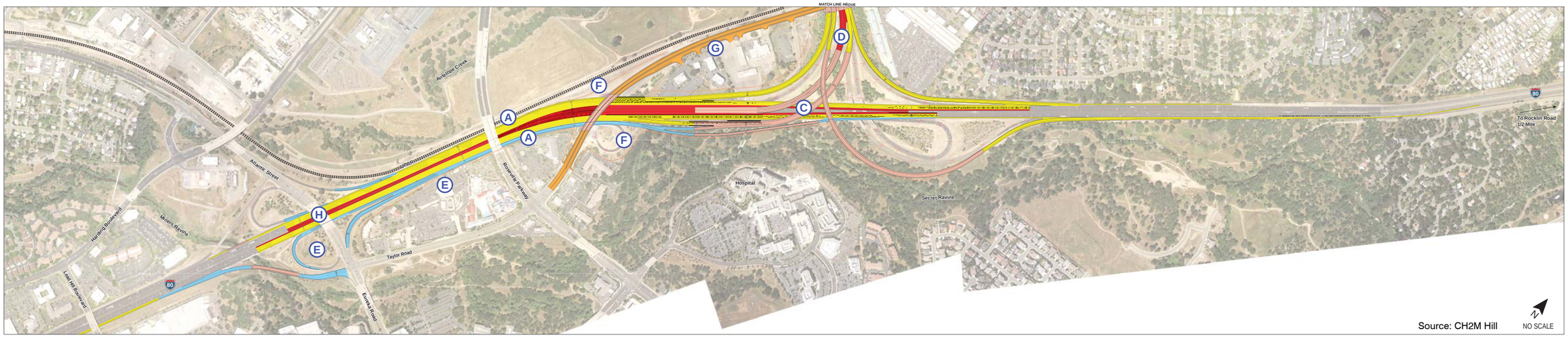
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 – add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange - add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Modify the eastbound I-80/Eureka Road ramps to be separated from I-80. Access to Taylor Road would be accommodated by the adjacent local interchanges
- (F) Remove existing I-80/Taylor Road ramp connections
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/Stanford Ranch Road Interchange

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





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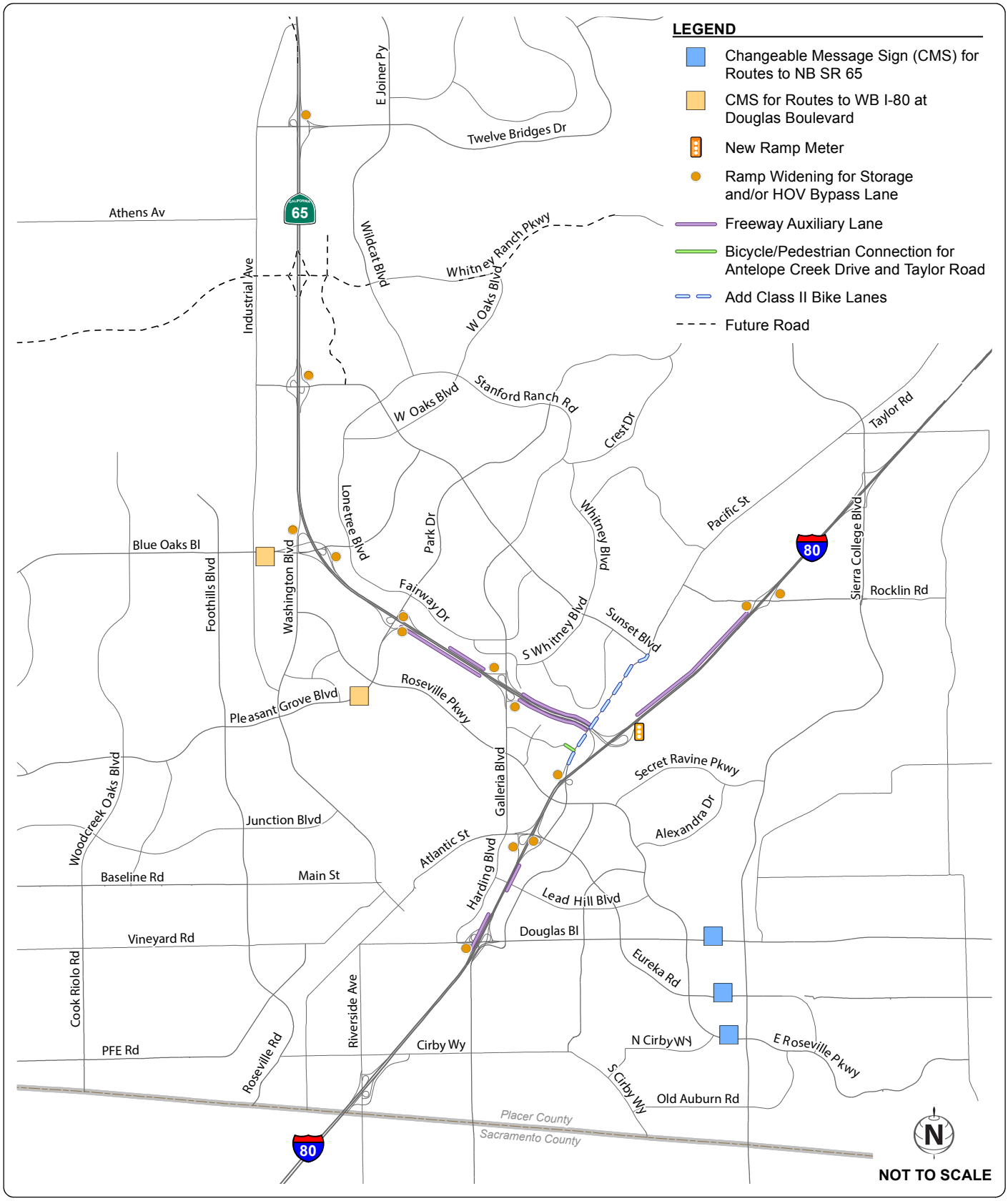
TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)

FIGURE 4



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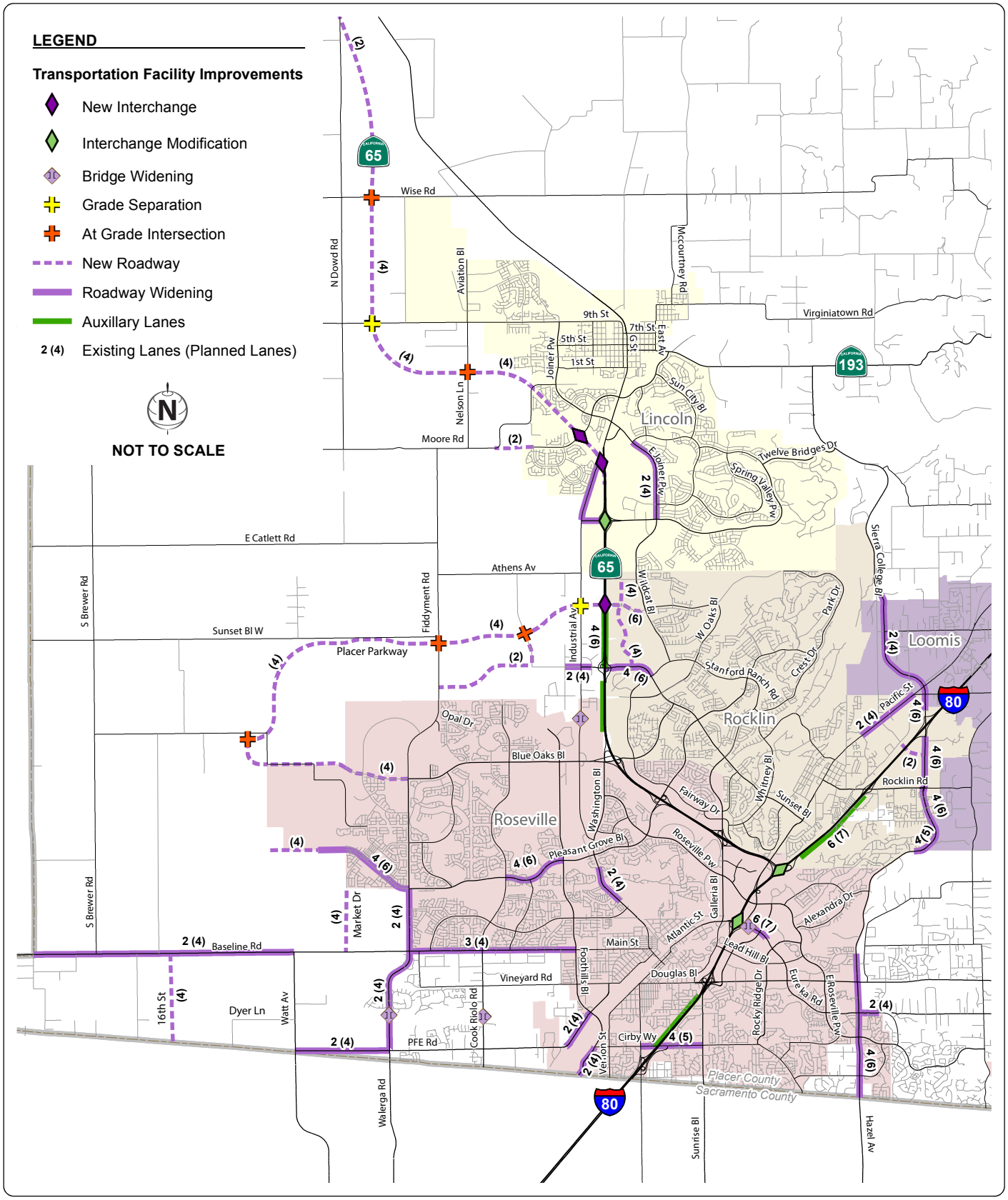
TRANSPORTATION SYSTEM MANAGEMENT (ALTERNATIVE 4)

FIGURE 5



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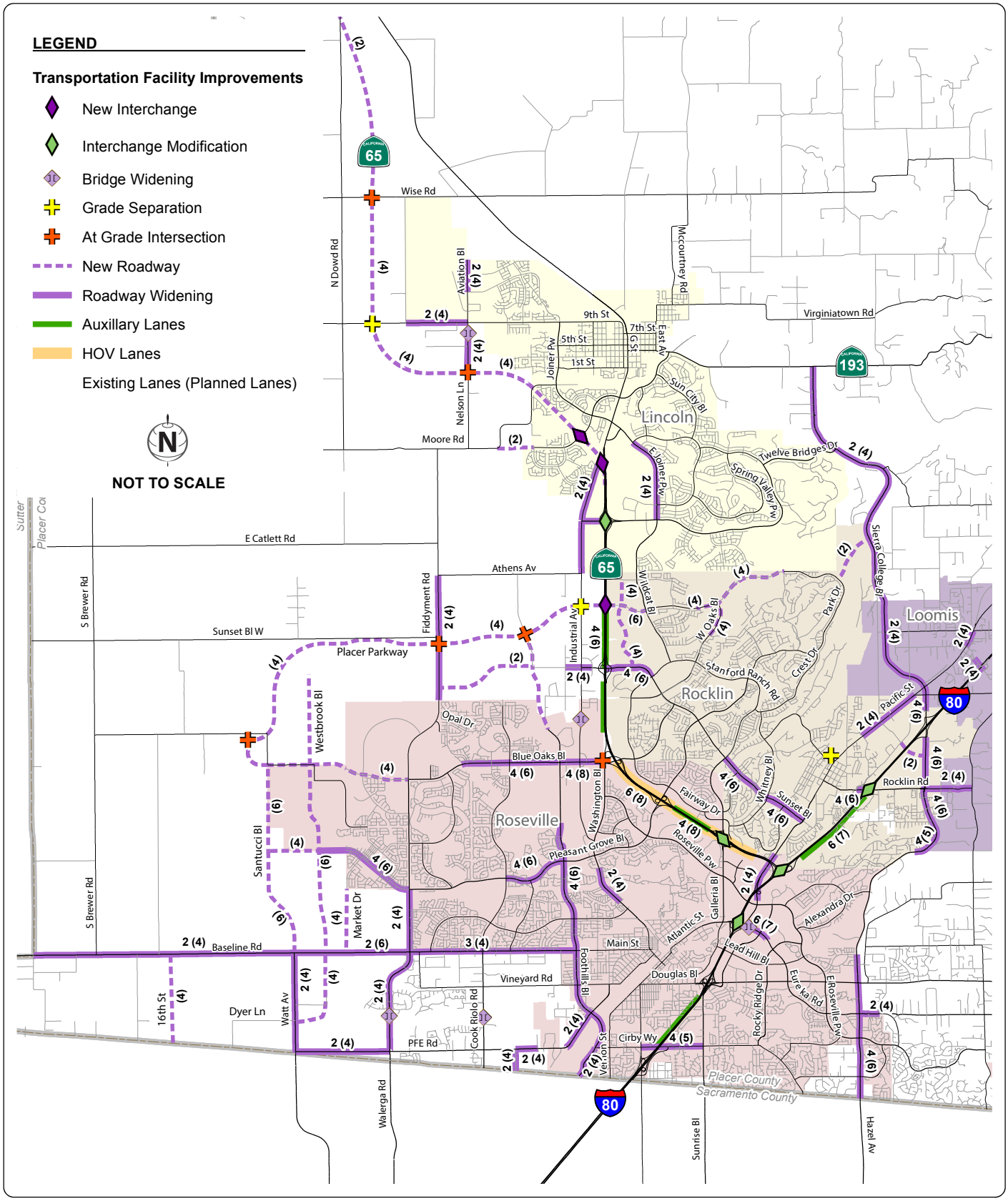
ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2020

FIGURE 6



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ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2040

FIGURE 7

The second design option would be to construct ramp meters on the freeway-to-freeway connectors at the I-80/SR 65 interchange. Elsewhere in California, ramp meters on freeway connectors are used to reduce congestion on downstream freeway corridors. A ramp meter on the southbound SR 65 connector to westbound I-80 was evaluated. A three-lane ramp meter would serve about 900 vehicles per hour per lane assuming the typical operation of two cars per green for high volume on-ramps. The design year demand volume ranges up to 3,700 vehicles per hour during the AM peak hour. With a metered flow rate of 2,700 vehicles per hour, this would result in a queue of approximately 1,000 vehicles, or 1.6 miles long during the peak hour. The ramp meter would cause severe queuing that would delay all movements on southbound SR 65 at I-80. The queuing would have substantial impacts to the interchange operations at Galleria Boulevard/Stanford Ranch Road, Pleasant Grove Boulevard, and Blue Oaks Boulevard.

Operations with three cars per green may provide up to 1,200 vehicles per hour per lane. Although not currently used in the Sacramento area, "three cars per green" operation is used on freeway connector ramp meters in Los Angeles (for example, I-105 to northbound I-405). With a higher throughput, the queues for southbound SR 65 could be managed such that effects on the upstream interchanges would be minor.

During project meetings, concerns were also raised about driver expectation, sight distance, and safety. As a result, the PDT directed that ramp meters not be included on the freeway connectors in the project alternatives.

1.6. **Sensitivity Tests**

The project alternatives were refined based in part on sensitivity testing of the freeway configuration of I-80 between Riverside Avenue and SR 65. The sensitivity analysis used the initial set of traffic forecasts prepared for the February 2013 draft transportation analysis report (see appendix). In this section, the results of four sensitivity tests are discussed. The technical details for these tests can be found in the appendix.

In the first test, an option for westbound I-80 at Atlantic Street was analyzed. In this option, the slip off-ramp would be closed and traffic re-routed to the loop off-ramp. The ramp terminal intersection would be re-built to accommodate the left-turn movement from the off-ramp. The option was analyzed using macro, rather than micro, level methodologies. The freeway weaving section from SR 65 to Atlantic Street was analyzed using the Leisch Method as recommended in the Highway Design Manual. The ramp terminal intersection was analyzed as an isolated intersection using the Highway Capacity Manual methods. The results showed that this configuration for Alternative 3 (Taylor Road Interchange Eliminated) would operate acceptably under design year peak hour conditions.

The second test used the Leisch Method to evaluate four I-80 weaving sections with Alternative 3 (Taylor Road Interchange Eliminated) under design year peak hour conditions: two eastbound sections – Douglas Boulevard to Eureka Road and Eureka Road to SR 65 – and two westbound sections – SR 65 to Atlantic Street and Douglas Boulevard to Riverside Avenue. All four segments operated acceptably using the forecasted travel volumes in the microsimulation analysis, but the Leisch Method reported LOS F for eastbound I-80 between Douglas Boulevard and Eureka Road. For the other segments, the volumes were adjusted by increasing the overall volume and by increasing the volume of weaving traffic (with a corresponding decrease in non-weaving traffic) to determine how close each segment was to reaching LOS F. The key location, eastbound I-80 between Eureka Road and SR 65, would have to have an overall growth of 25 percent or a shift in the percentage of on-ramp traffic going to the mainline from 27 to 63 percent before LOS F conditions would occur.

In the third test, the lane change distance for the eastbound SR 65 off-ramp in the microsimulation model was varied. For longer lane change distances, vehicles anticipate the off-ramp farther upstream. This can cause congestion in the right-hand lanes in the distance is longer than the length of the auxiliary lanes between Eureka Road and SR 65. This effect was already being captured in the model; increasing the lane change distance did not result in significantly different speeds for eastbound I-80.

The fourth test used the traffic forecasts presented in this report (see Chapter 4). Alternatives 2 (Collector-Distributor System Ramps) and 3 include the addition of an eastbound auxiliary lane from Douglas Boulevard to Eureka Road and a two-lane Eureka Road off-ramp. However, Alternative 1 (Taylor Road Full Access Interchange) does not. In the test, the eastbound auxiliary land and second off-ramp lane were added to Alternative 1 under design year PM peak period conditions. The additional lane improves the freeway operations in this section from LOS E to D, and increases the peak hour average speed from less than 60 to greater than 60 mph.

Chapter 2. Analysis Methodology

2.1. **Study Area**

The project study area for transportation analysis extends beyond the immediate vicinity of the I-80/SR 65 interchange as shown in Figure 8. The larger study area for transportation analysis purposes was based on two key factors.

1. The area needed to be large enough to capture the influence of potential changes at the I-80/ SR 65 interchange. This was determined through field observations and travel forecasting analysis that assessed traffic volume changes associated with the project's mixed-flow and HOV lane changes. This information revealed peak period traffic operations at the I-80/SR 65 interchange influence upstream and downstream conditions through multiple local interchanges.

2. The Placer County Transportation Planning Agency (PCTPA) wanted to develop travel forecasting and traffic operations model that would cover an area large enough for anticipated future projects such as Placer Parkway and the SR 65 mainline widening project between Lincoln and I-80.

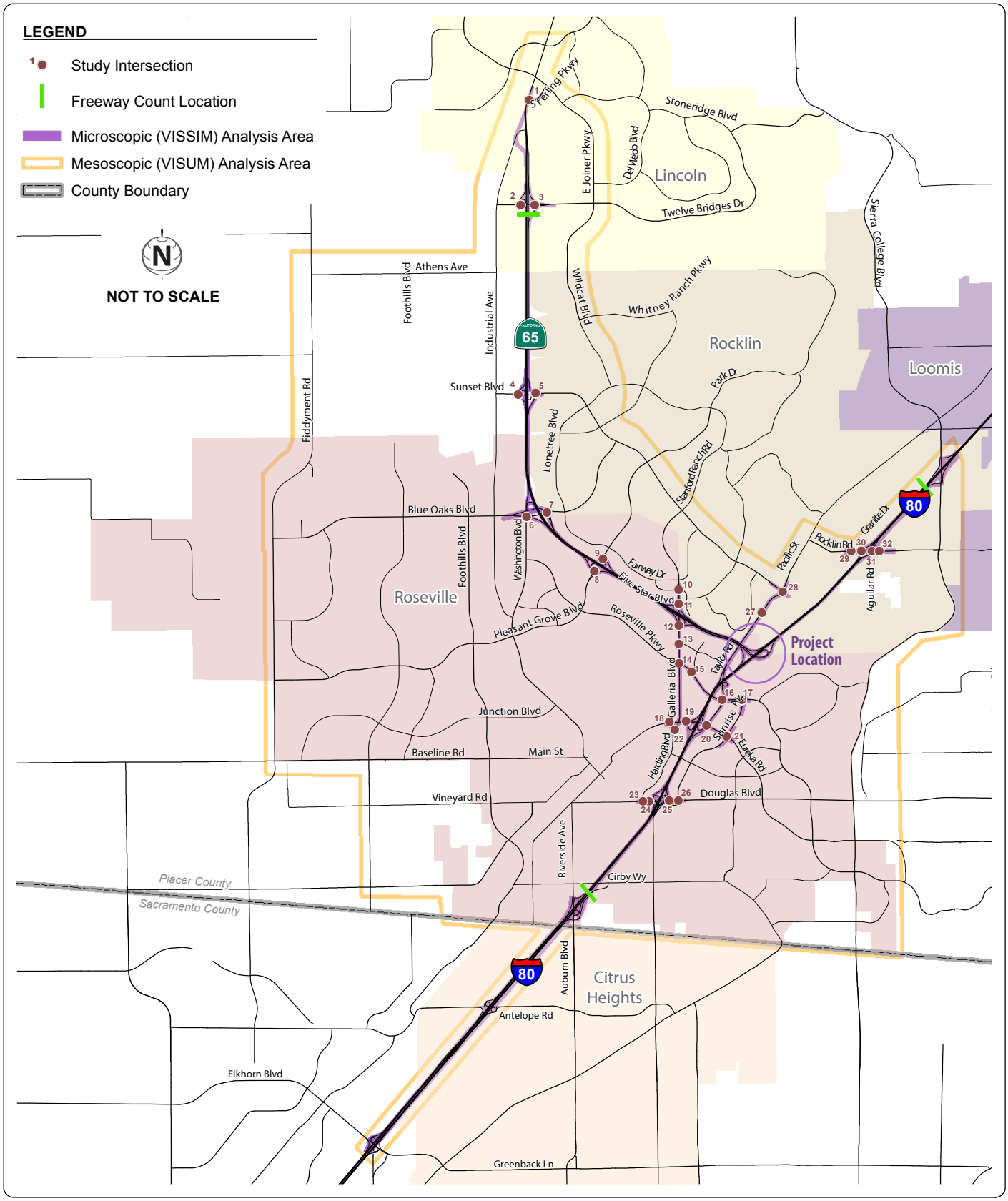
Depending on the analysis scenario, up to 155 individual analysis locations are included in the study area. These locations consist of freeway mainline segments, freeway ramp junctions, freeway weaving areas, and intersections. For a complete listing of all analysis locations, refer to the Technical Appendix.

2.2. **Data Collection Methods**

This section describes the data that were collected for use in the traffic analysis.

2.2.1. Geometric Data

Roadway geometric data were gathered using aerial photographs, design plans (for the I-80 HOV lane project), and field observations. The lane configurations that were taken initially from aerial photographs were confirmed or revised based on field observations.



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STUDY AREA
FIGURE 8

2.2.2. Traffic Control Data

Traffic control data (i.e., signal phasing/timings) were provided by the responsible operating agencies including Caltrans, the City of Roseville, the City of Rocklin, and Placer County. The Caltrans Traffic Operations Sacramento Area office provided timing information for the ramp meters that were operating when the traffic counts were collected. The posted speed limits for the network were collected during field observations.

Traffic signals are modeled as either free operation or coordinated according to the control plans specified in the controller. Traffic control at unsignalized intersections were taken from aerial photographs and confirmed during field observations.

2.2.3. Traffic Flow Data

Freeway and intersection traffic counts were collected in 15-minute intervals for the 6 to 10 AM and 3 to 7 PM peak periods during January and February 2012. At intersections, cars, trucks, bicycles, and pedestrians were counted by turning movement. For freeways, traffic counts include vehicle classification by number of occupants for passenger cars and vehicle type. Table 1 contains the hourly HOV and truck percentages at the freeway gateway locations from the traffic counts (complete traffic count data are contained in the Technical Appendix).

TABLE 1: HOURLY HOV AND TRUCK PERCENTAGE

Hour	Eastbound I-80 at Riverside Ave		Westbound I-80 at Sierra College Blvd		Southbound SR 65 at Twelve Bridges Dr	
	HOV	Truck	HOV	Truck	HOV	Truck
6 to 7 AM	12.4%	7.9%	11.6%	3.8%	13.1%	1.8%
7 to 8 AM	13.7%	3.7%	10.7%	3.8%	10.5%	1.4%
8 to 9 AM	15.6%	4.0%	13.9%	5.2%	14.8%	1.1%
9 to 10 AM	18.3%	5.3%	18.1%	5.9%	19.0%	2.2%
3 to 4 PM	20.0%	3.2%	24.3%	7.5%	31.1%	1.7%
4 to 5 PM	19.2%	2.6%	24.5%	5.1%	26.6%	0.9%
5 to 6 PM	13.9%	2.2%	18.8%	5.1%	31.0%	1.0%
6 to 7 PM	12.7%	2.8%	17.1%	5.2%	29.5%	1.5%

Source: Fehr & Peers, 2014

2.2.4. Travel Time Data

Travel time surveys were conducted during the same day of the mainline counts using global positioning system (GPS) units. The following routes were traveled for a minimum of every 15 minutes during the morning and evening peak periods.

- Southbound SR 65 at Blue Oaks Boulevard to westbound I-80 at Elkhorn Boulevard
- Eastbound I-80 at Elkhorn Boulevard to northbound SR 65 at Blue Oaks Boulevard
- Westbound I-80 from Sierra College Boulevard to Elkhorn Boulevard
- Eastbound I-80 from Elkhorn Boulevard to Sierra College Boulevard

2.3. Travel Forecasting Methodology

The transportation analysis for the I-80/SR 65 Interchange project used an integrated modeling approach that has three different levels of detail: macro, meso, and micro. At the macro level, the regional travel forecasting model (SACMET) was used to forecast peak period origin-destination (OD) traffic volume flows between traffic analysis zones both internal and external to the study area. At the meso level, the peak period OD flows were divided into four one-hour trip tables and disaggregated into three modes – single occupant vehicle (SOV), HOV, and truck – and then assigned to the sub-area roadway network using the VISUM software. The assignment process was based on congested travel times that reflect roadway link speeds and capacity. At the micro level, the traffic volumes were converted to individual vehicles that were assigned to the operational study area using the VISSIM software that contains detailed inputs governing traffic controls (signal timings), geometrics (lane configurations), and driver behavior.

The traffic forecasts were developed using the first two modeling platforms (macro and meso). The first platform is a modified version of the regional SACMET model developed by the Sacramento Area Council of Governments (SACOG) for the Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS). The second platform is the VISUM sub-area trip assignment model, which was used to assign the trips generated from the SACMET model to a detailed roadway network within the study area. Figure 8 above shows the mesoscopic and microscopic analysis areas.

The SACMET and VISUM models were calibrated and validated according to the *2010 California Regional Transportation Guidelines (*California Transportation Commission, 2010) and criteria approved by the PDT. Both models passed applicable static and dynamic validation tests. The detailed validation results are contained in Chapter 4.

Traffic volume forecasts were developed for construction year (2020) and design year (2040) conditions. The forecasts relied on modified inputs to the MTP/SCS SACMET model based on PDT refinements to land use projections and the planned roadway network as explained below.

2.3.1. Socioeconomic Forecasts

The traffic volume forecasts are derived from future socioeconomic projections that started with regional socioeconomic projections developed by SACOG for the regional MTP/SCS. These were reviewed by the PDT and modified to better reflect local plans. Figure 9 displays the final growth projections within the study area. Socioeconomic projections are the largest single influence on traffic volume forecasts, so they will affect volume projections to a greater extent than the roadway network changes or any other modeling component. If these forecasts vary in reality, it will have a direct effect on future traffic volumes.

2.3.2. Planned Transportation Network

The traffic volume forecasts are also influenced by modifications to the existing transportation network according to improvement projects anticipated to be constructed by the construction and design years (refer to Figures 3 and 4). These projects are based on the financially constrained project list contained in the MTP/SCS, but also consider projects the PDT agreed would likely be constructed by the design year. The rationale for adding projects to the MTP/SCS list was that the design year is five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements. A list of the planned projects is provided in Table 2.

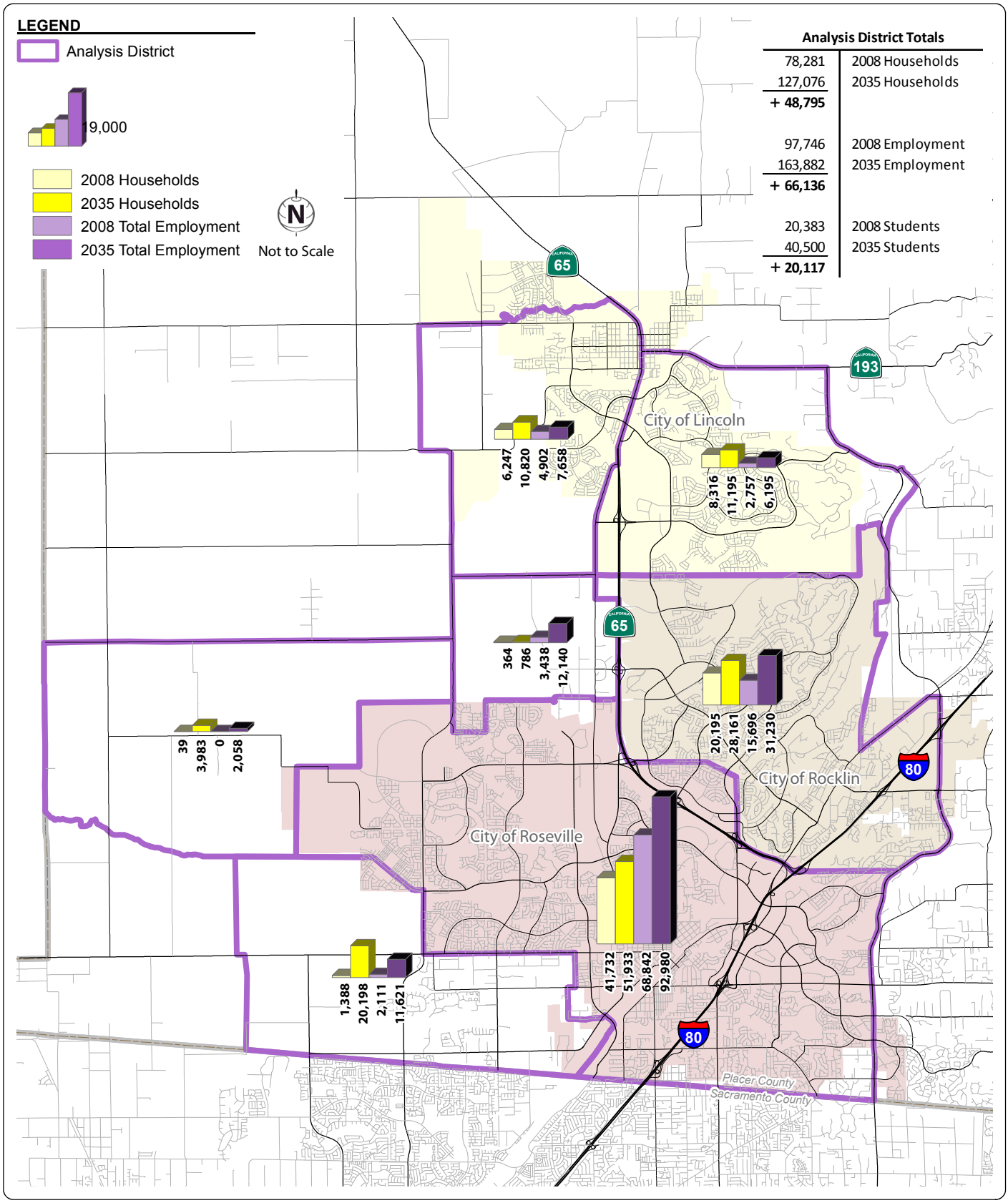
2.4. Traffic Operations Analysis Methodology

Because the study area already experiences peak period congestion, which is forecast to worsen, the traffic operations analysis required the use of simulation-based analysis. A congested network is very sensitive to any change in capacity or demand and the analysis tools need to be able to capture how changes in one location of the network affect the overall performance. Therefore, a VISSIM traffic simulation model was developed as follows.

- The model was constructed from roadway network (lane configuration), traffic volume (traffic counts), and traffic control (traffic signal and ramp meter) data.
- Additional detail was incorporated into the VISSIM network (posted speed limits, grades, etc.) to reflect observed field conditions.
- Driver behavior parameters were adjusted based on field observations.

TABLE 2: PLANNED SEPARATE PROJECTS	
Category	**Project**
Complete by 2020 (Construction Year)	• Atkinson St: widen from 2 to 4 lanes from Foothills Blvd to south of Dry Creek • Baseline Rd: widen from 3 to 4 lanes from Brady Ln to Fiddyment Rd • Baseline Rd: widen from 2 to 4 lanes from Fiddyment Rd to Watt Ave • Baseline Rd: widen from 2 to 4 lanes from Watt Ave to (future) 16th St • Baseline Rd: widen from 2 to 4 lanes from (future) 16th St to county line • Blue Oaks Blvd: construct 4 lanes from Fiddyment Rd to Hayden Pkwy and 2 lanes from Hayden Pkwy to Westbrook Blvd • Blue Oaks Blvd: widen from 2 to 4 lanes from Hayden Pkwy to Westbrook Blvd and construct 4 lanes from Westbrook Blvd to Santucci Blvd • Cirby Way: widen from 4 to 5 lanes from Riverside Ave to Regency Ave • Cook Riolo Rd: widen from 1 to 2 lanes Dry Creek Bridge • Domiguez Rd: construct 2 lanes from Granite Dr to Sierra College Blvd • East Joiner Pkwy: widen from 2 to 4 lanes from Del Webb Pkwy to Twelve Bridges Dr • Eureka Rd: widen from 2 to 4 lanes from Sierra College Blvd to city limits • Ferrari Ranch Rd: construct 2 lanes from city limit to Moore Rd • Fiddyment Rd: widen to 4 lanes from Pleasant Grove Blvd to Baseline Rd • I-80 from Douglas Blvd to Riverside Ave: add a westbound auxiliary lane • I-80 from SR 65 to Rocklin Rd: add an eastbound auxiliary lane • I-80/Eureka Rd On-ramp Improvements • Industrial Ave: widen from 2 to 4 lanes from SR 65 to Twelve Bridges Dr • Industrial Ave: replace 2 lane bridge at Pleasant Grove Creek • Market St: construct 2 lanes from Baseline Road to Pleasant Grove Blvd • Pacific St: widen to 4 lanes from Sierra Meadows Dr to Loomis town limits • PFE Rd: widen from 2 to 4 lanes from Watt Ave to Walerga Rd • Placer Pkwy: construct 4-lane expressway from SR 65 to Santucci Blvd • Pleasant Grove Blvd: widen from 4 to 6 lanes from Foothills Blvd to Woodcreek Oaks Blvd • Pleasant Grove Blvd: widen from 2 to 4 lanes from Fiddyment Road to Santucci Blvd • Rocklin Rd: widen from 4 to 6 lanes from Granite Dr to I-80 Westbound Ramps • Roseville Rd: widen from 2 to 4 lanes from city limits to Cirby Way • Santucci Blvd: construct 4 lanes from Baseline Road to Blue Oaks Blvd • Sierra College Blvd: widen to 6 lanes from county line to Olympus Dr • Sierra College Blvd: widen from 4 to 5 lanes from Nightwatch Dr to Aguilar Tributary • Sierra College Blvd: widen from 4 to 6 lanes from Aguilar Tributary to I-80 • Sierra College Blvd: widen from 4 to 6 lanes from Granite Dr to Bankhead Rd • Sierra College Blvd: widen from 2 to 4 lanes from Taylor Rd to north town limits • SR 65 Lincoln Bypass – Phase 1 & 2A • SR 65/Ferrari Ranch Rd Interchange • SR 65/Whitney Ranch Pkwy: construct interchange • Sunset Blvd: construct 2 lanes from Fiddyment Rd to Foothills Blvd • Sunset Blvd: widen from 2 to 4 lanes from Cincinnati Ave to SR 65 • Sunset Blvd: widen to 6 lanes from SR 65 to West Stanford Ranch Rd • Twelve Bridges Dr: widen from 2 to 4 lanes from Industrial Ave to SR 65 including interchange • University Ave: construct 4 lanes from Whitney Ranch Pkwy to Ranch View Dr • University Ave: construct 4 lanes from Sunset Blvd to Whitney Ranch Pkwy • Walerga Rd: widen from 2 to 4 lanes from Baseline Rd to county line • Washington Blvd: widen to 4 lanes from Sawtell Rd to Pleasant Grove Blvd • Whitney Ranch Pkwy: construct 6 lanes from SR 65 to east of Wildcat Blvd

TABLE 2: PLANNED SEPARATE PROJECTS	
Category	**Project**
Complete by 2035	• Aviation Blvd: widen from 2 to 4 lanes from Venture Dr to 0.5 mi north of Venture Dr • Dyer Ln: construct 4 lanes from Watt Ave to Baseline Rd • Fiddyment Rd: widen from 2 to 4 lanes from Roseville city limits to Athens Rd • Foothills Blvd: construct 2 lanes from Roseville city limits to Sunset Blvd • I-80/Horseshoe Bar Rd Interchange: widen overcrossing from 2 to 4 lanes • I-80/Rocklin Rd Interchange improvements • Industrial Ave: widen from 2 to 4 lanes from Twelve Bridges Dr to Athens Ave • Nicolaus Rd: widen from 2 to 4 lanes from Airport Rd to Aviation Blvd • Midas Ave: construct grade separation at UPRR • Rocklin Rd: widen from 2 to 4 lanes from Sierra College Blvd to Loomis town limits • Rocklin Rd: widen from 2 to 4 lanes from west Loomis town limits to Barton Rd • North Antelope Rd: widen from 2 to 4 lanes from county line to PFE Rd • Sierra College Blvd: widen from 2 to 4 lanes from SR 193 to Loomis town limits • Sierra College Blvd: widen to 4 lanes from (future) Valley View Pkwy to Loomis town limits • SR 65/Galleria Blvd Interchange Improvements (Phase II) • Sunset Blvd: widen from 4 to 6 lanes from Stanford Ranch Rd to Topaz Ave • Sunset Blvd: widen from 4 to 6 lanes from Topaz Ave to Whitney Blvd • Sunset Blvd: widen from 4 to 6 lanes from Whitney Blvd to Pacific St • Taylor Rd: widen from 2 to 4 lanes from Horseshoe Bar Rd to King Rd • Valley View Pkwy: construct 2 lanes from Park Dr to Sierra College Blvd • West Oaks Blvd: construct 4 lanes from terminus to (future) Whitney Ranch Pkwy • Whitney Ranch Pkwy: construct 4 lanes from terminus to Whitney Oaks Dr • Watt Ave: widen from 2 to 4 lanes from Baseline Rd to county line
Assumed to be Complete by 2040 (Design Year)	• Baseline Rd: widen from 4 to 6 lanes from Fiddyment Rd to Watt Ave • Blue Oaks Blvd: widen to 6 lanes from Crocker Ranch Rd to Foothills Blvd • Blue Oaks Blvd: widen to 8 lanes from Foothills Blvd to Washington Blvd • Foothills Blvd: widen to 6 lanes from Cirby Way to Misty Wood Dr • Nelson Ln: widen from 2 to 4 lanes from SR 65 (Lincoln Bypass) to Nicolaus Rd • PFE Rd: widen from 2 to 4 lanes from North Antelope Rd to Roseville city limits • Santucci Blvd: construct 6 lanes from Baseline Road to Blue Oaks Blvd • SR 65 Capacity and Operational Improvements: I-80 to Blue Oaks Blvd • Taylor Rd: widen from 2 to 4 lanes from Roseville Pkwy to I-80 • Taylor Rd: widen from 2 to 4 lanes from I-80 to city limits • Westbrook Blvd: construct new road from Baseline Rd to Pleasant Grove Blvd • Westbrook Blvd: construct new road from Pleasant Grove Blvd to Blue Oaks Blvd • Westbrook Blvd: construct new road from Blue Oaks Blvd to city limits
Sources: SACOG, 2012 and Fehr & Peers, 2014	



FEHR PEERS

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MODIFIED SACMET LAND USE SUMMARY BY ANALYSIS DISTRICT

FIGURE 9

- The distribution of vehicle types was calibrated to local conditions so that the percentages of trucks and HOVs match the traffic counts.

The VISSIM model was validated to existing conditions using the criteria contained in *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software* (Federal Highway Administration, 2004). The default VISSIM parameters for geometrics and driver behavior were iteratively adjusted until the model was validated to observed conditions (refer to the Technical Appendix for a complete summary of the VISSIM model validation). Since microsimulation models, like VISSIM, rely on the random arrival of vehicles, multiple runs are needed to provide a reasonable level of statistical accuracy and validity. Therefore, the results of 10 separate runs (each using a different random seed number) were averaged to determine the final results.

The calibrated and validated model was used to generate a variety of traffic operations performance measures including person throughput, vehicle throughput, vehicle delay, passenger car density, travel time, speed, and percent demand served. Some of these measures were used to determine level of service (LOS) values for analysis locations consistent with the methodology contained in the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2011).

The HCM methods use quantitative performance measures to determine LOS for analysis locations under AM and PM peak hour conditions. LOS is a qualitative measure of traffic operations from a driver's perspective, which varies from LOS A (the best) to LOS F (the worst), and is one of the main evaluation criteria for this study. Tables 3 and 4 describe the LOS thresholds from the HCM for freeway sections and signalized intersections, respectively.

To analyze construction year and design year conditions, Vissim models were built for each alternative based on the calibrated/validated existing conditions model. The network changes for each alternative were coded into the respective models. All models included separately planned projects (listed in Table 2) that were located in the microsimulation analysis area.

The roadway assumptions for the separately planned projects are listed below.

- Blue Oaks Boulevard Widening (design year only) – widening of the eastbound approach to Washington Boulevard to four lanes
- I-80 Auxiliary Lanes – a westbound I-80 auxiliary lane from the westbound Douglas Boulevard on-ramp to the Riverside Avenue off-ramp, an eastbound I-80 auxiliary lane from the lane drop east of SR 65 to the deceleration lane at the Rocklin Road off-ramp, and widening of the Rocklin Road eastbound off-ramp to two lanes

TABLE 3: FREEWAY LOS THRESHOLDS			
LOS	Average Density (vplpm)		Description
	Basic Sections	Ramp Junction & Weave Sections	
A	< 11	< 10	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver.
B	> 11 to 18	> 10 to 20	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.
C	> 18 to 26	> 20 to 28	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.
D	> 26 to 35	> 28 to 35	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.
E	> 35 to 45	> 35 to 43	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.
F	> 45	> 43	Represents a breakdown in flow.
Notes: vplpm = vehicles per lane per mile Source: Fehr & Peers, 2014			

TABLE 4: SIGNALIZED INTERSECTION LOS THRESHOLDS		
LOS	Average Delay (sec/veh)	Description
A	< 10	Very low delay occurs with favorable progression and/or short cycle length.
B	> 10 to 20	Low delay occurs with good progression and/or short cycle lengths.
C	> 20 to 35	Average delays result from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.
D	> 35 to 55	Longer delays occur due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop and individual cycle failures are noticeable.
E	> 55 to 80	High delay values indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.
F	> 80	Delays are unacceptable to most drivers due to over-saturation, poor progression, or very long cycle lengths.
Notes: sec/veh = seconds per vehicle Source: Fehr & Peers, 2014		

- I-80/Eureka Road On-ramp Improvements – widening of westbound Eureka Road from Sunrise Avenue to Taylor Road and the westbound to eastbound on-ramp to I-80 (project completed in 2013)
- I-80/Rocklin Road Interchange (design year only) – widening of Rocklin Road to six lanes from Granite Drive to Aguilar Road, with dual left-turn lanes eastbound at Granite Drive, westbound at westbound I-80, and eastbound at eastbound I-80
- SR 65/Stanford Ranch Road Interchange Phase II Improvements (design year only)– reconstruction of the northbound ramp terminal intersection to control all movements at the signal and add a second northbound left-turn lane, a third northbound through lane, a second eastbound right-turn lane, and a second westbound right-turn lane
- SR 65 Lincoln Bypass Phase 1 – realignment of SR 65 and construction of the Lincoln Boulevard and Ferrari Ranch Road interchanges (project completed in 2013)
- SR 65/Twelve Bridges Drive Interchange – widening of Twelve Bridges Drive from one to two through lanes in both directions
- SR 65/Whitney Ranch Parkway Interchange – construction of a partial cloverleaf interchange with connections to Whitney Ranch Parkway to the east and Placer Parkway to the west with auxiliary lanes to and from Sunset Boulevard to the south
- SR 65 Widening (design year only) – adding a HOV lane in both directions from Stanford Ranch Road/Galleria Boulevard to north of Blue Oaks Boulevard, with the northbound lane drop at Sunset Boulevard and a southbound auxiliary lane between Sunset Boulevard and Blue Oaks Boulevard
- Sunset Boulevard Widening (design year only) – widening of Sunset Boulevard at Pacific Street to provide a third northbound and eastbound left-turn lanes and a second southbound right-turn lane.

2.6. **Evaluation Criteria**

The analysis evaluation criteria were developed in collaboration with the PDT because the project has the potential to affect traffic operations across multiple jurisdictions. The main criteria used for this study is LOS as described below since each affected agency has establish policies and thresholds related to LOS expectations.

According to the *Interstate 80 and Capital City Freeway Corridor System Management Plan* and the *State Route 65 Corridor System Management Plan* (Caltrans District 3, May 2009), Caltrans has identified the route concept LOS for the following segments.

- LOS F for I-80 from Riverside Avenue/Auburn Boulevard to Sierra College Boulevard
- LOS F for SR 65 from I-80 to Blue Oaks Boulevard
- LOS E for SR 65 from Blue Oaks Boulevard to Industrial Avenue (Lincoln Boulevard)

LOS E conditions are desired when feasible but LOS F conditions are likely to occur in the study area under no build conditions as recognized by the concept LOS thresholds. The LOS E threshold will be used to identify minimum acceptable operations (that is, deficiencies) and potential impacts to State highway mainline segments, ramp junctions, weaving segments, and ramp terminal intersections. For locations with LOS F under the no build condition, an impact would occur if the project alternatives would worsen the LOS F condition based on the quantitative performance measure associated with the specific type of analysis.

For study intersections within the City of Lincoln, the City of Lincoln General Plan (Adopted March 2008) contains the following LOS policies:

- Strive to maintain a LOS C at all signalized intersections in the City during the PM peak hours.
- The City shall coordinate with Caltrans in order to strive to maintain a minimum LOS "D" for SR 65 and SR 193.

With the construction of the SR 65 bypass, the analysis locations on Lincoln Boulevard in Lincoln are local intersections. As a result, LOS C will serve as the minimum acceptable LOS for the intersections on Lincoln Boulevard and Twelve Bridges Drive for both AM and PM peak hours.

For study intersections within the City of Roseville, the City of Roseville General Plan (Adopted May 5, 2010) LOS policy states:

- Maintain a level of service (LOS) "C" standard at a minimum of 70 percent of all signalized intersections and roadway segments in the City during the PM peak hours.

Some of the study intersections are shown in the General Plan to operate at worse than LOS C under 2025 conditions. For this project, the following criteria are proposed.

- For intersections shown to be operating at LOS C or better in the General Plan under 2025 conditions, LOS C will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS D in the General Plan under 2025 conditions, LOS D will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS E in the General Plan under 2025 conditions, LOS E will be used as the minimum acceptable LOS.

- For intersections shown to be operating at LOS F in the General Plan under 2025 conditions, LOS F and the corresponding delay will be used as the minimum acceptable LOS.

Using the above criteria, the Stanford Ranch Road/Galleria Boulevard ramp terminal and Roseville Parkway/Taylor Road intersections will have a LOS D threshold, and the Galleria Boulevard/Roseville Parkway, Roseville Parkway/Taylor Road, Eureka Road/Taylor Road/I-80 Eastbound Ramps, and Douglas Boulevard/Harding Boulevard intersections will have a LOS E threshold. All other Roseville intersections will have a LOS C threshold. These thresholds will be used for both the AM and PM peak hours in both the construction and design year analysis.

For study intersections within the City of Rocklin, the City of Rocklin General Plan (Adopted April 3, 1991), Section C Policy 13 (Circulation) states:

- To maintain a minimum traffic level of service "C" for all streets and intersections, except for intersections located within ½ mile from direct access to an interstate freeway where a level of service "D" will be acceptable. Exceptions may be made for peak hour traffic where not all movements exceed the acceptable level of service.

Based on these standards and for the purposes of this study, LOS C is the minimum acceptable LOS for the Placer Parkway/Whitney Ranch Parkway, Sunset Boulevard, Blue Oaks Boulevard (northbound ramps), and the Pacific Street intersections at Woodside Drive and Sunset Boulevard. LOS D is the minimum acceptable LOS for the Rocklin Road intersections since they are less than one-half mile from I-80.

For this study, a project impact must satisfy two conditions. First, the study location must operate at a worse LOS than the threshold identified above. Second, the study location must operate at a worse condition (higher delay for intersections or higher density for freeway segments) than the similar case for Alternative 5 (No Build).

Chapter 3. Existing (2012) Conditions

The existing conditions analysis includes meso-scale network performance, micro-scale traffic operations, and traffic safety. The meso-scale network performance evaluates the entire network within the meso-scale study area based on vehicle miles of travel (VMT), vehicle hours of travel (VHT), vehicle hours of delay (VHD), and freeway VHD. VHD includes all hours of travel below the free-flow speed (for example, the free-flow speed on freeways is 65 miles per hour). Freeway VHD includes only hours of freeway travel below 35 miles per hour (mph). The operations analysis is more detailed and analyzes individual facilities with separate discussions for freeways and arterial intersections. The traffic safety evaluation focuses on freeway facilities.

3.1. **Meso-Scale Network Performance**

Table 5 contains estimates of existing (2012) meso-scale study area VMT, VHT, VHD, and Freeway VHD for AM and PM peak period conditions. This information shows that the PM peak period has the highest level of travel with VHD equal to almost 35 percent of all VHT. The AM peak period also experiences congested conditions with a VHD at approximately 25 percent of all VHT.

TABLE 5: PEAK PERIOD MESO-SCALE NETWORK PERFORMANCE SUMMARY – EXISTING (2012) CONDITIONS

Measure of Effectiveness	AM Peak Period (6:00 to 10:00)	PM Peak Period (3:00 to 7:00)
VMT	1,182,073	1,562,794
VHT	31,314	49,967
VHD	7,807	17,423
Freeway VHD	1,459	4,564

3.2. **Traffic Operations**

Traffic operations were analyzed for existing (2012) conditions under AM and PM peak period and peak hour conditions. This analysis relied on the AM and PM four-hour, peak period VISSIM models from which peak hour results were extracted. The VISSIM model only includes the freeway network and the immediate arterial network around the I-80/SR 65 interchange. As a result, performance measures such as VMT and VHT reported from this model will contain much smaller values compared to the larger meso-scale network results presented in Table 5. Overall traffic operations performance of the micro-scale network is summarized in Table 6.

TABLE 6: PEAK PERIOD MICRO-SCALE NETWORK PERFORMANCE SUMMARY – EXISTING (2012) CONDITIONS		
Measure of Effectiveness	**AM Peak Period (6:00 to 10:00)**	**PM Peak Period (3:00 to 7:00)**
VMT	645,270	730,100
VHT	13,760	16,850
VHD	2,670	3,950
Average Travel Speed (mph)	46.9	43.3

Similar to the Table 5 results, the PM peak period has the highest level of travel and delay with the most congestion lasting up to three hours for select segments.

3.2.1. Freeway Operations

Detailed freeway operations were analyzed for the entire four-hour AM and PM peak periods. The AM (7:30 to 8:30) and PM (4:30 to 5:30) peak hour results are reported in this section and reflect conditions based on estimates of peak hour freeway mainline and ramp traffic volumes for 2012 conditions shown in Figure 12. The existing conditions analysis confirmed field observations and provided some insight as to specific bottleneck locations, causes, and duration. Figure 10 and 11 below show the PM peak hour queue extending back from the eastbound I-80 on-ramp junction with the northbound SR 65 connector.

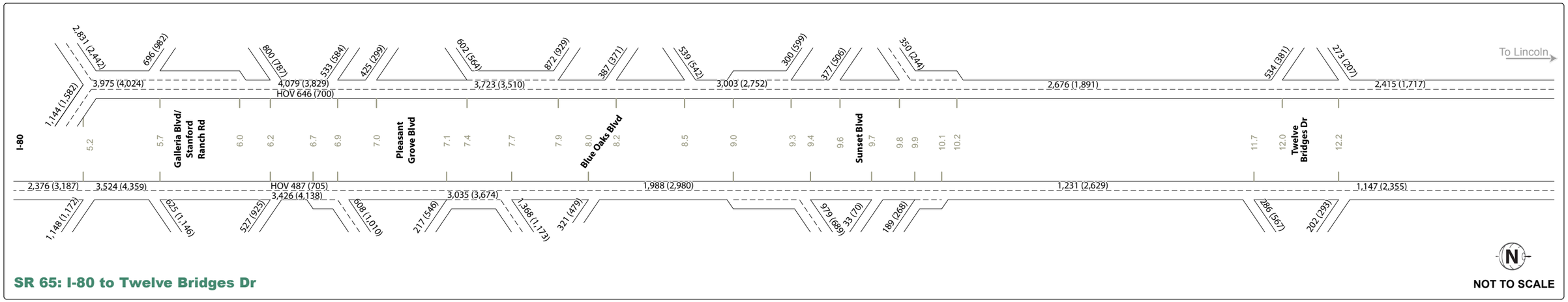
The existing (2012) conditions analysis of freeway and arterial performance matched observed conditions such as those shown in the photos above. Specific examples are listed below.

- Bottleneck areas have poor LOS results as highlighted in Table 7, which contains select LOS results for freeway operations. See the Technical Appendix for all study location results.

The speed contour maps of the I-80 and SR 65 corridors produced from the VISSIM models show reduced speeds in bottleneck areas (see Figures 13 through 16 below).

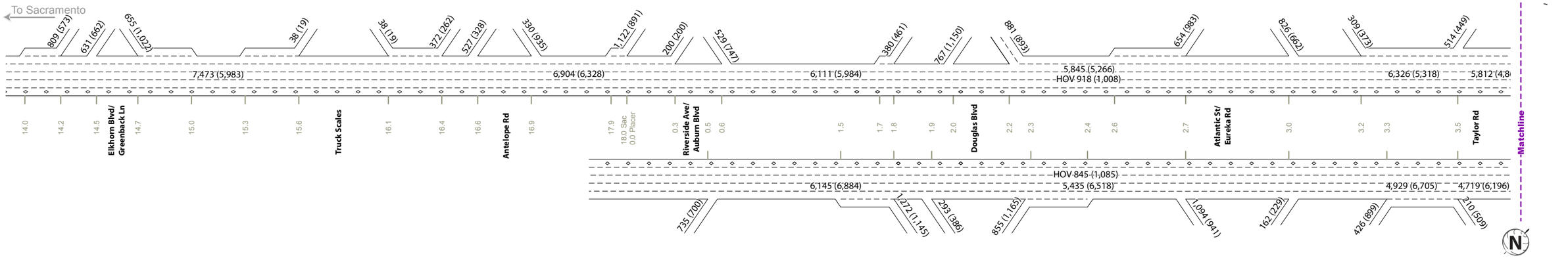
Figure 10 – Eastbound I-80 from Taylor Road Overcrossing (PM Peak Hour)

Figure 11 – Eastbound I-80 from Roseville Pkwy Overcrossing (PM Peak Hour)



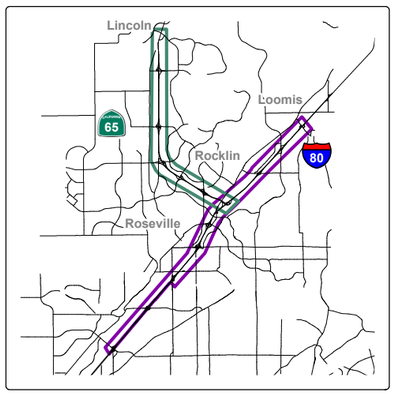
SR 65: I-80 to Twelve Bridges Dr

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE



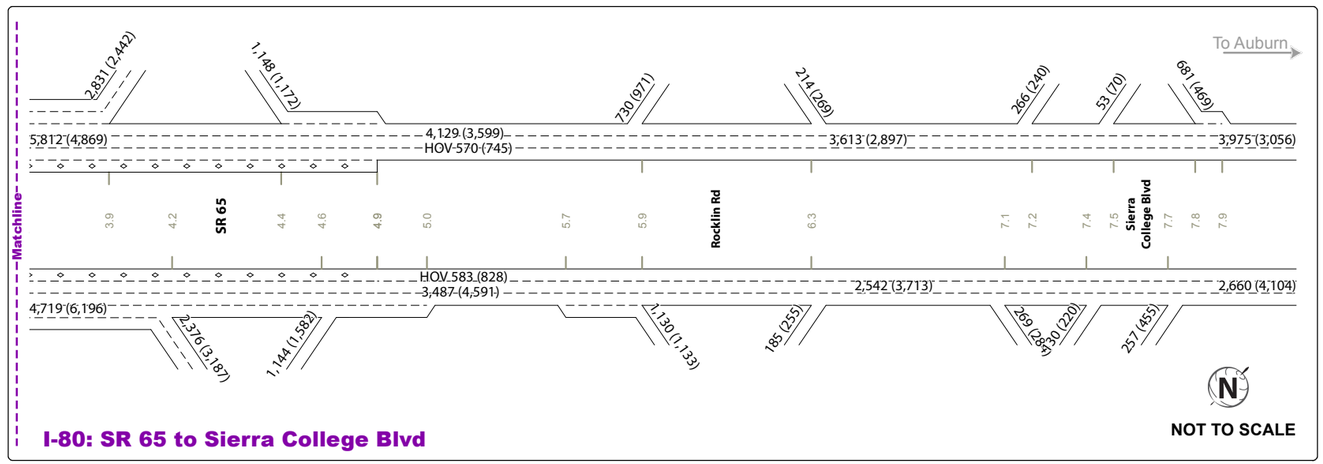
LEGEND

AM (PM) Peak Hour Traffic Volume

HOV AM (PM) Peak Hour HOV Volume

10.1 Postmile

NOTE: Traffic volumes collected in February 2012.



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

FIGURE 12

TABLE 7: SELECTED FREEWAY OPERATIONS RESULTS – EXISTING (2012) CONDITIONS

Freeway	Location	Type	AM Peak Hour	PM Peak Hour
EB I-80	Eureka Rd Off-ramp	Diverge	C / 26	**F / 46**
	Eureka Rd Off to On-ramp	Basic	C / 21	C / 23
	Eureka Rd EB On-ramp	Merge	B / 19	B / 20
	Eureka Rd to Taylor Rd	Weave	C / 23	E / 42
	Taylor Rd to SR 65	Basic	D / 28	E / 42
	SR 65 Off-ramp	Diverge	C / 28	**F / 52**
WB I-80	SR 65 Off-ramp	Diverge	B / 18	E / 35
	Douglas Blvd Off-ramp	Diverge	D / 32	C / 26
	Douglas Blvd WB On-ramp	Merge	E / 36	D / 34
	Douglas Blvd EB On-ramp	Merge	E / 42	E / 37
	Douglas Blvd to Riverside Ave	Basic	D / 33	D / 31
	Riverside Ave Off-ramp	Diverge	E / 40	E / 36
NB SR 65	I-80 WB On-ramp	Merge	**F / 53**	**F / 95**
	I-80 to Stanford Ranch Rd	Basic	D / 32	**F / 77**
	Stanford Ranch Rd Off-ramp	Diverge	D / 33	**F / 62**
SB SR 65	Blue Oaks Blvd WB On-ramp	Merge	**F / 60**	B / 20
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	**F / 75**	C / 21
	Pleasant Grove Blvd Off to On-ramp	Basic	**F / 89**	C / 25
	Pleasant Grove Blvd WB On-ramp	Merge	**F / 72**	D / 31
	Pleasant Grove Blvd EB On-ramp	Merge	**F / 53**	E / 39
	Pleasant Grove Blvd to Galleria Blvd	Basic	E / 36	D / 32
	Galleria Blvd Off-ramp	Diverge	E / 35	D / 32

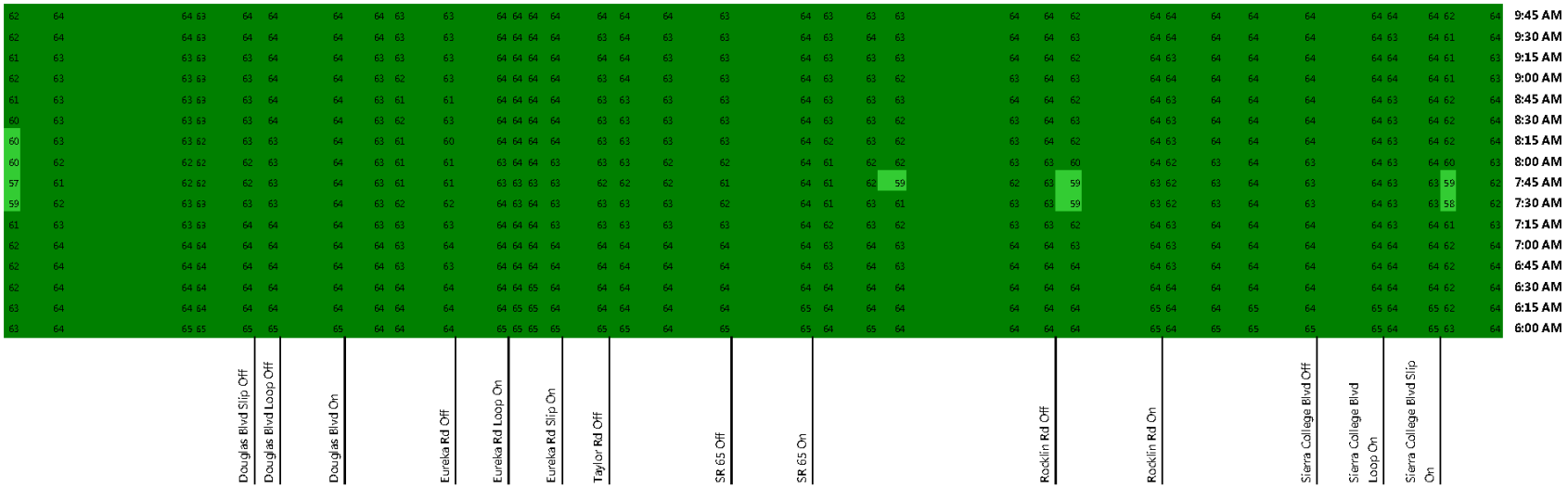
Note: Bold and underline font indicate LOS F conditions. The level of service and average density for the study segment are reported.

Source: Fehr & Peers, 2014

During the AM peak hour, congested LOS F conditions occur on northbound SR 65 at the I-80 on-ramp and southbound SR 65 between Blue Oaks Boulevard and Pleasant Grove Boulevard. On northbound SR 65, the merging of the westbound I-80 on-ramp causes congestion. For southbound SR 65, the constraint is the high demand from the mainline combined with the Pleasant Grove Boulevard on-ramp volume.

FIGURE 13 – I-80 EASTBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

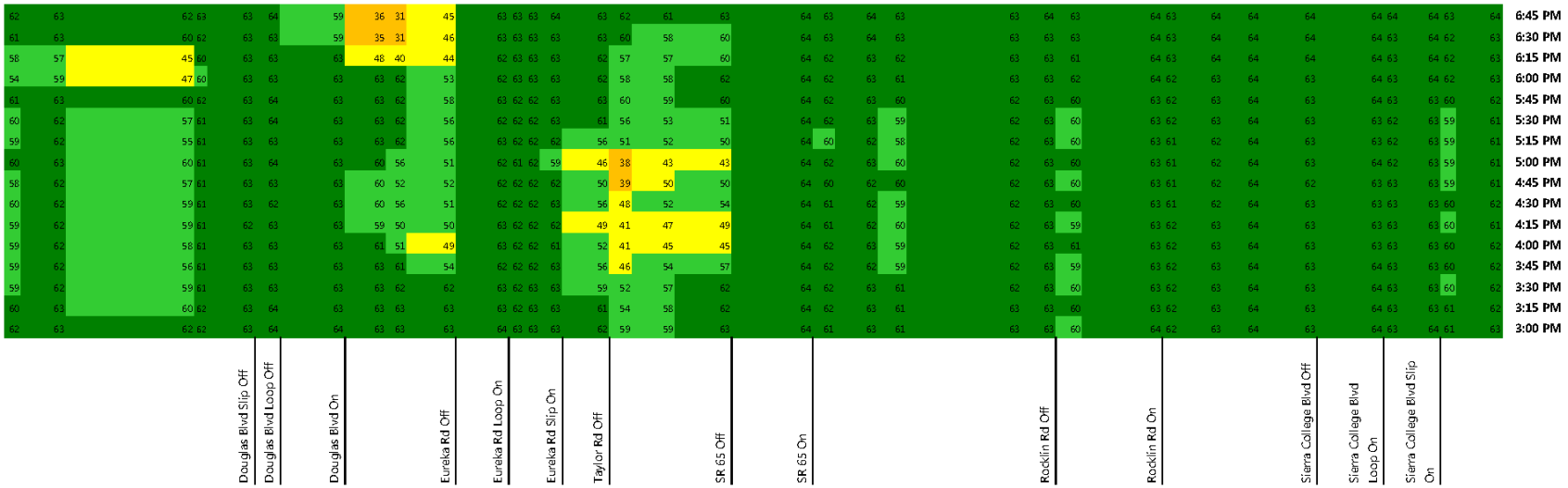
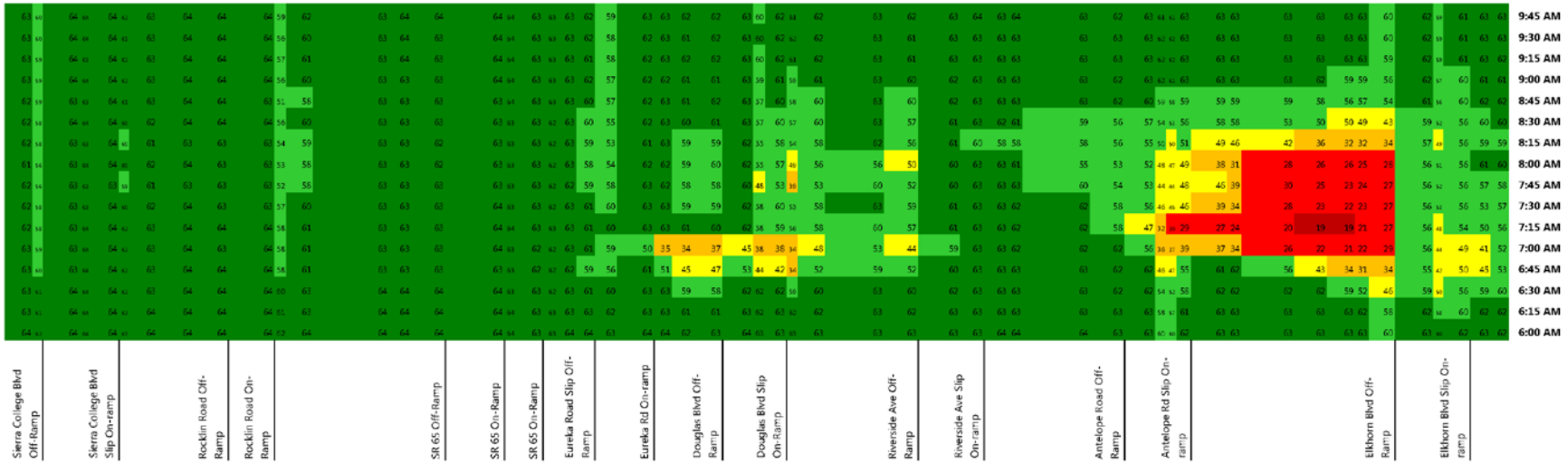


FIGURE 14 – I-80 WESTBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

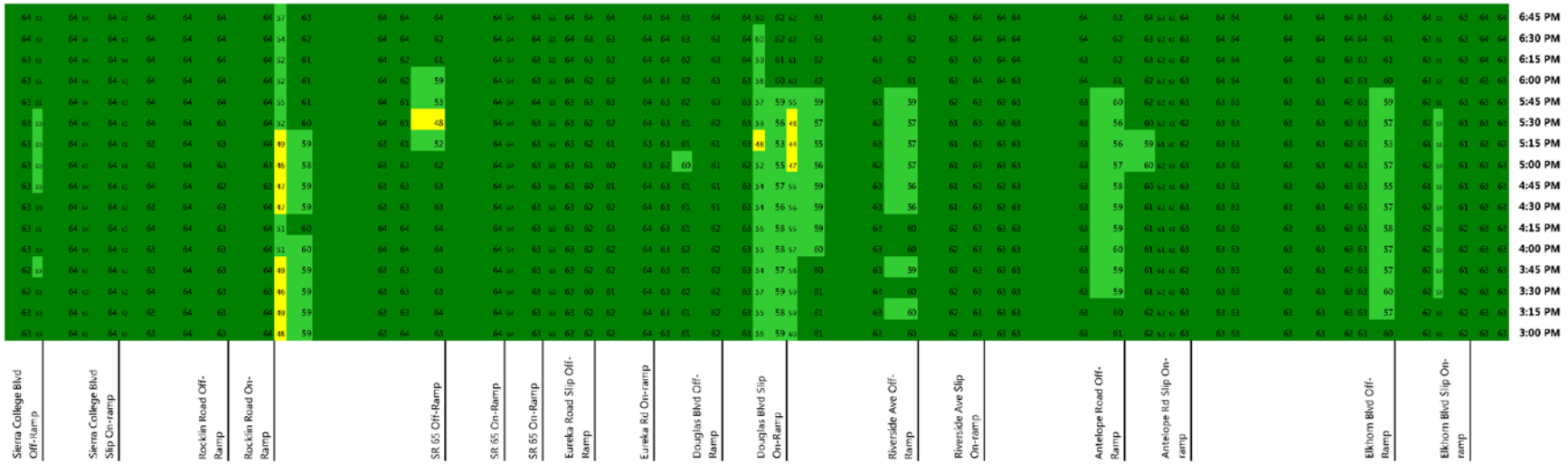
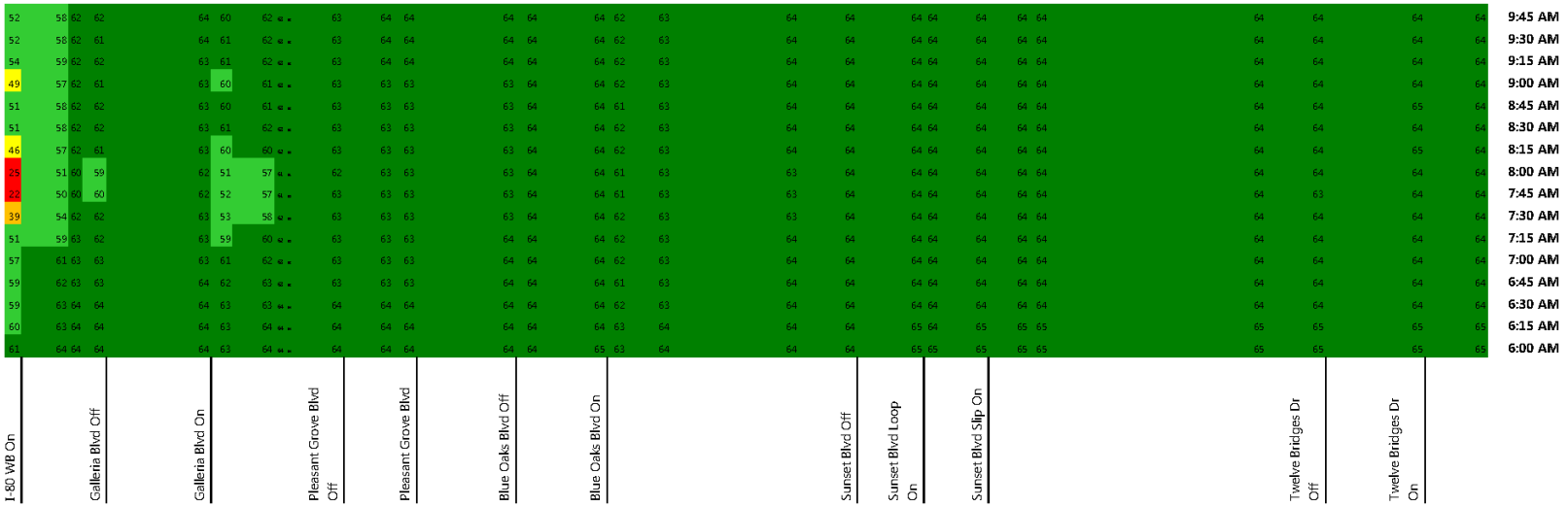


FIGURE 15 – SR 65 NORTHBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

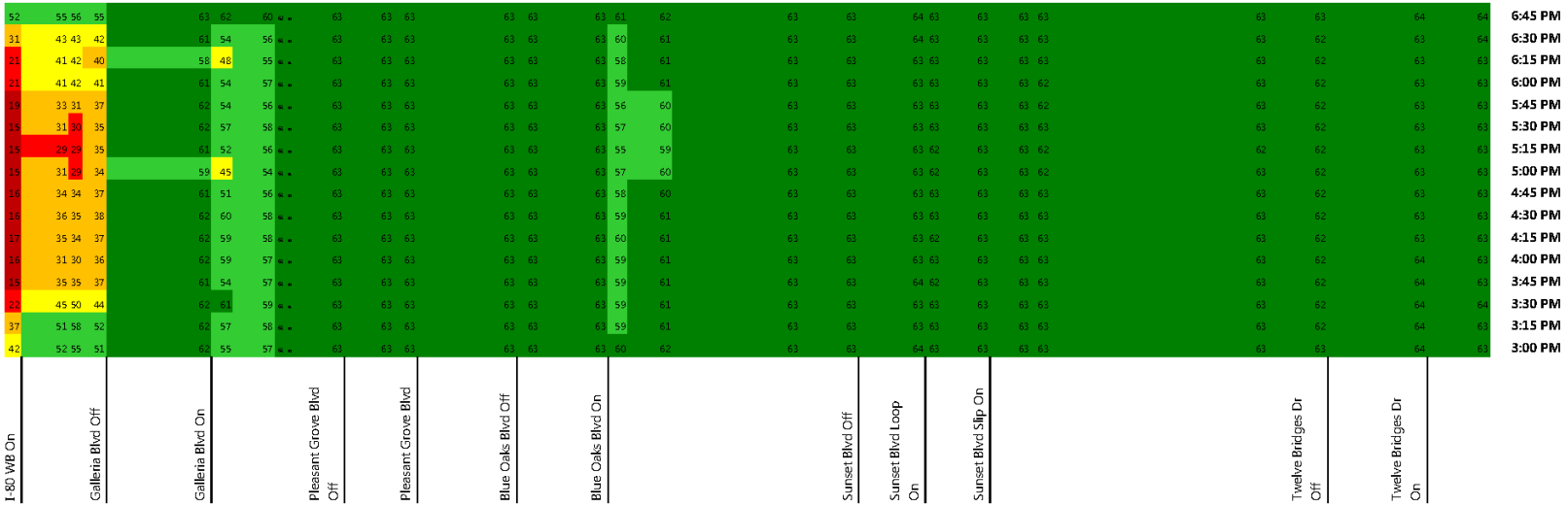
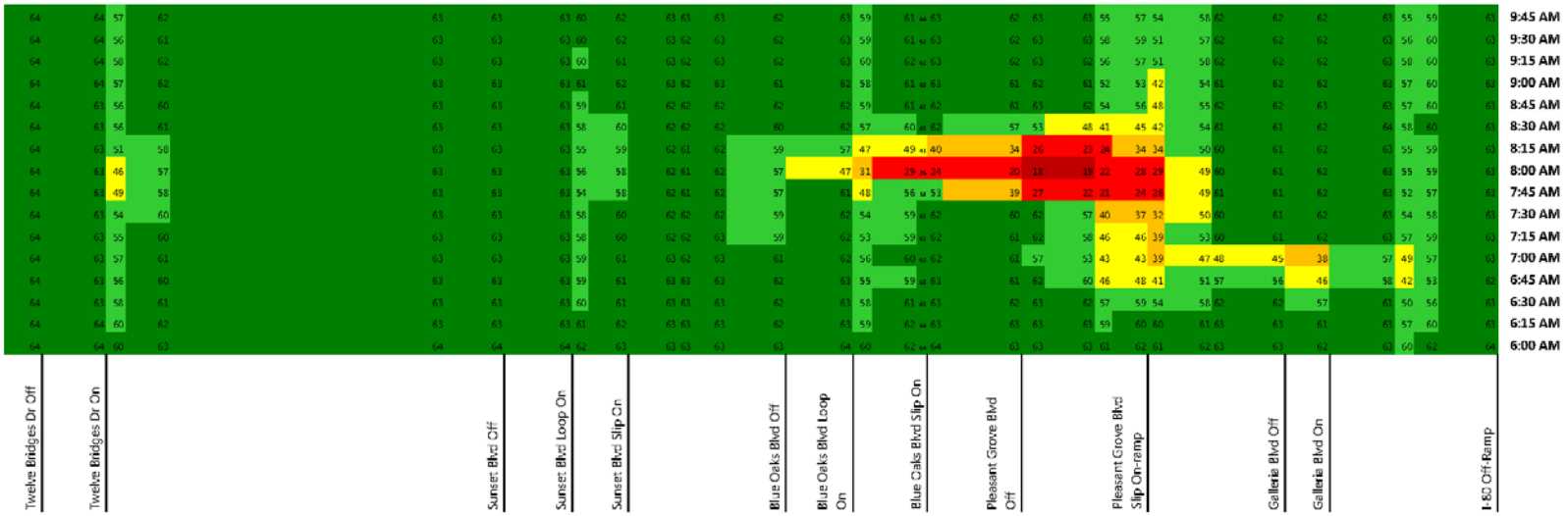
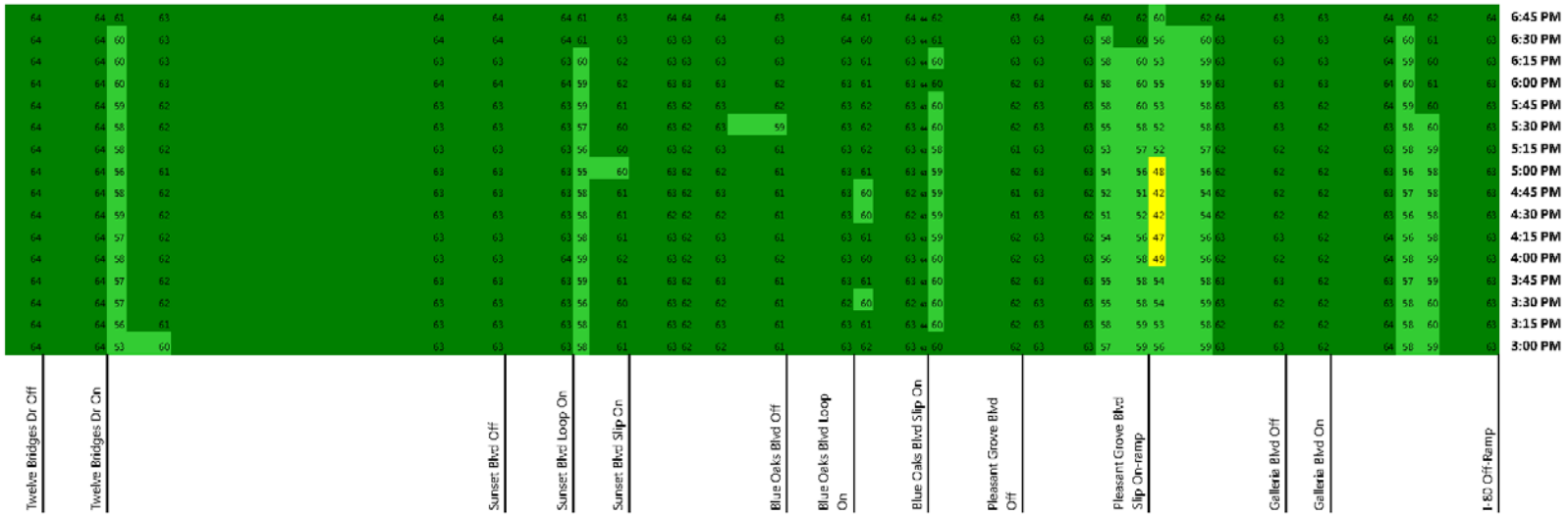


FIGURE 16 – SR 65 SOUTHBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD



During the PM peak hour, the primary bottleneck is northbound SR 65 at the on-ramp from westbound I-80. This bottleneck results in LOS F conditions on eastbound I-80 at the SR 65 off-ramp. LOS E conditions exist from Taylor Road to Eureka Road, with the rightmost lanes mostly congested (queued from the SR 65 off-ramp) while the left lanes operate with higher speeds. The Eureka Road off-ramp has LOS F conditions due to queues spilling back from the ramp terminal intersection. (During summer 2012, queues regularly extended to the mainline occurred due to recreational trips generated by the water park on Taylor Road. After the Eureka Road widening project was completed in 2013, the peak hour off-ramp queues no longer extend to the mainline.) Westbound I-80 has LOS E conditions at the SR 65 off-ramp due to the same bottleneck. LOS D/E conditions occur further north on northbound SR 65 between Stanford Ranch Road and Pleasant Grove Boulevard. If the bottleneck at I-80 were relieved, this downstream will likely become congested.

3.2.2. Arterial Intersection Operations

In general, arterial intersections operate better than freeway locations during the peak hours. Table 8 shows the LOS and average delay at key study intersections under existing (2012) conditions. Based on the evaluation criteria for this study, all of the study intersections operate acceptably. See the Technical Appendix for all study intersection results.

The AM peak hour intersection LOS results indicate all intersections operate at LOS C or better, except for the Roseville Parkway/Sunrise Avenue and Blue Oaks Boulevard/Washington Boulevard intersections which operate at LOS D. The Roseville Parkway/Sunrise Avenue intersection operates with split phasing to accommodate the hospital driveway, which leads to less efficient operations. The Blue Oaks Boulevard intersection (which has a LOS C threshold) experiences high peak period peak direction traffic flows because it serves both inbound (employees) and outbound (residents) commuters for west Roseville.

During the PM peak hour, four intersections operate at LOS D or E:

- Galleria Boulevard/Roseville Parkway
- Roseville Parkway/Sunrise Avenue
- Eureka Road/Taylor Road/I-80 Eastbound Ramps
- Douglas Blvd/Sunrise Avenue
- Rocklin Road/Granite Drive

Like the Blue Oaks Boulevard intersection in the AM peak hour, the Roseville Parkway and Eureka Road corridors serve both inbound (residents and shoppers) and outbound (employees) commuters. Additionally, reduced speeds occur on eastbound Eureka Road approaching the I-80 interchange. A

project that widened eastbound Eureka Road at Taylor Road was completed in 2013 (after the existing conditions analysis). All other intersections operate at LOS C or better during the PM peak hour.

TABLE 8: SELECTED INTERSECTION OPERATIONS RESULTS – EXISTING (2012) CONDITIONS

Intersection	AM Peak Hour	PM Peak Hour
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	**D / 43**	C / 33
10. Stanford Ranch Rd / Five Star Blvd	B / 19	C / 32
11. Stanford Ranch Rd / SR 65 NB Ramps	A / 9	B / 15
12. Galleria Blvd / SR 65 SB Ramps	B / 13	B / 19
13. Galleria Blvd / Antelope Creek Dr	B / 10	C / 24
14. Galleria Blvd / Roseville Pkwy	C / 30	D / 36
15. Roseville Pkwy / Creekside Ridge Dr	A / 6	B / 17
16. Roseville Pkwy / Taylor Rd	C / 30	C / 28
17. Roseville Pkwy / Sunrise Ave	D / 37	D / 37
18. Atlantic St / Wills Rd	B / 10	B / 12
19. Atlantic St / I-80 WB Ramps	A / 7	B / 11
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 26	E / 61
21. Eureka Rd / Sunrise Ave	C / 24	C / 30
26. Douglas Blvd / Sunrise Ave	C / 26	D / 35
28. Pacific St / Sunset Blvd	B / 18	C / 29
29. Rocklin Rd / Granite Dr	B / 15	D / 37
30. Rocklin Rd / I-80 WB Ramps	C / 21	B / 17
31. Rocklin Rd / I-80 EB Ramps	B / 17	B / 20
32. Rocklin Rd / Aguilar Rd	A / 8	B / 13

Note: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

3.3. **Traffic Safety**

Traffic collision data was compiled from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for the mainline freeway sections and ramps adjacent to the I-80/SR 65 interchange. The data shown are for the three-year period between April 1, 2009 and March 31, 2012. Within the study area, 728 collisions occurred on the freeway sections in the three-year period. Table 9 summarizes collisions on by freeway mainline section.

TABLE 9: MAINLINE ACCIDENT HISTORY

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
EB I-80 (PM 2.2 to 4.2): Douglas Blvd On to SR 65 Off	256	2	**0.012**	**0.56**	**1.52**	0.004	0.28	0.90
EB I-80 (PM 4.2 to 5.9): SR 65 Off to Rocklin Rd Off	52	0	0.000	0.15	0.48	0.004	0.27	0.87
WB I-80 (PM 4.3 to 5.9): Rocklin Rd On to SR 65 Off	81	1	**0.010**	**0.34**	0.81	0.004	0.27	0.87
WB I-80 (PM 2.2 to 4.3): SR 65 Off to Douglas Off	189	1	**0.006**	**0.31**	**1.08**	0.004	0.28	0.90
NB SR 65 (PM R4.9 to 6.9): I-80 On to Pleasant Grove Blvd Off	55	1	**0.009**	0.15	0.5	0.006	0.33	1.02
SB SR 65 (PM R4.9 to 7.1): Pleasant Grove Blvd WB On to I-80 Off	95	0	0.000	0.29	0.77	0.006	0.34	1.04

Notes: The post mile (PM) limits are provided in the first column. Bold and underline font indicate actual accident rates that are higher than the statewide average for similar facilities.

1. The accident rate is accidents per million vehicle-miles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately.

Source: Caltrans District 3 TASAS Table B, April 1, 2009 to March 31, 2012

The total collision rates were higher than statewide averages for eastbound and westbound I-80 between Douglas Boulevard and SR 65. This location has the highest volume and experiences the most severe congestion during peak periods. Therefore, drivers in this section are more likely to experience speed differentials and exposure to conflicts. The fatality and injury collision rate for westbound I-80 between Rocklin Road and SR 65 is also greater than the statewide average. This section is the first congested area drivers may experience when approaching the metropolitan Sacramento area from the east, so the potential is high for crashes due to driver inattentiveness.

Table 10 categorizes the collisions by type. The most frequent collision type (62 percent) is a rear end collision, which is typical of congested conditions. The next most frequent collision types are side-swipe

and hit object. The other collision types are collectively less than 10 percent of all collisions. The freeway section with the higher than average collision rates, I-80 between Douglas Boulevard and SR 65, also has the highest number of rear end collisions.

TABLE 10: MAINLINE COLLISIONS BY TYPE

Location	Head On	Side Swipe	Rear End	Broad -side	Hit Object	Over-turn	Auto-Ped	Other
I-80 EB: Douglas Blvd On to SR 65 Off	0	42	175	6	24	3	1	3
I-80 EB: SR 65 Off to Rocklin Rd Off	0	14	19	1	16	0	1	1
WB I-80: Rocklin Rd On to SR 65 Off	0	48	105	2	21	6	1	5
WB I-80: SR 65 Off to Douglas Off	0	8	53	2	11	2	2	1
NB SR 65: I-80 On to Pleasant Grove Blvd Off	0	6	34	1	10	1	1	2
SB SR 65: Pleasant Grove Blvd WB On to I-80 Off	0	13	67	1	14	0	0	0
Total	0	131 (18%)	453 (62%)	13 (2%)	96 (13%)	12 (2%)	6 (1%)	12 (2%)

Source: Caltrans District 3 TASAS - Table B, April 1, 2009 to March 31, 2012

Of the 728 collisions that occurred on the freeway system in the study area, 20 percent (148) occurred on the ramps at Eureka Road/Atlantic Street, Taylor Road, I-80/SR 65, and Stanford Ranch Road/Galleria Boulevard interchanges. Table 11 shows that three ramps each on eastbound and westbound I-80 have higher than average total collision rates. In the eastbound direction, they are the loop ramps at Eureka Road, Taylor Road, and SR 65. In the westbound direction, the two SR 65 ramps and the Atlantic Street on-ramp have higher than average collision rates. On SR 65, both on-ramps at Stanford Ranch Road/Galleria Boulevard have higher than average accident rates.

TABLE 11: RAMP ACCIDENT HISTORY

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
EB I-80 Off to Eureka Rd (PM 2.9)	13	0	0.000	0.16	1.01	0.003	0.34	1.01
EB I-80 On from EB Eureka Rd (PM 3.0)	3	0	0.000	**0.37**	**1.10**	0.002	0.21	0.73
EB I-80 On from WB Eureka Rd (PM 3.2)	6	0	0.000	**0.25**	0.51	0.003	0.18	0.57
EB I-80 Off to Taylor Rd (PM 3.6)	7	0	0.000	**0.62**	**1.44**	0.003	0.30	1.03
EB I-80 Off to SR 65 (PM 4.2)	31	0	0.000	**0.29**	**0.98**	0.004	0.20	0.68
EB I-80 On from SR 65 (PM 4.5)	2	0	0.000	**0.17**	0.17	0.003	0.14	0.41
WB I-80 Off to SR 65 (PM 4.3)	9	1	**0.070**	**0.42**	**0.63**	0.005	0.13	0.38
WB I-80 On from SR 65 (PM 4.0)	21	0	0.000	**0.18**	**0.75**	0.003	0.11	0.32
WB I-80 On from Taylor Rd (PM 3.6)	3	0	0.000	0.00	0.54	0.003	0.18	0.57
WB I-80 Off to WB Atlantic St (PM 3.2)	2	0	0.000	0.23	0.46	0.004	0.24	0.75
WB I-80 Off to EB Atlantic St (PM 3.0)	0	0	0.000	0.00	0.00	0.003	0.30	1.06
WB I-80 On from Atlantic St (PM 2.8)	9	0	0.000	**0.32**	**0.71**	0.002	0.22	0.63
NB SR 65 Off to Stanford Ranch Rd (PM R5.7)	2	0	0.000	0.06	0.11	0.002	0.08	0.25
NB SR 65 On from Stanford Ranch Rd (PM R6.2)	22	0	0.000	**0.88**	**2.15**	0.002	0.22	0.63
SB SR 65 Off to Galleria Blvd (PM R6.2)	2	0	0.000	0.09	0.18	0.002	0.08	0.25
SB SR 65 On from Galleria Blvd (PM R5.7)	16	0	0.000	**0.45**	**0.90**	0.002	0.22	0.63

Notes: The post mile (PM) limits are provided in the first column. Bold and underline font indicate actual accident rates that are higher than the statewide average for similar facilities.

1. The accident rate is accidents per million vehicle-miles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately.

Source: Caltrans District 3 TASAS Table B, April 1, 2009 to March 31, 2012

Chapter 4. Travel Demand Forecasts

The travel demand forecasts were developed using a validated sub-area model derived from the SACMET regional travel demand forecasting (TDF) model developed by SACOG[1]. The approach to developing travel demand forecasts started with the recognition that regional travel demand models do not contain sufficient detail or sensitivity for local applications like developing directional freeway mainline and ramp volume forecasts. Instead, the regional model provides a starting point for creating a more detailed sub-area model along the freeway corridor. Having a valid sub-area model is a critical step in ensuring a high level of confidence in the traffic volume forecasts that will be used to evaluate the effects of improving the I-80/SR 65 interchange.

4.1. Sub-Area Model Development

SACMET is a four-step TDF model. The version used to develop project forecasted was last calibrated and validated in 2008. This model represents the state of the practice for a metropolitan planning organization such as SACOG given the geographic area and population size covered by the model. Two advanced features of the model include a destination choice model for the home-based work purpose and a feedback loop between trip assignment and trip distribution. Issues or limitations of the model include the following.

- No feedback to land use projections – The model's land use projections are developed independently of specific model runs and are not affected by congestion and accessibility. For corridors where significant roadway capacity expansion will occur (which makes land along those corridors more accessible), the model does not contain sufficient sensitivity to capture the full effects of induced traffic that occurs due to induced growth. This issue is not considered significant for the I-80/SR 65 interchange since the increase in capacity is not commensurate with the increase in land use growth. Therefore, the peak period traffic volume forecasts that are the basis for the operations analysis substantially exceed available capacity.
- No feedback to trip generation – The model is insensitive to congestion effects on trip making behavior since it uses the same fixed trip generation rates in base year and future year models. This limits the model's sensitivity to congestion effects and likely results in higher traffic volume forecasts than are likely to occur in future years.
- Fixed peak period percentages – The model's forecasts of peak period traffic volumes are based on fixed percentages that are carried over from the base year model to the future year models. In

[1] The SACMET model used for this project was released in May 2011 and was developed to be consistent with the Sacramento Area Council of Governments Metropolitan Transportation Plan/Sustainable Communities Strategy 2035.

reality, peak periods will spread as congestion worsens and the peak period percentages will change. The use of base year peak period percentages for the future year models will likely result in peak period traffic volumes that are higher than the roadway network could operationally support.

For the I-80/SR 65 interchange project, the last two issues were addressed through the integration of the sub-area travel demand forecasts with a meso-scale trip assignment model and a microsimulation traffic operations model (which were built using the VISUM 12.0 and VISSIM 5.4 software, respectively). Figure 17 displays the entire SACMET model network and highlights the portion that is the study area for the I-80/SR 65 project.

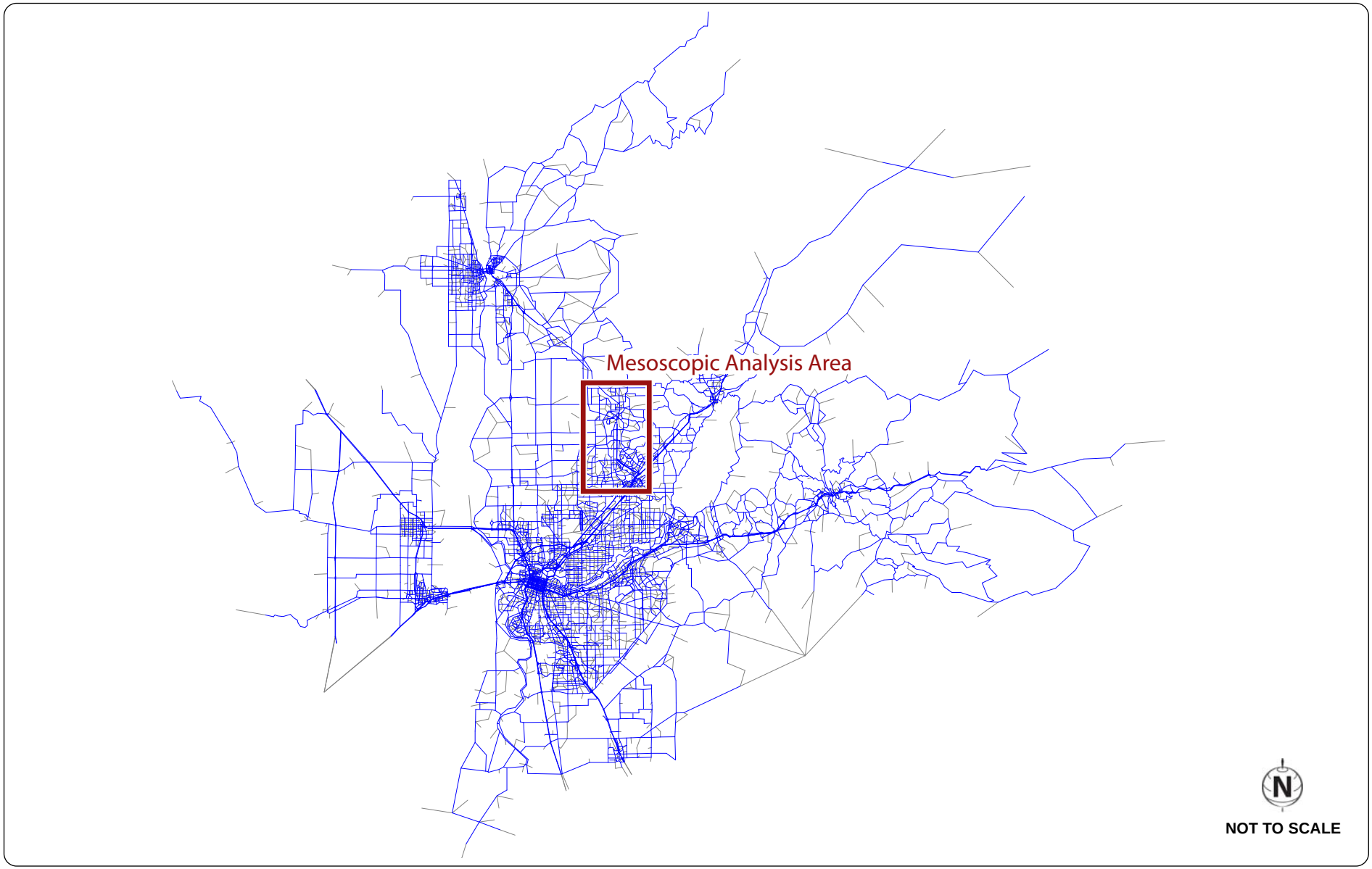
Key modifications to the SACMET model that were made within the sub-area are listed below.

- Updated base year land use estimates within the study area based on field observations, aerial photography, and input from Placer County and the Cities of Rocklin and Roseville.
- Updated base year roadway network to include greater detail and correct inconsistencies between model inputs and field observations.
- Added new traffic analysis zones (TAZs) in the study area to increase the level of detail and improve the loading of traffic from TAZs onto the network.

Figure 8 shows the VISUM mesoscopic model area and the VISSIM microscopic model area. Trip tables from the SACMET model were used to forecast peak period travel demand, and the mesoscopic VISUM model was used to refine the peak period temporal distribution into individual one hour assignments. In the final step, the VISUM trip tables and paths are imported to VISSIM where the final assignment occurs and the end result is a forecast of peak spreading and refined peak period traffic volume flows that are sensitive to the operational capacity constraints of the I-80/SR 65 network.

4.2. **Model Validation**

Validation compares model estimates of base year conditions to observed traffic counts and sensitivity tests are conducted to ensure the models respond in the correct direction and magnitude when changes to inputs are made. The comparison of model volumes to counts is referred to as static validation and involves statistical tests to measure how well the model volume estimates match the traffic counts. The sensitivity tests are called dynamic validation.



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SACMET MODEL NETWORK AND SUB-AREA LIMITS

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FIGURE 17

The base year for the SAMET model is 2008 so the static validation for the modified SACMET model and the VISUM model relied on available traffic counts from 2006 to 2009. This was necessary since a complete set of traffic counts was not available for 2008 alone. The static validation results should be viewed within this context because the model volumes are intended to represent 2008 conditions. Specific validation tests and thresholds were obtained from the *2010 California Regional Transportation Plan Guidelines* (California Transportation Commission, 2010). This document includes modeling guidelines for state, regional, and local agency projects.

4.2.1. Static Validation

After the changes noted above were completed, the modified SACMET model was validated within the project study area. Specific criteria have been established as target thresholds for the static tests. The static validation results for both models are compared to the target thresholds in Tables 12 and 13 below. As a regional model, the SACMET model performed well within the small sub-area. It passed all but one of the static tests (although it improved from its original off-the-shelf performance for this test). In general, the model generated volume estimates that closely matched freeway and ramp volumes. Differences tended to be larger on low volume roadways on the edge of the study area.

The VISUM model was developed just for the project study area and includes more network detail and a different approach to estimating and assigning trips. The VISUM model was developed using Airsage cell phone OD data and TomTom GPS speed data. The cell phone OD data were processed through a trip table estimation procedure to match 2008 traffic flows. The GPS speed data was used to set the link free-flow speed. As a result, the VISUM model static validation results in Table 13 show a close match to traffic counts.

4.2.2. Dynamic Validation

The SACMET and VISUM models were tested dynamically by deleting and adding links. Figure 18 displays two of the dynamic tests for illustrative purposes. The first test shows the change in peak hour traffic volumes when one lane is added in each direction on I-80 between Douglas Boulevard and Eureka Road. The second test shows the change in traffic levels when one lane in each direction is deleted from Roseville Parkway at the I-80 overcrossing.

In the first test, the model increased the I-80 volume as a result of adding a lane by shifting volume from the parallel roadways: Harding Boulevard, Sunrise Avenue, and Rocky Ridge Drive. In the second test, traffic volume on Roseville Parkway dropped with the reduction of a lane and volume was shifted to the parallel SR 65 and Atlantic Street/Eureka Road. Both models responded in the correct direction and magnitude when making changes to network inputs. The SACMET model also demonstrated appropriate responses in changes to land use inputs during the static validation process.

TABLE 12: SACMET MODEL VALIDATION RESULTS

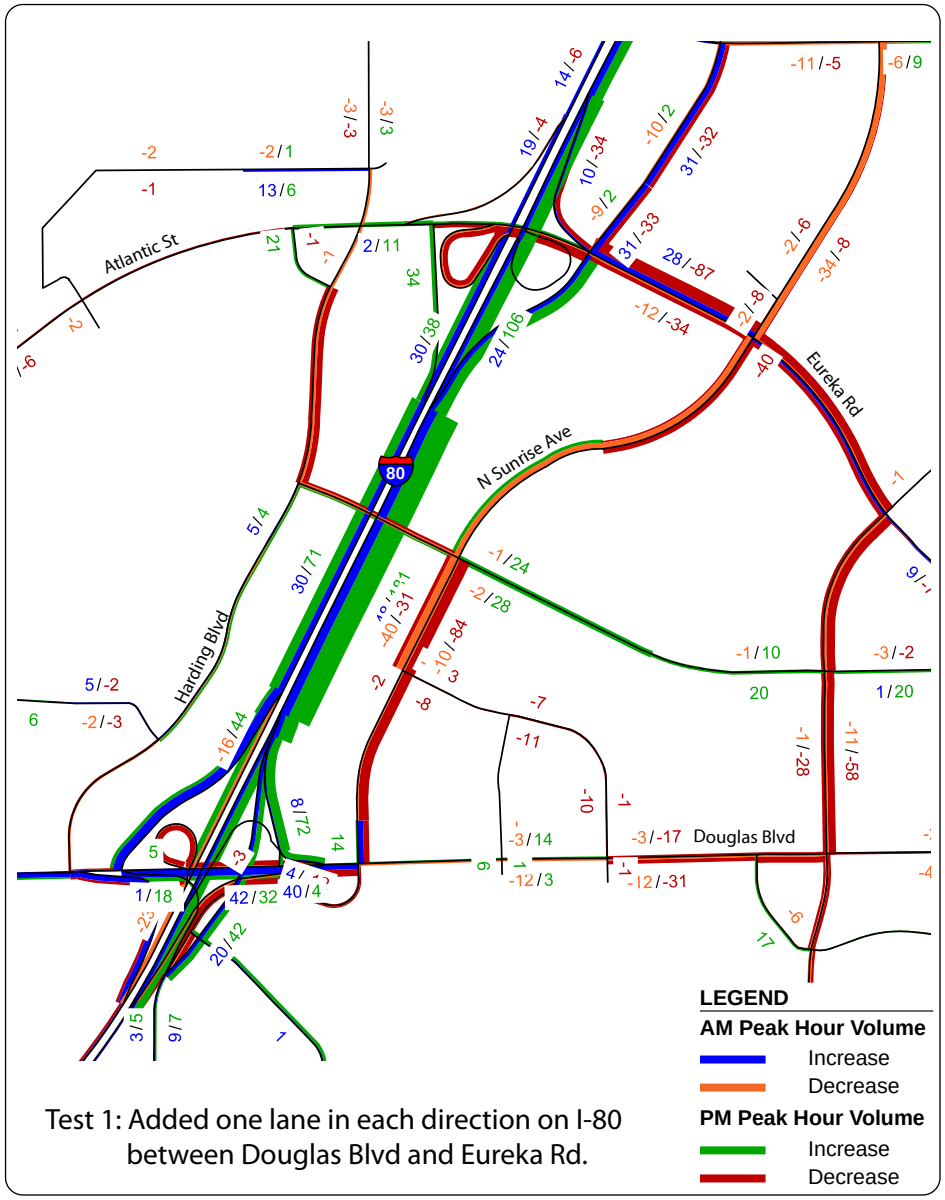
Measure	AM Peak Hour	PM Peak Hour	AM Peak Period	PM Peak Period	Threshold[1]
Model/Count Ratio	0.98	1.01	1.05	0.97	
Percent Within Caltrans Maximum Deviation	71%	*69%*	77%	70%	**> 75%**
Percent Root Mean Square Error	30%	31%	28%	28%	**< 40%**
Correlation Coefficient	0.94	0.93	0.96	0.94	**> 0.88**

Note: [1] *2010 California Regional Transportation Plan Guidelines*, California Transportation Commission, 2010
Source: Fehr & Peers, 2014

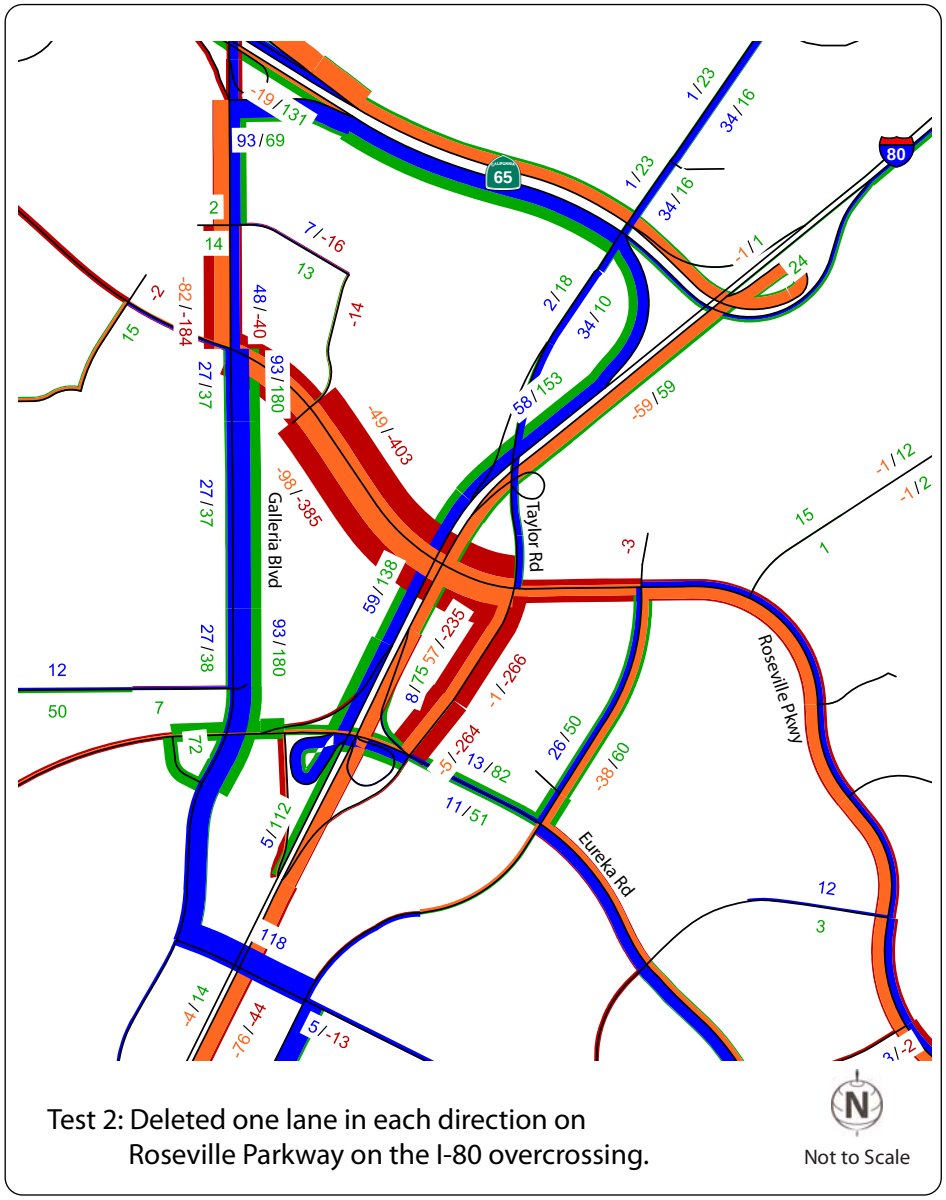
TABLE 13: VISUM MODEL VALIDATION RESULTS

Measure	AM Peak Hour	PM Peak Hour	AM Peak Period	PM Peak Period	Threshold[1]
Model/Count Ratio	1.01	1.01	1.01	1.01	
Percent Within Caltrans Maximum Deviation	100%	100%	100%	100%	**> 75%**
Percent Root Mean Square Error	11%	17%	16%	17%	**< 40%**
Correlation Coefficient	1.00	1.00	1.00	1.00	**> 0.88**

Note: [1] *2010 California Regional Transportation Plan Guidelines*, California Transportation Commission, 2010
Source: Fehr & Peers, 2014



Test 1: Added one lane in each direction on I-80 between Douglas Blvd and Eureka Rd.



Test 2: Deleted one lane in each direction on Roseville Parkway on the I-80 overcrossing.

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DYNAMIC VALIDATION TESTS

FIGURE 18

4.3. Future Year Forecasts

Traffic forecasts for design and construction year analysis were developed for the following project alternatives (see Figures 2 through 7).

1. Taylor Road Full Access Interchange
2. Collector-Distributor System Ramps
3. Taylor Road Interchange Eliminated
4. TSM
5. No Build

Traffic forecasts were developed for one additional alternative: Taylor Road Full Access Interchange with Antelope Creek Drive Connection. In this alternative, Antelope Creek Drive is extended east across the railroad tracks to Taylor Road. Since this alternative was dropped from consideration, these forecasts are presented in the Technical Appendix.

4.3.1. Design Year Forecasts

From a macro perspective, the proposed project alternatives – modification at one interchange – would not change regional travel demand. A sensitivity test of the SACMET model showed almost no change in travel demand with a change in capacity of the congested freeway connector ramps. Instead, the most significant effects on future traffic volumes will occur in terms of trip routing within the meso-scale study area due to travel time differences caused by the alternatives. Therefore, the PDT agreed to use the same set of trip tables for all project alternatives, which means that volumes at the sub-area boundaries are the same across all alternatives.

The volume forecast process began with isolating the incremental peak period volume growth (2008 to 2035) between traffic analysis zones (TAZs) in the sub-area using the modified SACMET model (macro level). This incremental growth was then added to the base year VISUM trip table (meso level) that was derived from the Airsage cell phone data. The incremental SACMET growth was inspected to verify that the changes in origin-destination trips were commensurate with the location of socioeconomic growth. Individual origin-destination pair volumes were not allowed to decrease between base and cumulative years.

In the next step, the four-hour peak period trip tables were divided into hourly trip tables by mode: SOV, HOV, and truck. The conversion from peak period to hourly trip tables used the existing ratio of hourly traffic volume to peak period volume. The mode share for HOVs was based on the relative peak period mode share in the 2035 SACMET model. For the entire meso study area, the overall forecast HOV shares are 18 and 19 percent during the AM and PM peak periods, respectively. The truck share is assumed to

increase from 2.7 and 1.4 percent under existing conditions to 3.0 and 2.0 percent under the design year for the AM and PM peak periods, respectively.

Some adjustments were made to the HOV shares for select locations based on previous comments from Caltrans about HOV forecasts being lower than observed conditions on I-80. Table 14 shows the AM and PM peak hour HOV percentages for the I-80 western gateway from the 2035 SACMET model, the 2012 traffic counts, and the proposed 2040 forecast values. The 2008 and 2035 SACMET model forecasts show similar values of 11 to 13 percent at this gateway. These values are lower than the traffic counts that were collected in 2012. The proposed 2040 HOV percentages use the 2012 traffic count percentages for the off-peak directions. In the peak direction, a five percentage point increase was assumed to compensate for the difference between model estimates and counts. Additionally, traffic congestion is expected to be more severe in the design year, which would encourage the formation of carpools.

TABLE 14: PEAK PERIOD HOV PERCENTAGE FOR I-80 WESTERN GATEWAY

	2035 SACMET		2012 Counts		2040 Forecast	
Direction	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Eastbound	11%	13%	15%	17%	15%	22%
Westbound[1]	13%	13%	14%	18%	19%	18%

Note: 1. The count location was at the Riverside Ave/Auburn Blvd overcrossing, but the westbound study area gateway is between Elkhorn Blvd and Madison Ave.

Source: Fehr & Peers, 2014

The five percentage point increase was also validated based on a June 2012 sampling of traffic volumes at the I-80/Douglas Boulevard, I-80/Eureka Road, and SR 65/Galleria Boulevard on-ramps, which found HOV percentages ranging from 9 to 25 percent for the AM peak hour and 14 to 36 percent for the PM peak hour. The AM and PM peak hour averages of 16 and 24 percent from these samples are generally similar to the 2035 SACMET forecasts of 18 and 19 percent, respectively. However, peak direction HOV percentages were some of the largest values observed. The adjustments noted in Table 13 result in HOV volume forecasts that are at or near the HOV lane operating capacity under design year conditions, so they were considered reasonable for purposes of this study.

The future year VISUM trip tables were then assigned to each project alternative network. These networks included all the planned transportation improvements shown in Figures 6 and 7 plus unique features of each alternative. The preliminary forecasts from this step were reviewed and adjusted for anomalies such as unexpected decreases in traffic volumes when compared to existing conditions. The expected decreases that occurred are noted below.

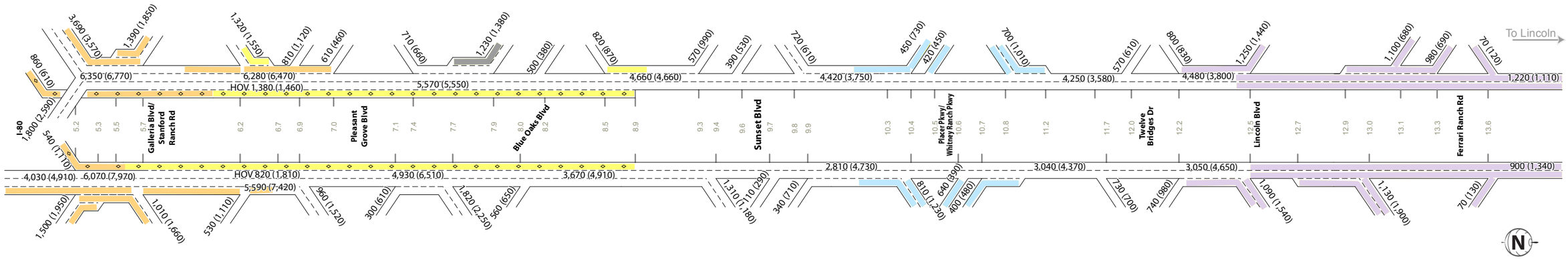
- Riverside Avenue slip on-ramp to westbound I-80 – This ramp shows a decrease over existing volumes. This decrease is allowed since the cumulative roadway network includes several projects

that increase parallel capacity between west Roseville and Sacramento County (widening Baseline Road/Riego Road between SR 99 and Foothills Boulevard, widening Watt Avenue, etc.). These capacity enhancements redistribute some existing long-distance trips from Placer County to Sacramento County to alternative routes.

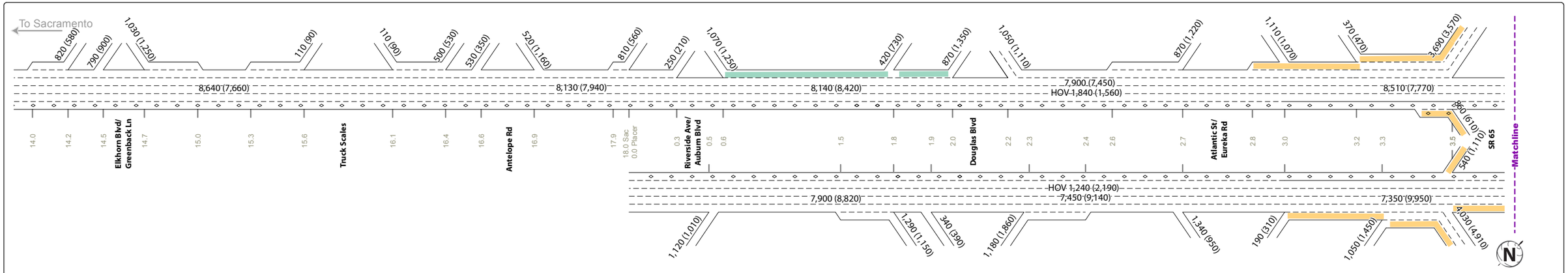
- Sunset Boulevard loop on-ramp to southbound SR 65 – The construction of the SR 65/Whitney Ranch Parkway/Placer Parkway interchange provides an alternate route so that the demand at SR 65/Sunset Boulevard is lower.
- Taylor Road off-ramp from eastbound I-80 for the Taylor Road Full Access Interchange and Collector-Distributor System Ramps Alternatives – With the widening of the eastbound to northbound freeway connector, traffic destined to Rocklin can use SR 65 to Stanford Ranch Road rather than the more indirect route of Taylor Road and Pacific Street to Sunset Boulevard.

The final trip tables and the associated travel paths from the VISUM assignment were transferred to VISSIM for final assignment and analysis. Figures 19 through 23 display the specific freeway lane configurations associated with each alternative, along with the AM and PM peak hour traffic volume forecasts. These volumes represent traffic demand that may not be fully accommodated during the peak hour, which is determined as part of the VISSIM analysis.

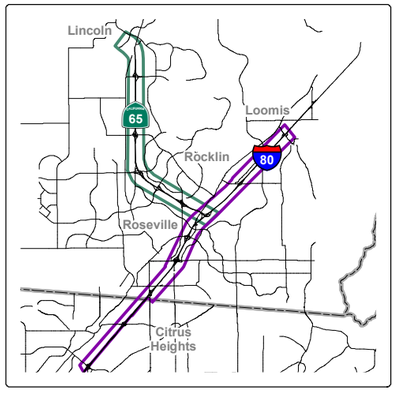
The traffic forecasts for the study intersections are provided in the Technical Appendix.



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65

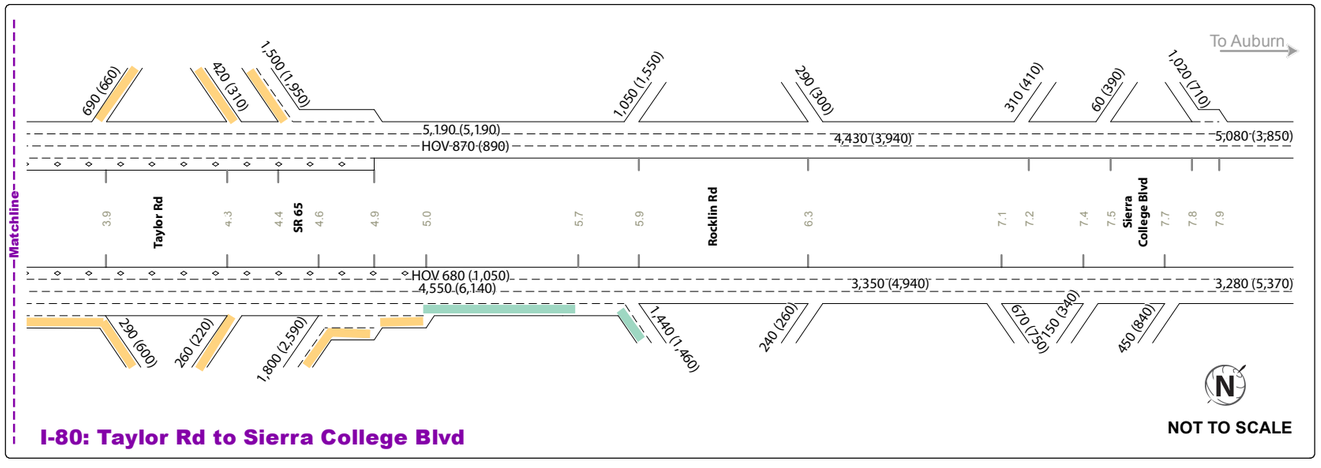


LEGEND

- AM (PM) Peak Hour Traffic Volume for 2040 Conditions
- HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions
- 10.1 Postmile
- Alternative 1

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: Taylor Rd to Sierra College Blvd

FEHR PEERS

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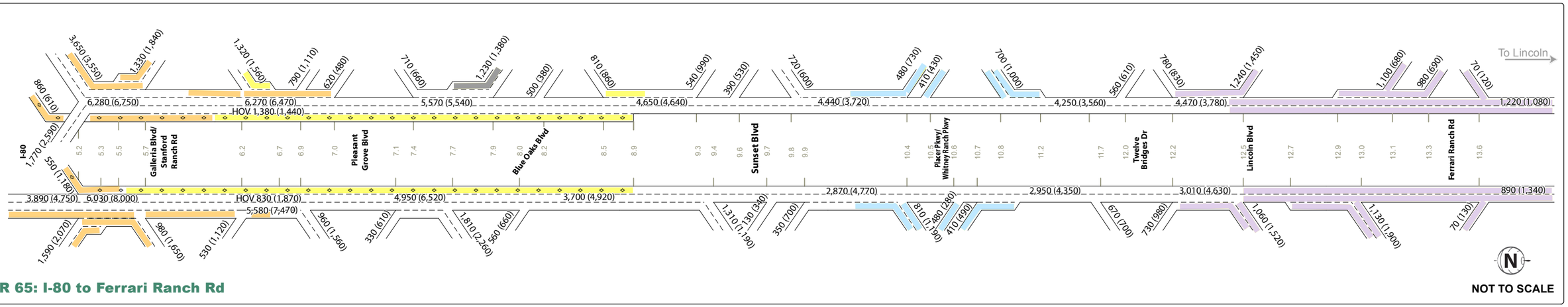
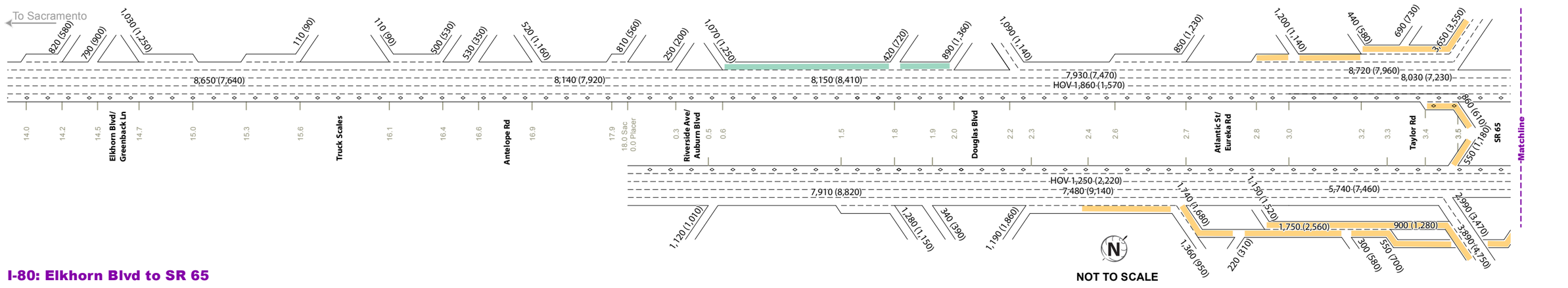
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)

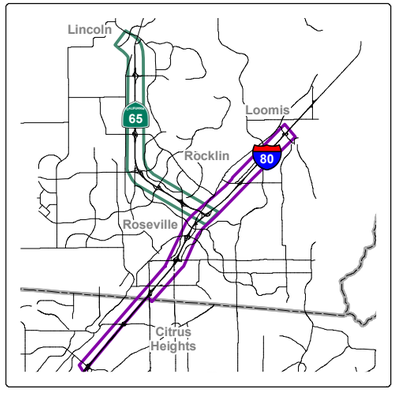
FIGURE 19



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

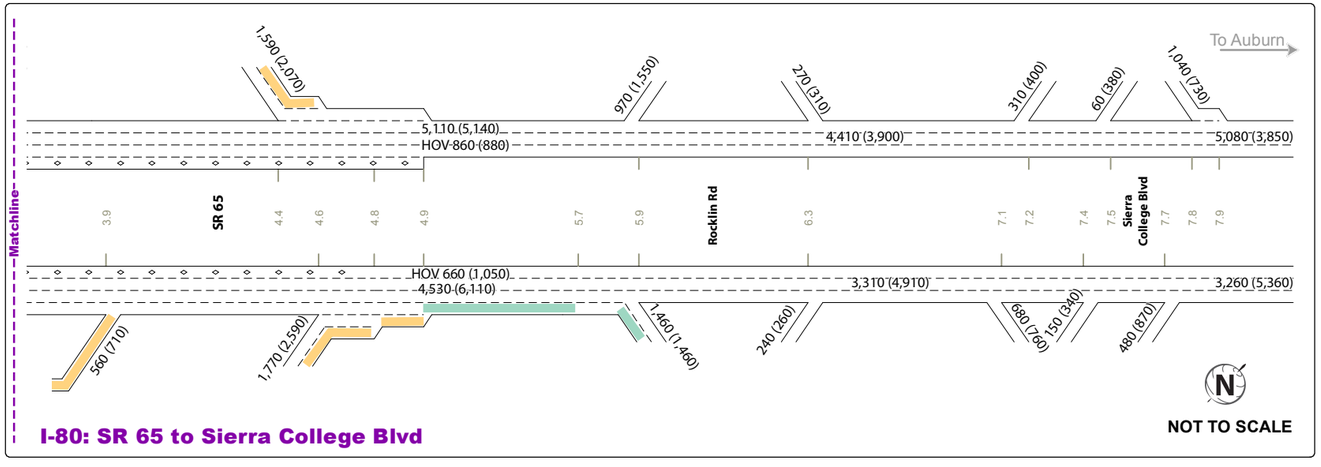
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 2

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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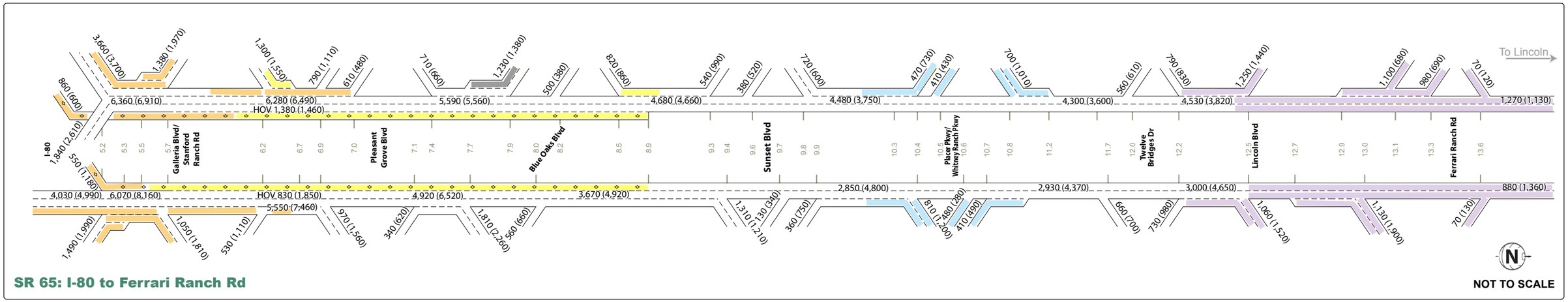
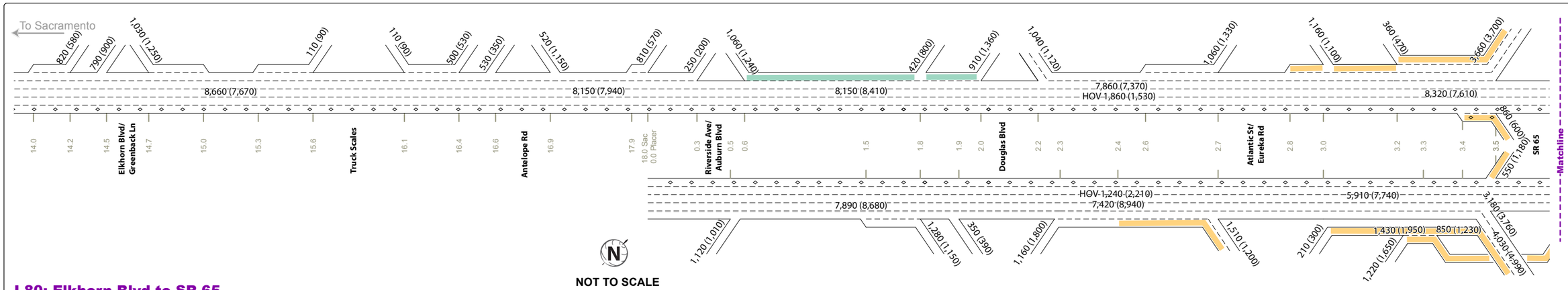
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)

FIGURE 20



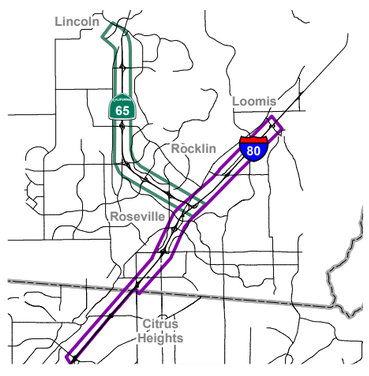
SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to SR 65

NOT TO SCALE



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

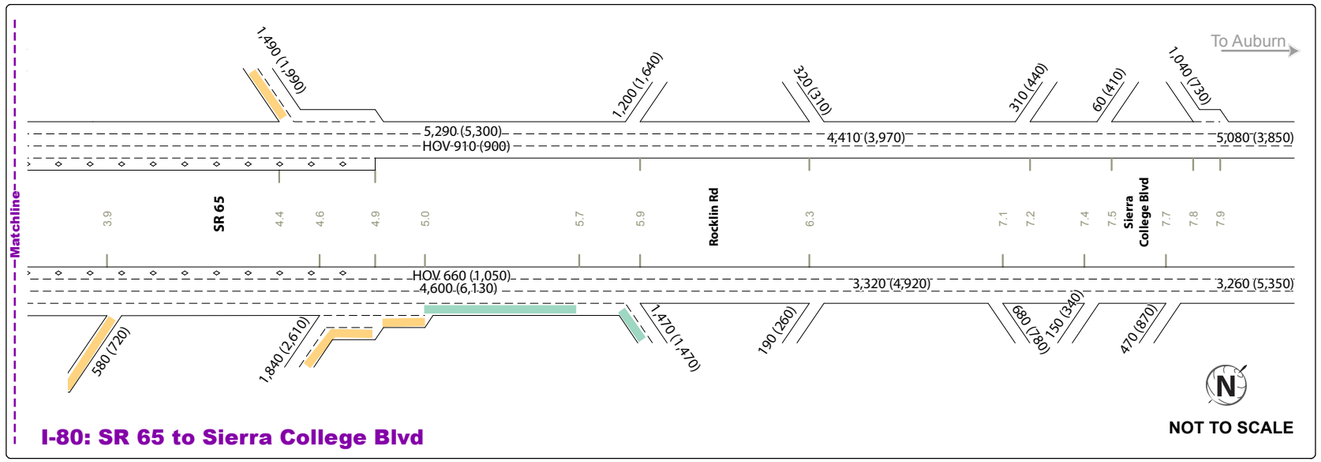
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 3

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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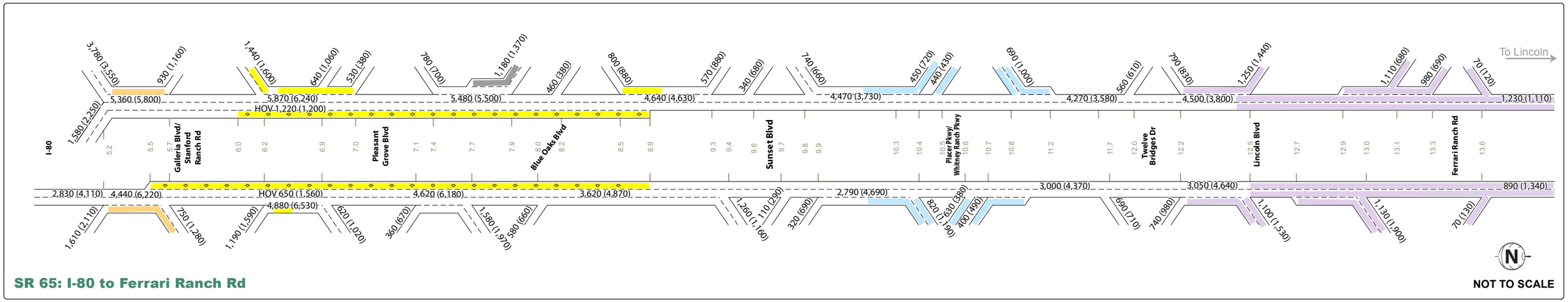
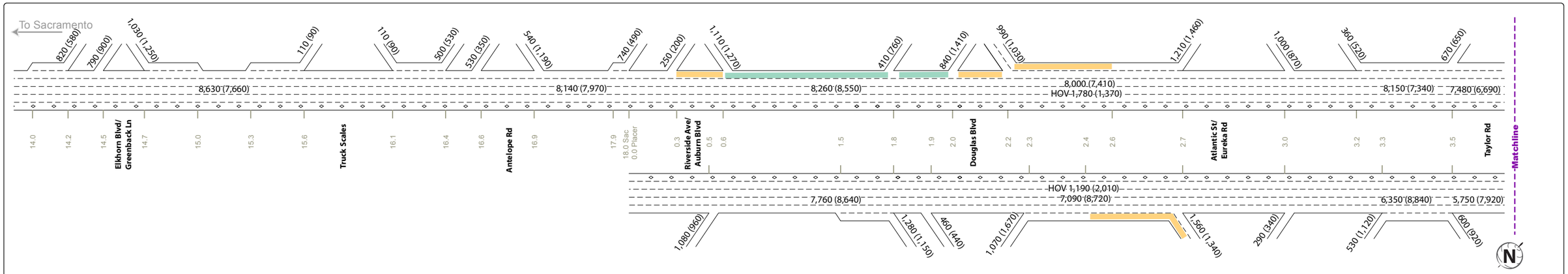
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)

FIGURE 21



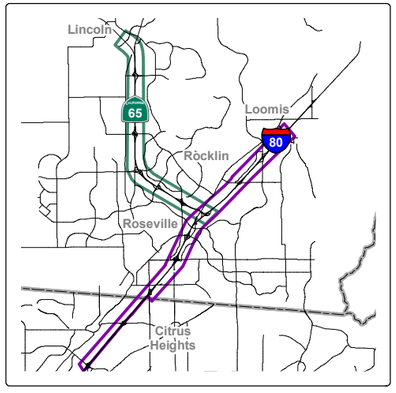
SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

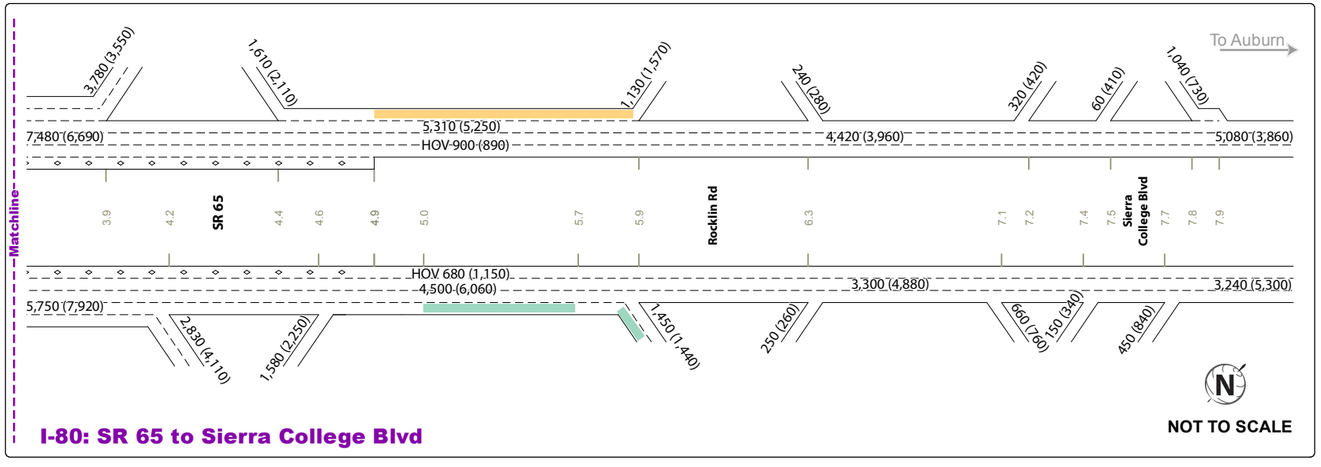
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 4

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TRANSPORTATION SYSTEM MANAGEMENT (ALTERNATIVE 4)

FIGURE 22

FEHR & PEERS

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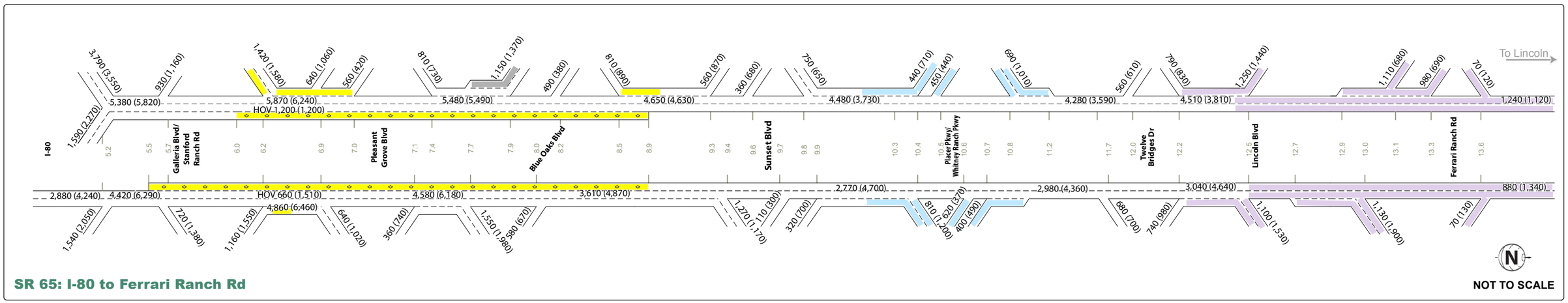
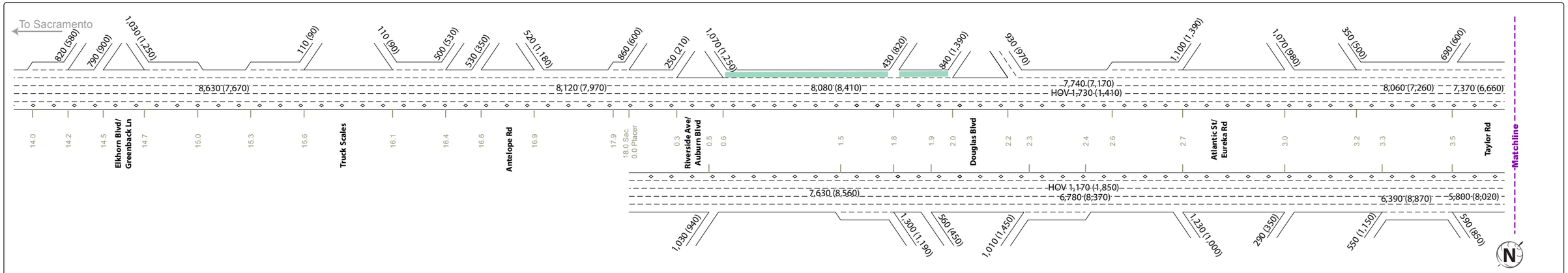


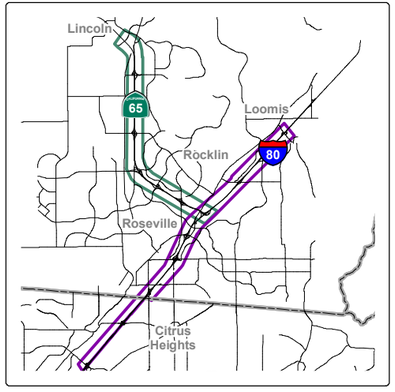
SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE



LEGEND

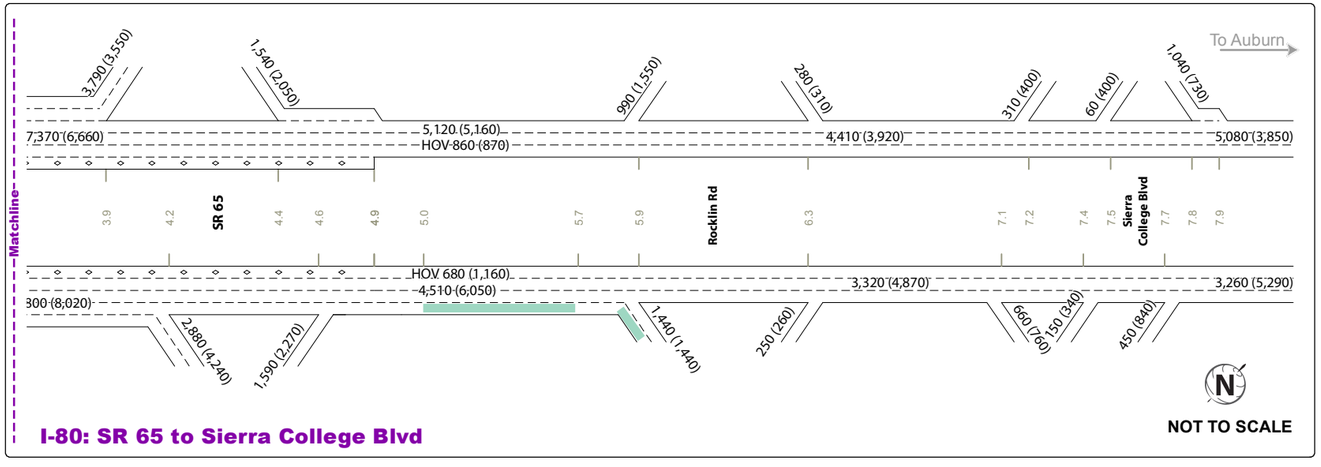
AM (PM) Peak Hour Traffic Volume for 2040 Conditions

HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Final\GIS\MXD\LOS_Schematic\Design\F23_year2040_NoBuild.mxd

DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO BUILD (ALTERNATIVE 5)

FIGURE 23

Figures 24 through 27 show design year volume comparison plots between project alternatives. The orange and red colors indicate a volume decrease for the AM and PM peak hours, respectively. The blue and green colors indicate a volume increase for the AM and PM peak hours, respectively. For these bandwidth plots, the freeway HOV lane links have been turned off so that the changes to the regular mainline lanes can be shown.

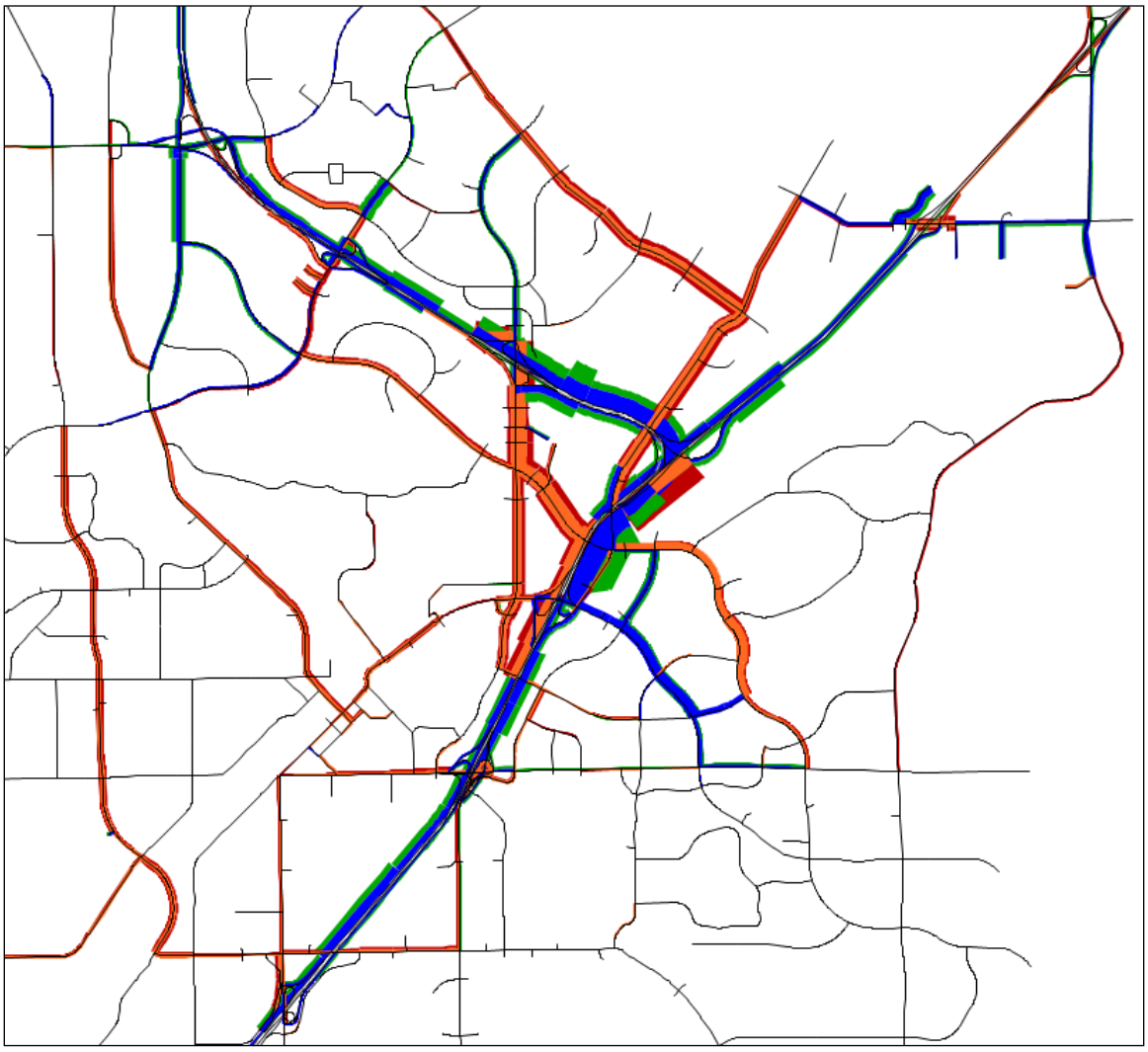


Figure 24 – Volume Comparison of Alternatives 3 and 5

Figure 24 shows a comparison of Alternative 3 (Taylor Road Interchange Eliminated) and 5 (No Build). With the additional capacity at the I-80/SR 65 interchange, volumes are higher from Douglas Boulevard on I-80 to Blue Oaks Boulevard on SR 65 under the No Taylor alternative. Volume increases also occur on arterials that access the north and south ends of this freeway segment: Eureka Road east of I-80, Stanford Ranch Road north of SR 65, and Pleasant Grove Boulevard and Blue Oaks Boulevard west of SR 65. Routes parallel to the freeway segment show decreases: Foothill Boulevard, Washington Boulevard, Roseville Parkway, and Galleria Boulevard/Harding Boulevard. Removing the I-80/Taylor Road

interchange shifts traffic from Taylor Road and Sunset Boulevard to SR 65 and Stanford Ranch Road. The differences between the No Build alternative and the other freeway reconstruction alternatives (Alternatives 1 and 2) are similar.

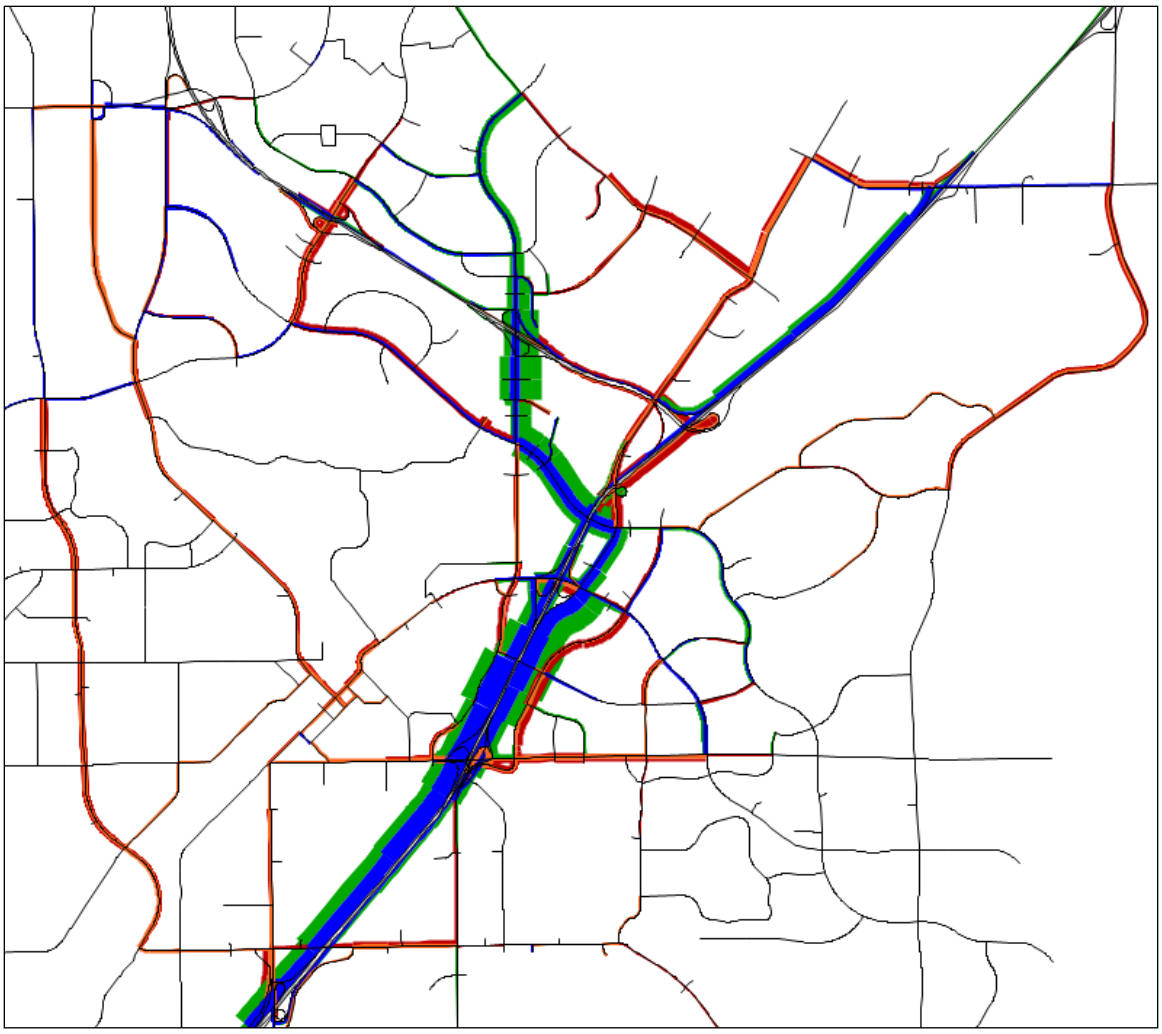


Figure 25 – Volume Comparison of Alternatives 4 and 5

Figure 25 compares the TSM and No Build alternatives. Volume increases are shown for the locations with additional lanes: westbound I-80 at Douglas Boulevard and between SR 65 and Rocklin Road. The signal coordination improvements along Galleria Boulevard and Roseville Parkway are expected to provide higher volumes, too. Volume decreases would occur on the parallel routes at the auxiliary lane locations: Douglas Blvd, Riverside Avenue, Sunrise Avenue, and Cirby Way to the south and Taylor Road and Sierra College Boulevard to the north. Despite the addition of auxiliary lanes, the traffic demand volume for SR 65 between I-80 and Galleria Boulevard is not forecasted to change much. While the auxiliary lanes would provide more capacity, the I-80 ramps to and from the west would remain over capacity, which would constrain the demand volume.

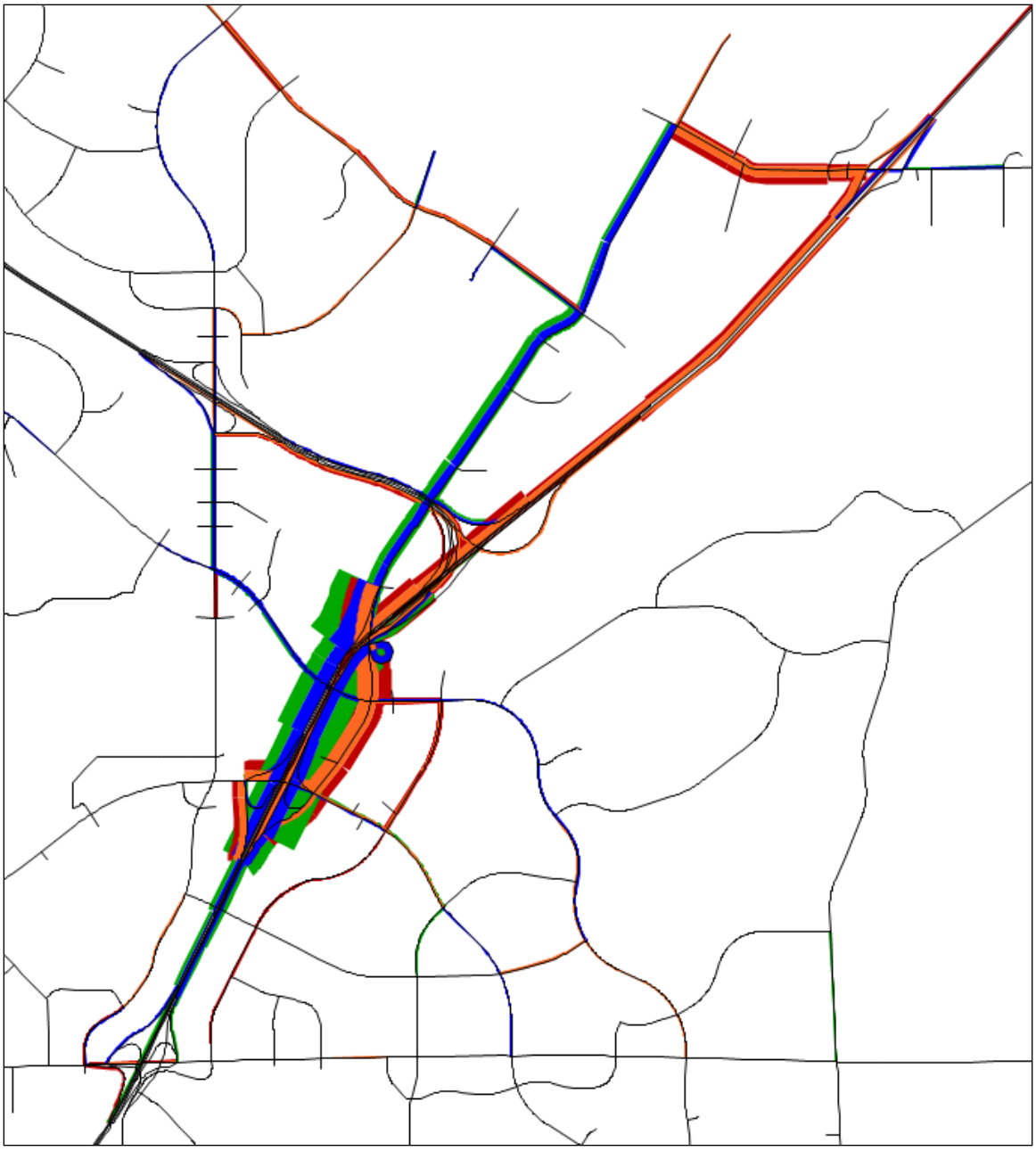


Figure 26 – Volume Comparison of Alternatives 2 and 3

Figure 26 shows the volume differences between Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated). Although both alternatives would expand the I-80/SR 65 interchange, the first alternative maintains the existing Taylor Road connections. As a result, traffic volume would mostly shift from the Eureka Road interchange to the new Taylor Road interchange. The Rocklin Road interchange would see some diversion, but the change at the SR 65/Galleria Boulevard interchange would be small. As noted above, the increase in capacity at the freeway-to-freeway interchange would shift volume to the Galleria Boulevard interchange without regard to whether an interchange is provided at Taylor Road.

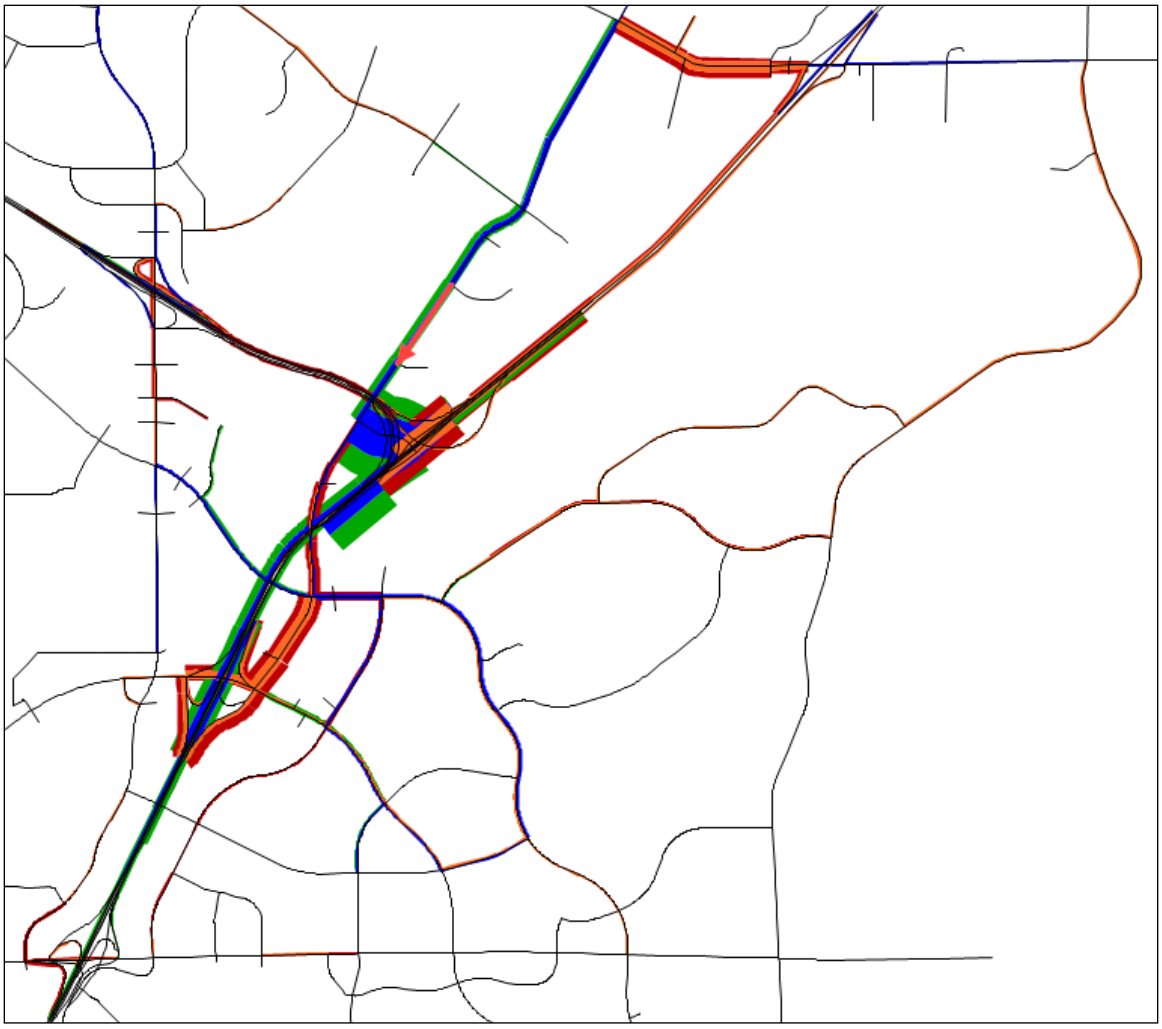


Figure 27 – Volume Comparison of Alternatives 1 and 3

Figure 27 shows the volume differences between Alternatives 1 (Taylor Road Full Access Interchange) and 3 (Taylor Road Interchange Eliminated). Compared to the alternative without a Taylor Road interchange, the proposed interchange inside the I-80/SR-65 interchange would shift volume away from the Eureka Road/Atlantic Street interchange ramps, Taylor Road, and Rocklin Road. Volumes would increase on I-80 between the Eureka Road/Atlantic Street and Taylor Road interchanges and on Taylor Road/Pacific Street between the new interchange and Rocklin Road. The changes to volumes on SR 65 would be minor.

4.3.2. HOV Volume Forecasts

The VISUM model includes HOV lanes as separate roadway links to account for the additional HOV-only capacity. Due to the close-spacing of the ramps, access to the HOV direct connectors at the I-80/SR 65 interchange is restricted in the model to traffic west of Eureka Road/Atlantic Street and north of Stanford Ranch Road/Galleria Boulevard. The resulting HOV lane projections for the project alternatives are listed in Table 15.

TABLE 15: HOV LANE VOLUME FOR DESIGN YEAR CONDITIONS

Location	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
EB I-80: Douglas Blvd to Eureka Rd	1,070	1,650	1,080	1,540	1,070	1,480	1,040	1,460	1,030	1,470
WB I-80: Atlantic St to Douglas Blvd	1,570	1,310	1,580	1,320	1,570	1,300	1,320	1,230	1,530	1,280
EB I-80 to NB SR 65	540	1,110	550	1,180	550	1,180	n/a	n/a	n/a	n/a
SB SR 65 to WB I-80	860	610	860	610	860	600	n/a	n/a	n/a	n/a
NB SR 65: Stanford Ranch Rd to Pleasant Grove Blvd	720	1,590	720	1,610	710	1,590	570	1,460	590	1,410
SB SR 65: Pleasant Grove Blvd to Galleria Blvd	1,230	1,200	1,230	1,200	1,230	1,200	1,100	1,090	1,080	1,080

Source: Fehr & Peers, 2014

Under No Build (Alternative 5), HOVs will use the regular direct connector ramps to travel between the HOV lanes on I-80 and SR 65. Because the ramps will be over capacity, the demand will be constrained. In particular, the AM peak hour HOV lane volume on northbound SR 65 would be low. With demand constrained at the I-80 interchange, northbound SR 65 would be relatively free from congestion, so the HOV lane would not provide a travel time advantage.

With the addition of the HOV direct connector ramps, the mainline HOV lane volume would increase. The HOV direct connector peak hour volume is projected to range from 540 to 1,180 vehicles per hour depending on the direction and peak hour. With the HOVs from the westbound to northbound connector added in, the HOV lane volume on northbound SR 65 would be similar to the eastbound I-80 volume. HOV lane volumes would be similar across the alternatives that reconstruct the I-80/SR-65 Interchange (Alternatives 1, 2, and 3).

4.3.3. Meso-Scale Network Performance for Design Year

In addition to generating traffic volume forecasts for input to the VISSIM microsimulation traffic operations model, the VISUM model was used to produce the same meso-scale network performance measures reported for existing conditions. Figures 28 through 32 compare VMT, VHT, VHD, freeway VHD, and project-area freeway VHD, respectively, across the forecasting alternatives for design year conditions during the AM, the PM, and both the AM and PM peak periods. The build alternatives increase VMT during the AM peak period and decrease VMT during the PM peak period (VMT is reported by 5-mph speed bin in the appendix). The results generally show that the build alternatives improve network efficiency by lowering VHT and VHD compared to the No Build Alternative. Although Alternative 1 (Taylor Road Full Access Interchange) has the largest reductions in VHD, Alternative 2 (Collector-Distributor System Ramps) provides the best results for VMT, VHT, and freeway VHD. Figure 32 shows that the build alternatives would reduce freeway delay by about 25 percent in the project area bounded by Douglas Boulevard, Rocklin Road, and Stanford Ranch Road/Galleria Boulevard.

4.3.4. Construction Year Forecasts

The construction year (2020) forecasts shown in Figures 33 through 37 were developed by interpolating between the hourly matrices for the baseline (2012) traffic volume estimates and the design year (2040) forecasts. Using VISUM, the resulting matrices were assigned to the roadway network that corresponds to the planned projects expected to be completed by 2020 (as shown in Figure 6). Due to these changes, construction year demand volumes at any particular location may not be the exact linearly interpolated value between the existing and design year volumes.

This process presumes a linear growth relationship and captures some of the influence of project alternatives on trip assignment. One of the potential limitations of this approach is that recent growth has not kept pace with the projected linear growth rate. The sluggish economic recovery from the 2008/09 recession may result in actual construction year volumes that are lower than the projections, but this outcome is acceptable for the purpose of designing and evaluating project alternatives.

Alternative	Vehicle Miles of Travel (millions)			Percent Reduction from No Build		
	AM	PM	AM & PM	AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	1.99	2.46	4.45	-0.33%	0.05%	-0.12%
2 - Collector-Distributor System Ramps	1.99	2.45	4.44	-0.13%	0.25%	0.08%
3 - Taylor Road Interchange Eliminated	1.99	2.45	4.45	-0.19%	0.22%	0.04%
4 - TSM	1.99	2.46	4.45	-0.07%	0.01%	-0.03%
5 - No Build	1.99	2.46	4.45	-	-	-

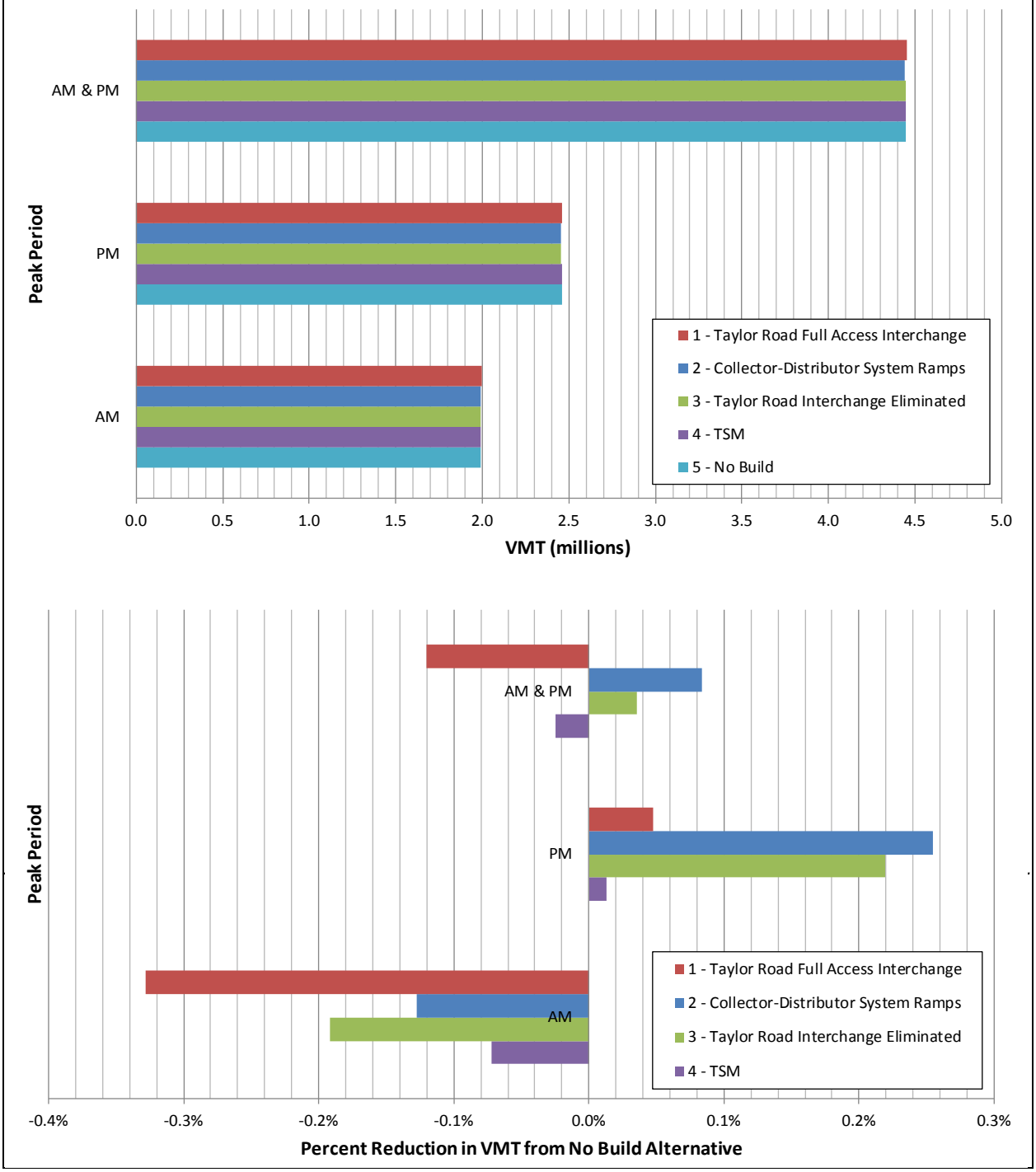
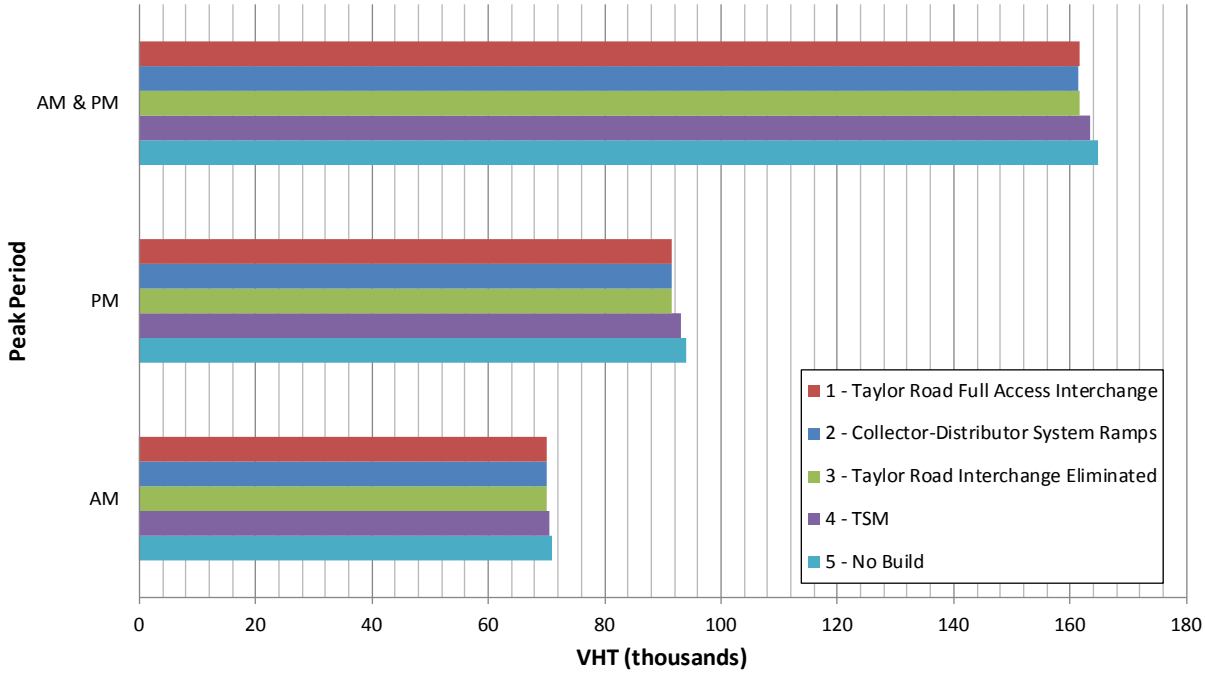


Figure 28 – Design Year Meso-Scale VMT Comparison

Alternative	Vehicle Hours of Travel (thousands)			Percent Reduction from No Build		
	AM	PM	AM & PM	AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	70.1	91.5	161.5	1.17%	2.60%	1.99%
2 - Collector-Distributor System Ramps	70.1	91.4	161.5	1.21%	2.63%	2.02%
3 - Taylor Road Interchange Eliminated	70.1	91.6	161.7	1.12%	2.48%	1.89%
4 - TSM	70.4	93.1	163.5	0.72%	0.83%	0.78%
5 - No Build	70.9	93.9	164.8	-	-	-



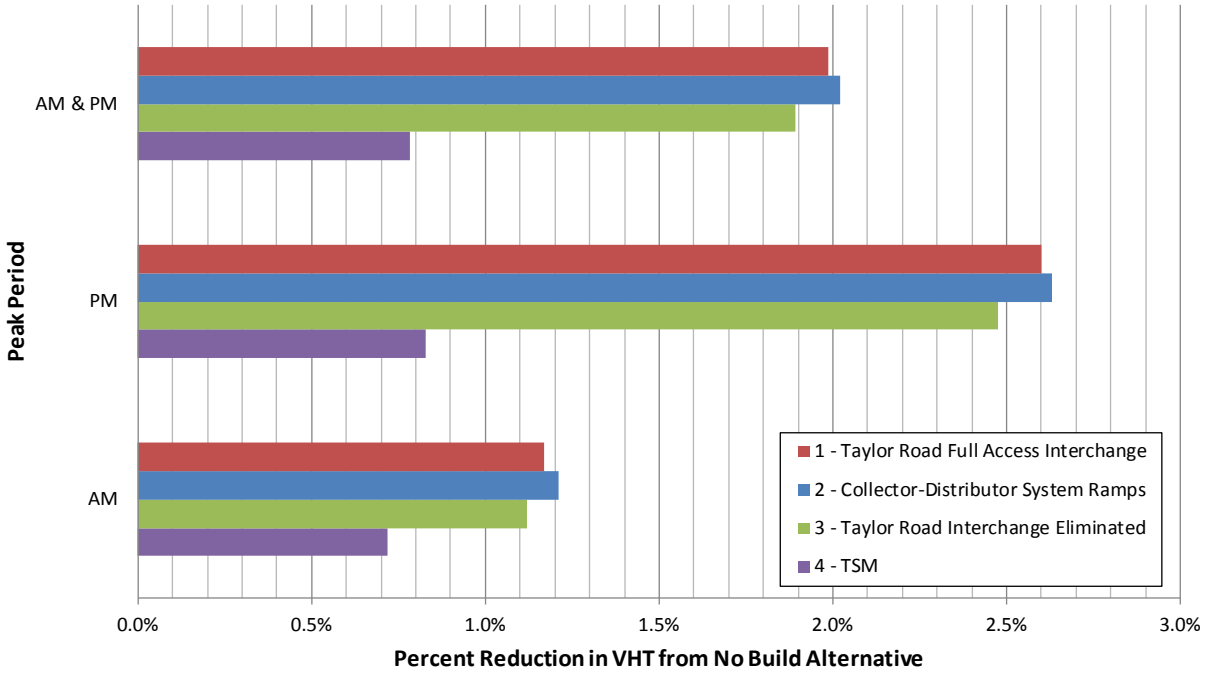
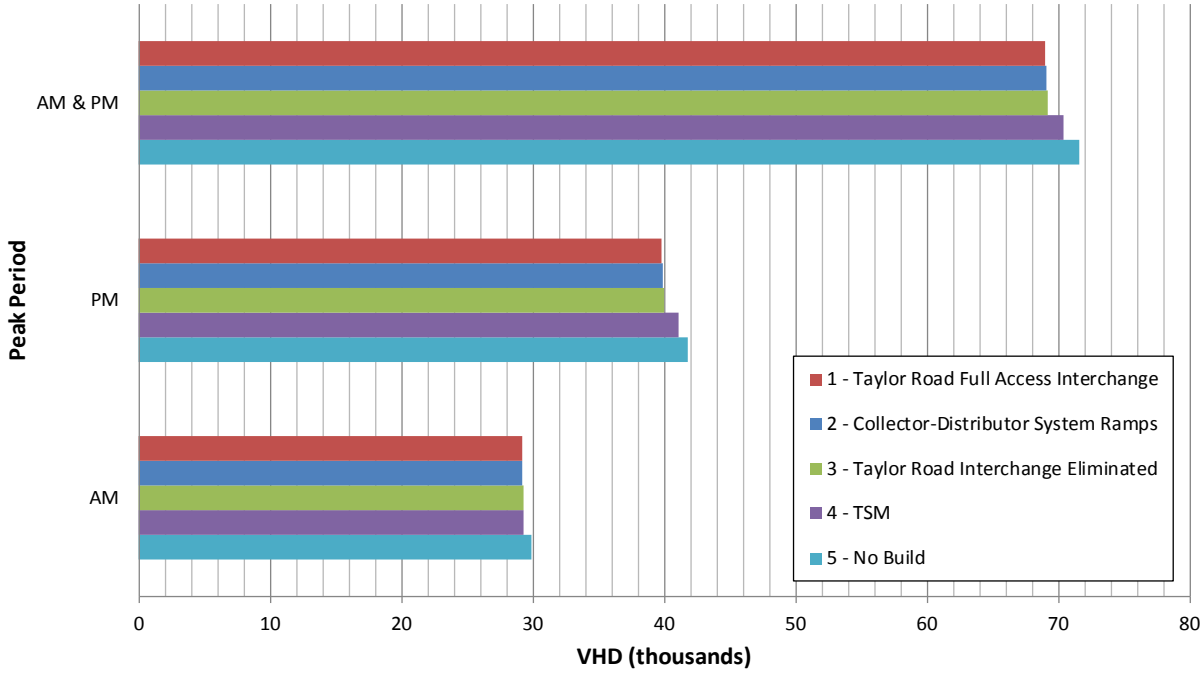


Figure 29 – Design Year Meso-Scale VHT Comparison

Alternative	Vehicle Hours of Delay (thousands)			Percent Reduction from No Build		
	AM	PM	AM & PM	AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	29.2	39.8	69.0	2.11%	4.77%	3.66%
2 - Collector-Distributor System Ramps	29.2	39.8	69.0	2.07%	4.72%	3.62%
3 - Taylor Road Interchange Eliminated	29.2	39.9	69.1	2.00%	4.49%	3.45%
4 - TSM	29.3	41.0	70.4	1.70%	1.82%	1.77%
5 - No Build	29.8	41.8	71.6	-	-	-



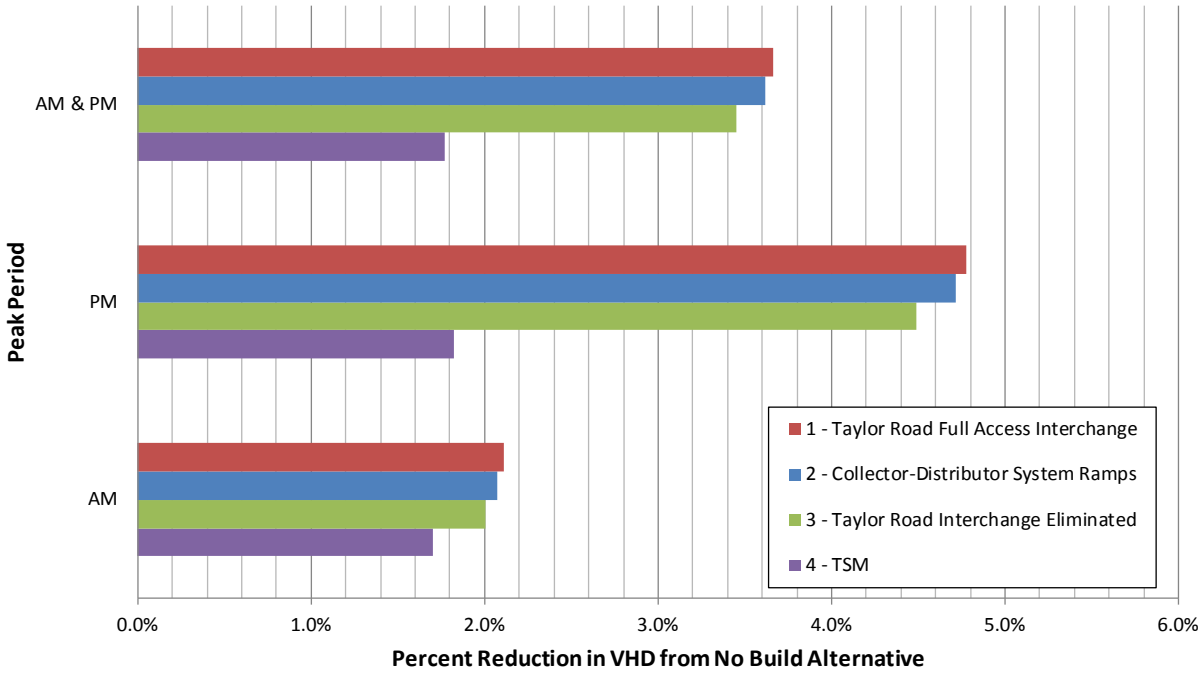
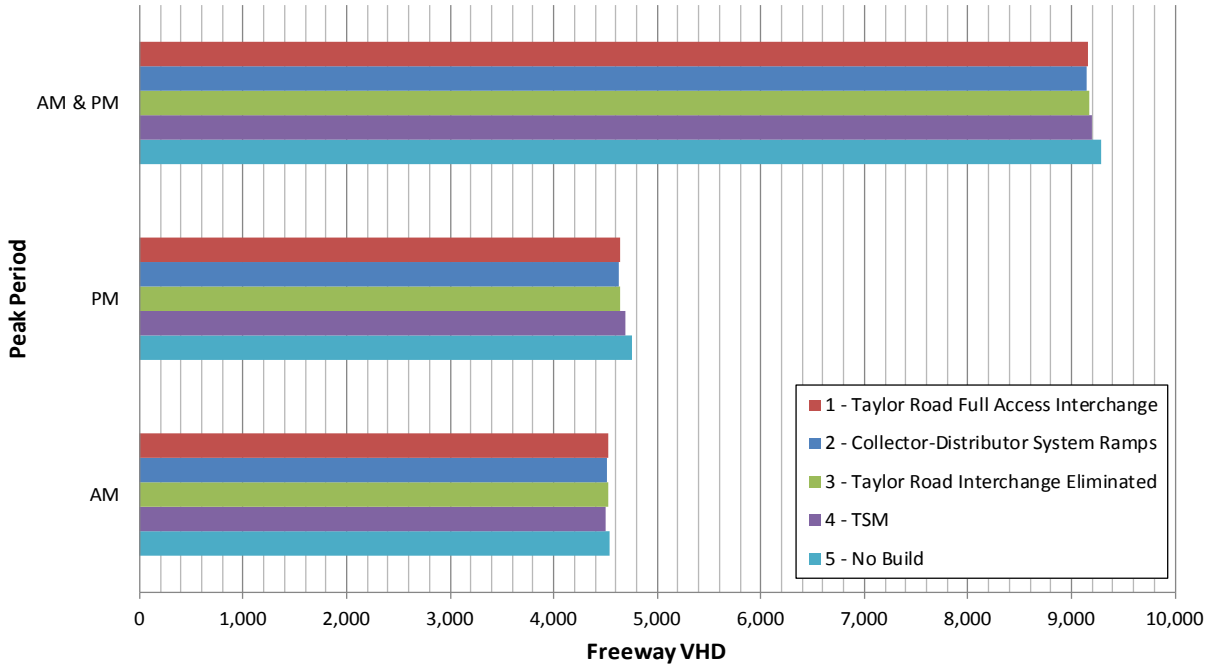
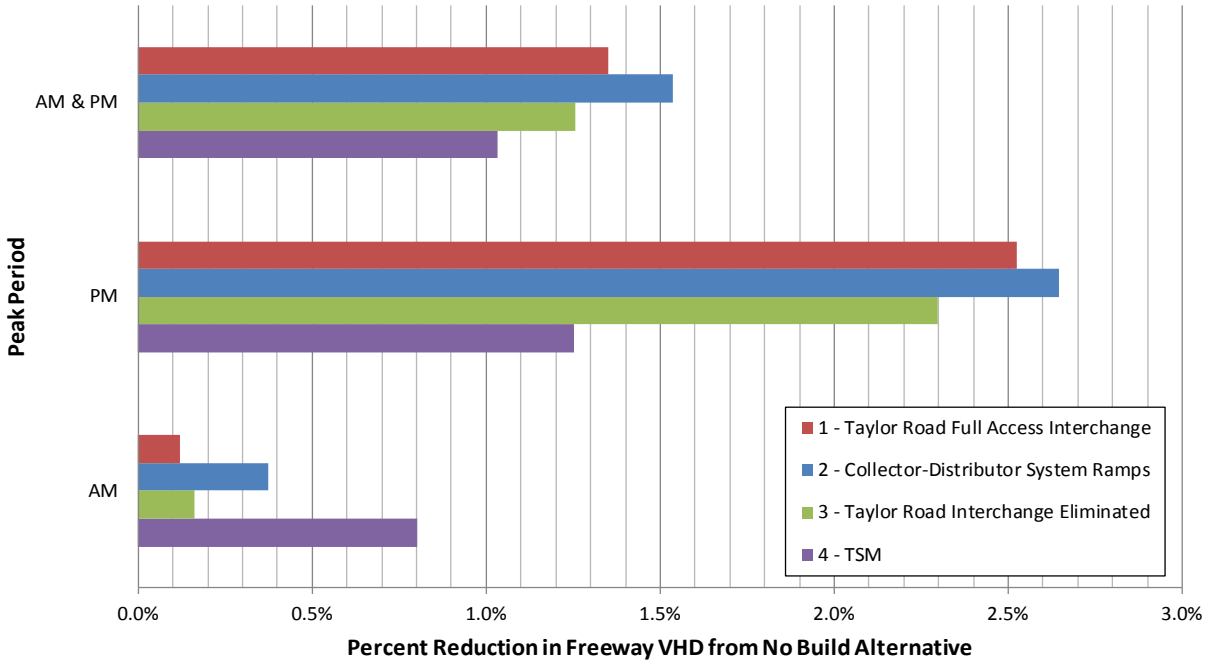


Figure 30 – Design Year Meso-Scale VHD Comparison

Alternative	Freeway Vehicle Hours of Delay*			Percent Reduction from No Build		
	AM	PM	AM & PM	AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	4,529	4,635	9,165	0.12%	2.52%	1.35%
2 - Collector-Distributor System Ramps	4,518	4,630	9,147	0.37%	2.65%	1.54%
3 - Taylor Road Interchange Eliminated	4,527	4,646	9,174	0.16%	2.30%	1.25%
4 - TSM	4,498	4,696	9,194	0.80%	1.25%	1.03%
5 - No Build	4,535	4,755	9,290	-	-	-

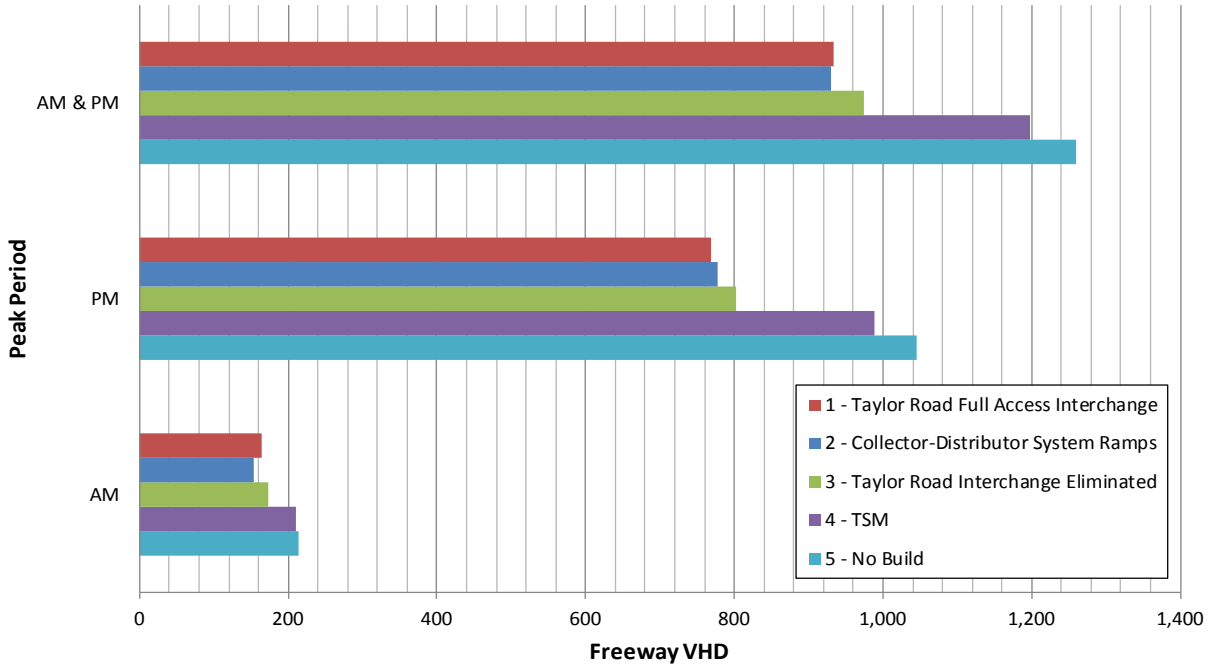


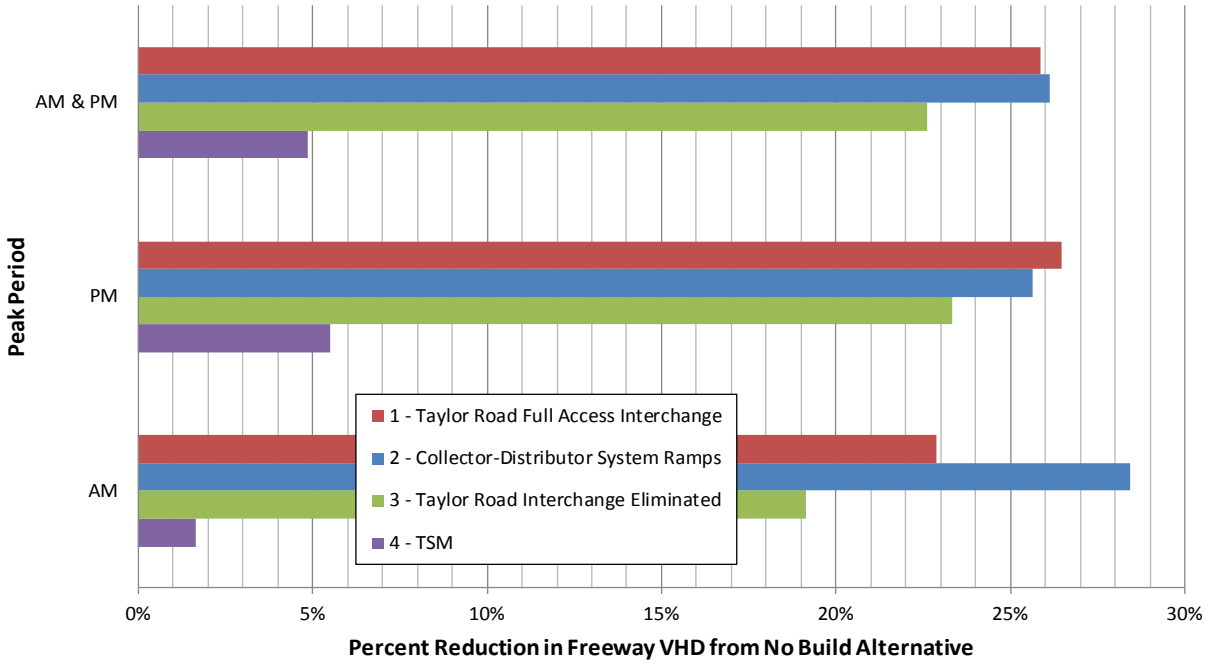


* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

Figure 31 – Design Year Meso-Scale Freeway VHD Comparison

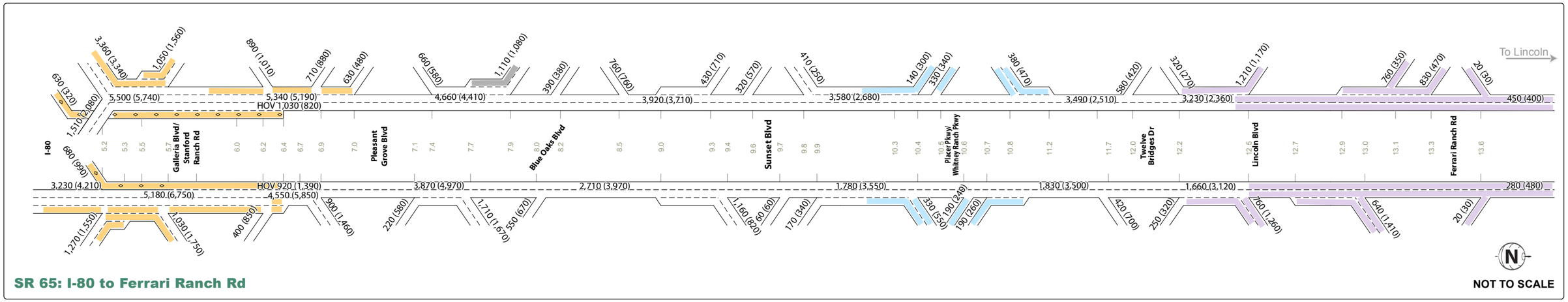
Alternative	Freeway Vehicle Hours of Delay*			Percent Reduction from No Build		
	AM	PM	AM & PM	AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	165	769	934	22.9%	26.5%	25.9%
2 - Collector-Distributor System Ramps	153	777	931	28.4%	25.6%	26.1%
3 - Taylor Road Interchange Eliminated	173	802	975	19.1%	23.3%	22.6%
4 - TSM	211	988	1,199	1.6%	5.5%	4.9%
5 - No Build	214	1,046	1,260	-	-	-



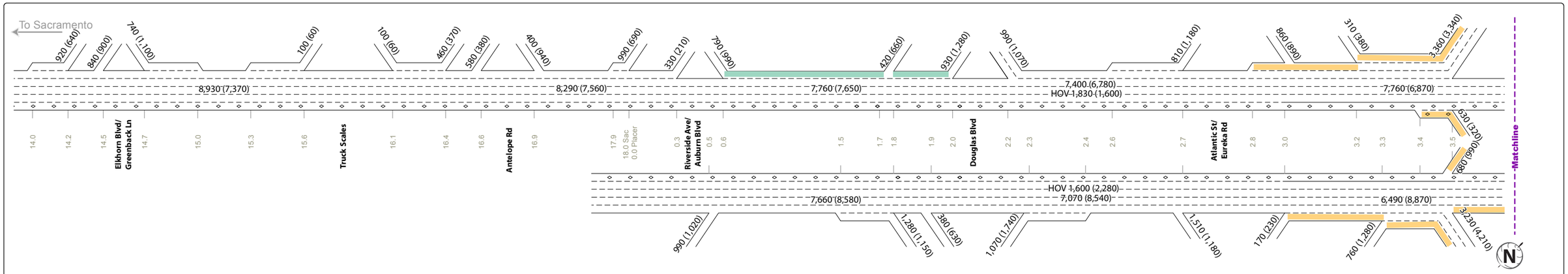


* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

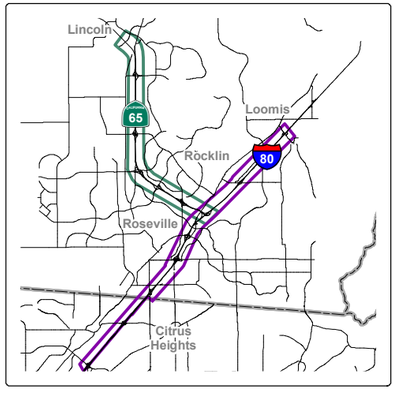
Figure 32 – Design Year Meso-Scale Project-Area Freeway VHD Comparison



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65

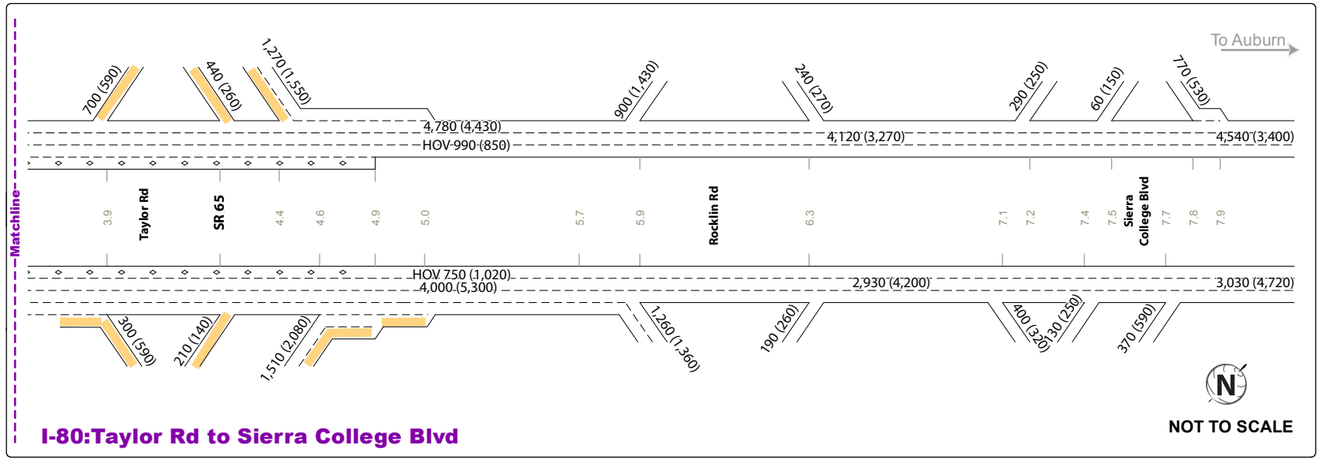


LEGEND

- AM (PM) Peak Hour Traffic Volume for 2020 Conditions
- HOV AM (PM) Peak Hour HOV Volume for 2020 Conditions
- 10.1 Postmile
- Alternative 1

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80:Taylor Rd to Sierra College Blvd

FEHR PEERS

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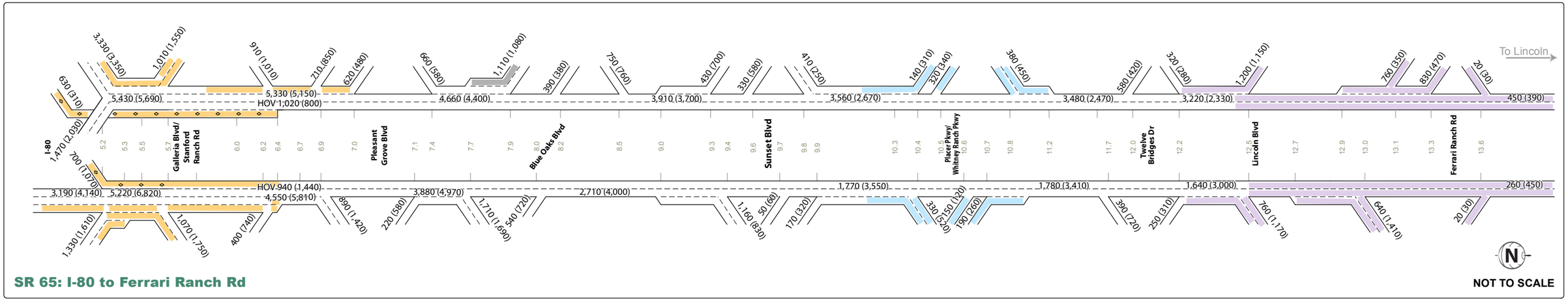
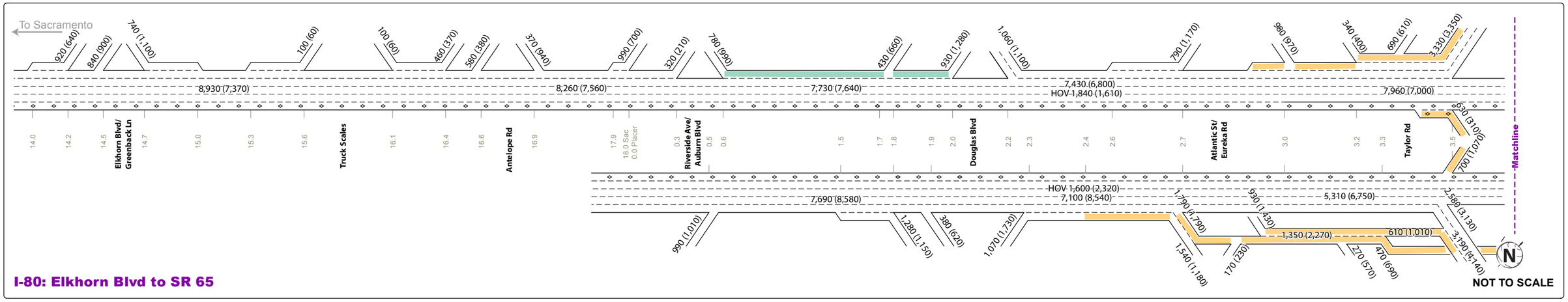
CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)

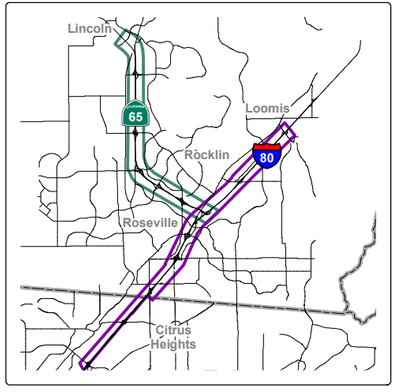
FIGURE 33



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65

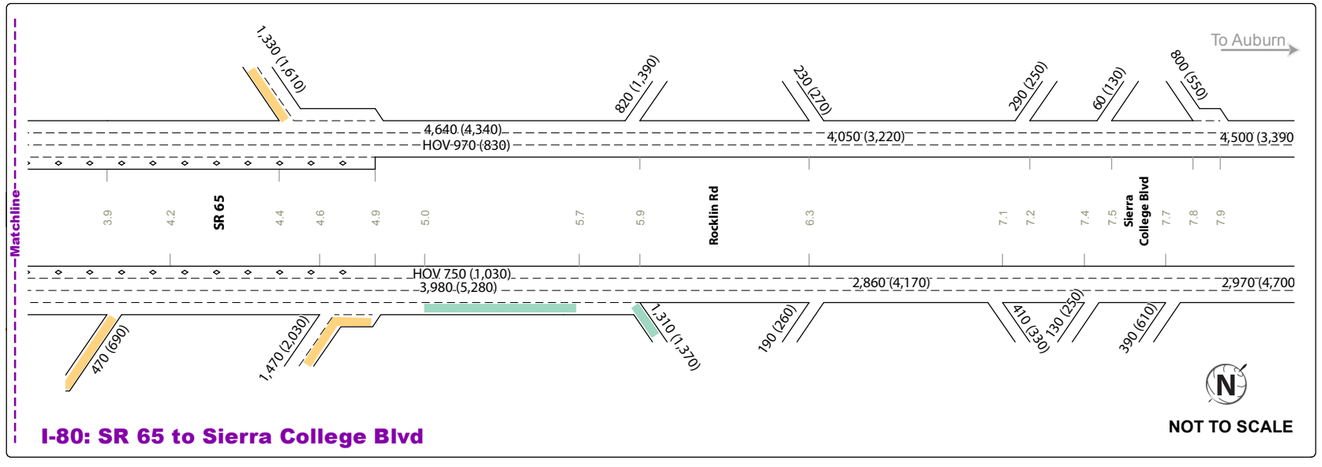


LEGEND

- AM (PM) — Peak Hour Traffic Volume for 2020 Conditions
- HOV AM (PM) — Peak Hour HOV Volume for 2020 Conditions
- 10.1 — Postmile
- Alternative 2

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



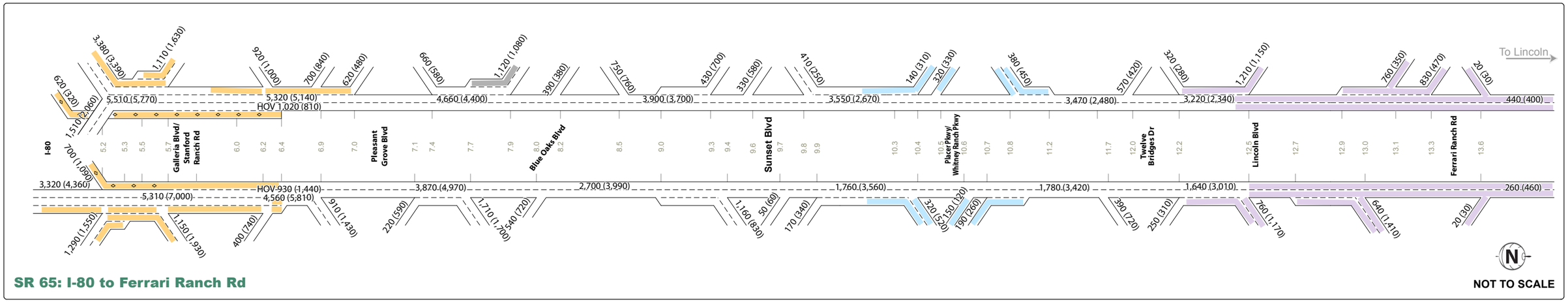
I-80: SR 65 to Sierra College Blvd

FEHR PEERS

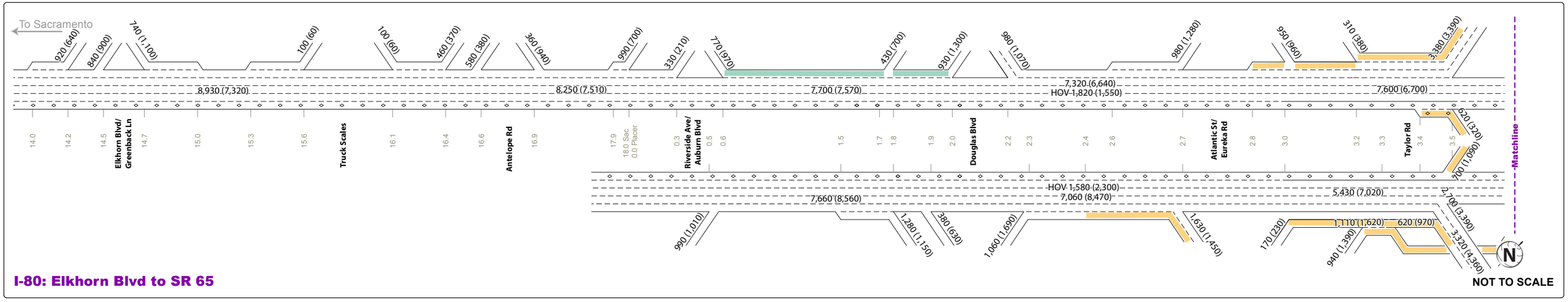
Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Final\GIS\MXD\LOS_Schematic\Const\F33_year2020_AltC3B.mxd

CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)

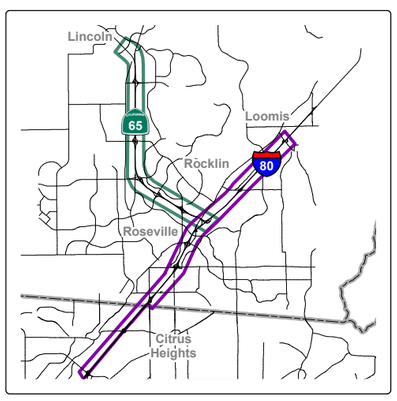
FIGURE 34



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65



LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

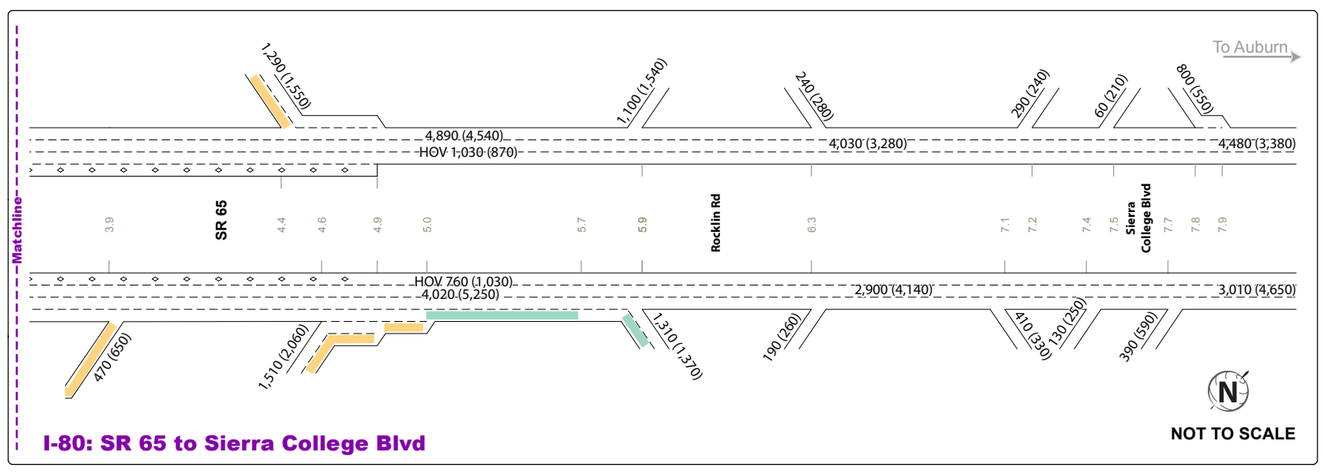
HOV AM (PM) Peak Hour HOV Volume for 2020 Conditions

10.1 Postmile

Alternative 3

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



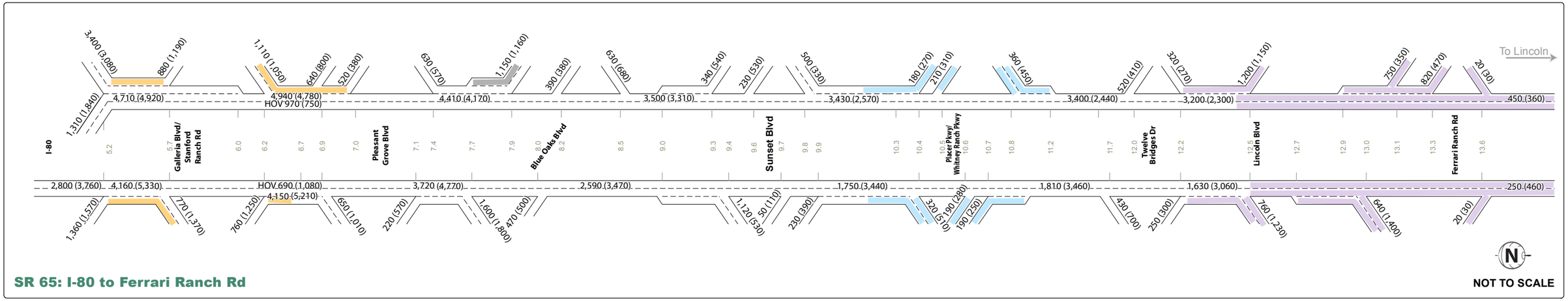
I-80: SR 65 to Sierra College Blvd

FEHR PEERS

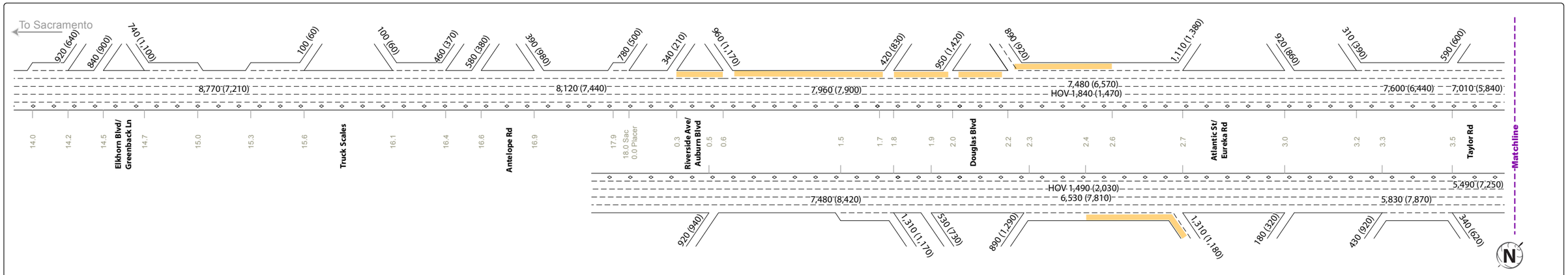
Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Final\GIS\MXD\LOS_Schematic\Const\F34_year2020_AltC3B_NT.mxd

CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)

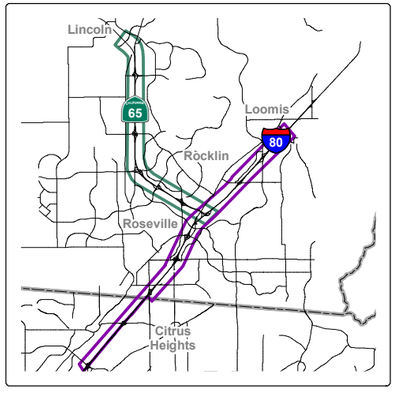
FIGURE 35



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to Taylor Rd



LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

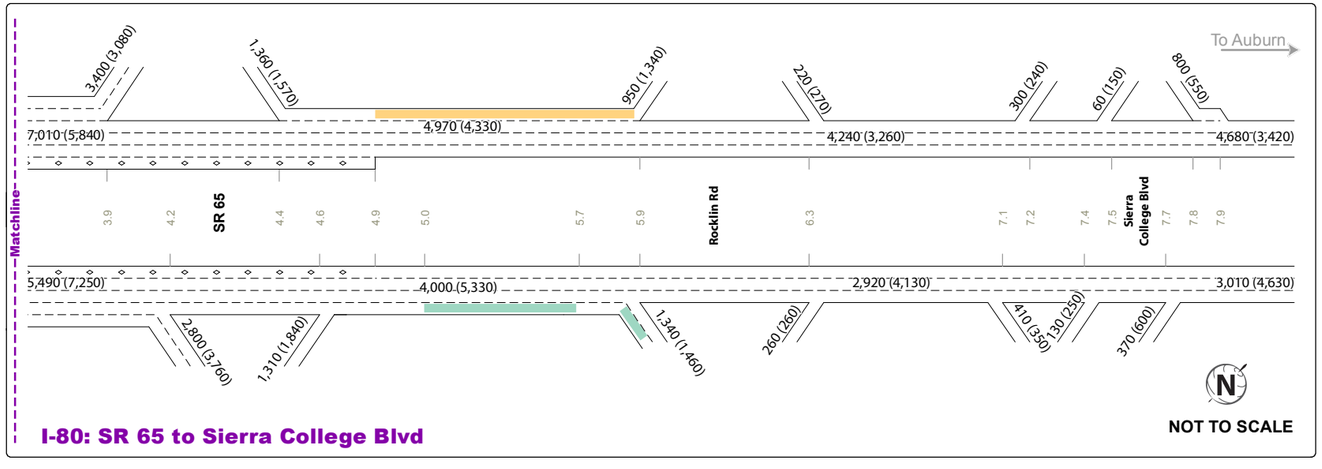
HOV AM (PM) Peak Hour HOV Volume for 2020 Conditions

10.1 Postmile

Alternative 4

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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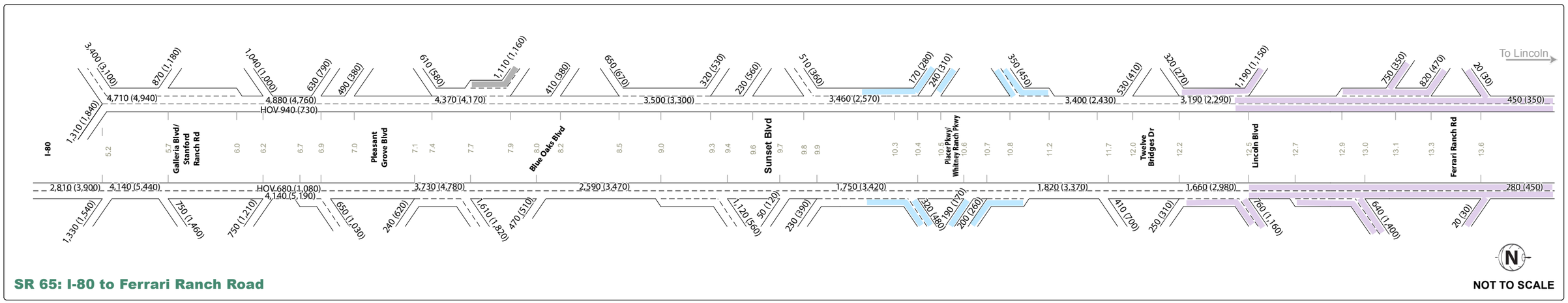
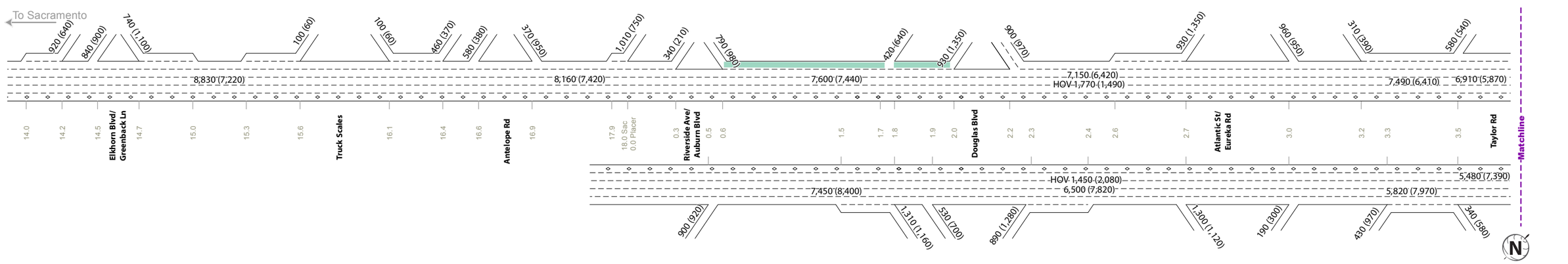
CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TRANSPORTATION SYSTEM MANAGEMENT (ALTERNATIVE 4)

FIGURE 36



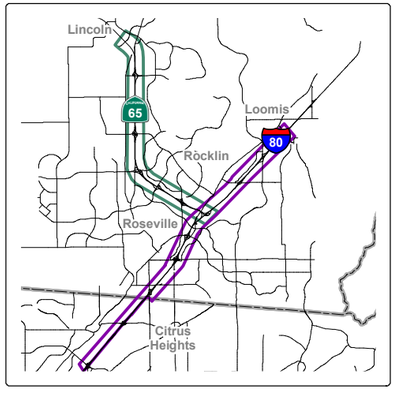
SR 65: I-80 to Ferrari Ranch Road

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE



LEGEND

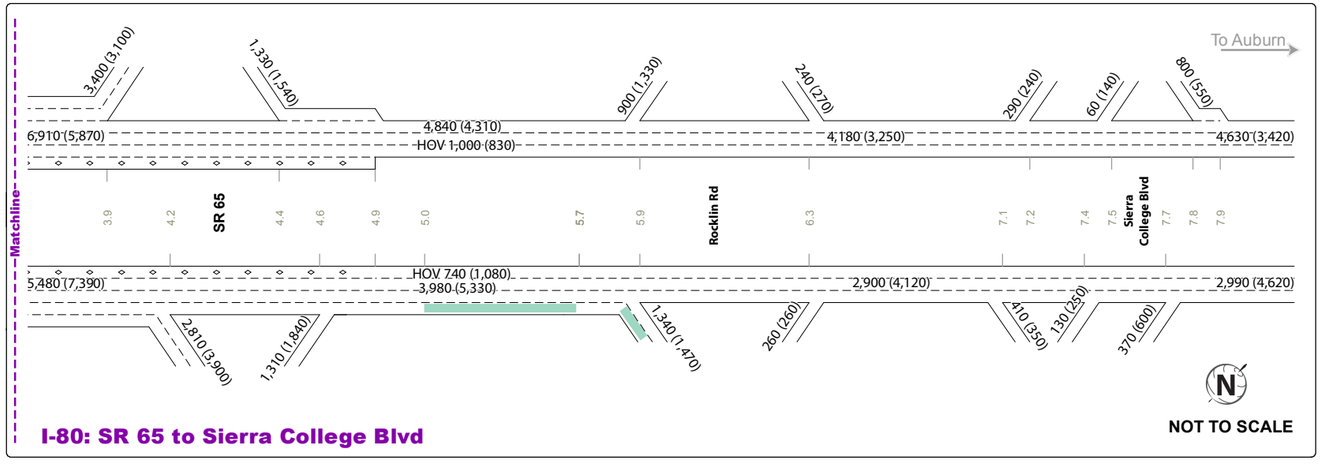
AM (PM) Peak Hour Traffic Volume for 2020 Conditions

HOV AM (PM) Peak Hour HOV Volume for 2020 Conditions

10.1 Postmile

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Final\GIS\MXD\LOS_Schematic\Const\F36_year2020_NoBuild.mxd

CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO BUILD (ALTERNATIVE 5)

FIGURE 37

4.3.5. Meso-Scale Network Performance for Construction Year

In addition to generating traffic volume forecasts for input to the VISSIM microsimulation traffic operations model, the VISUM model was used to produce the same meso-scale network performance measures reported for existing conditions. Figures 38 through 42 compare VMT, VHT, VHD, freeway VHD, and project-area freeway VHD, respectively, across the forecasting alternatives for construction year conditions (VMT by 5-mph speed bin is reported in the appendix). The results generally show that the build alternatives all improve network efficiency by lowering VHT and VHD compared to No Build. Alternative 2 (Collector-Distributor System Ramps) performs the best and is the only build alternative with a lower VMT than Alternative 5 (No Build). Freeway VHD only declines under the TSM Alternative. This occurs because sufficient mainline capacity is not being added in the other build alternatives in the construction year, which reduces the effectiveness of the I-80/SR 65 interchange improvements. Without additional mainline capacity in locations such as westbound I-80 at Douglas Boulevard and northbound SR 65, the interchange improvements simply shift bottlenecks.

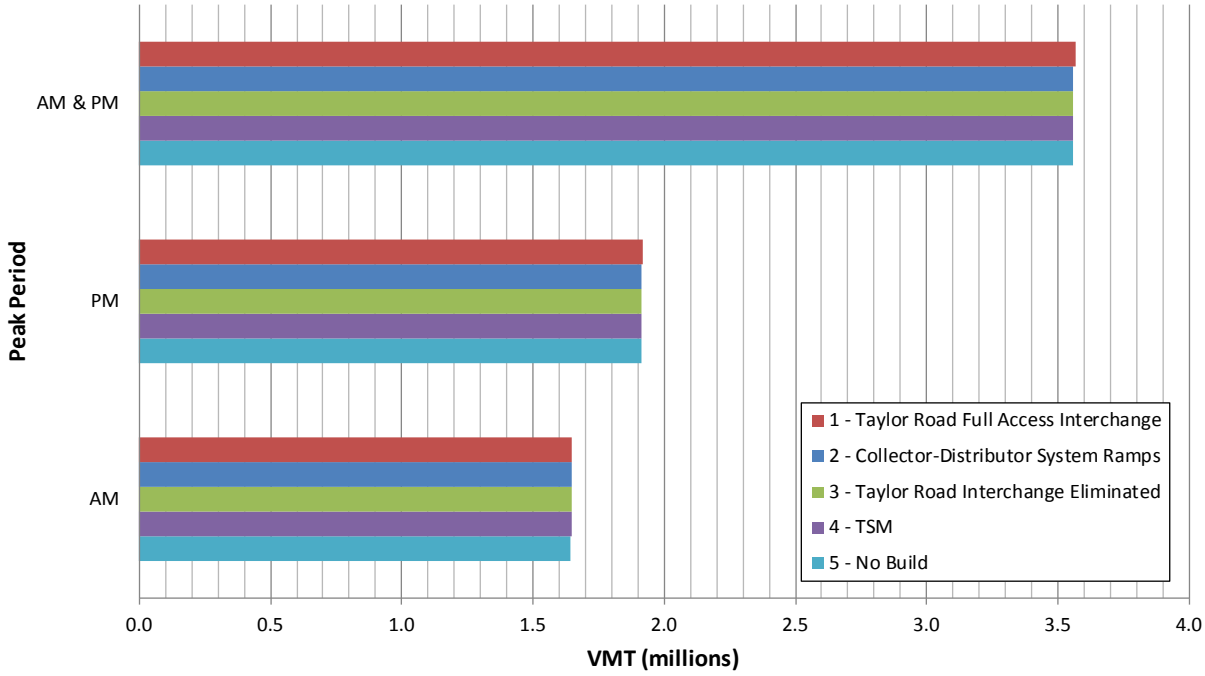
4.3.6. Induced Travel

The phenomenon where additional capacity leads to additional demand for travel is known as "induced travel." Induced travel occurs when the cost of travel is reduced (i.e., travel time reduction due to additional capacity) causing an increase in demand (more travelers using the improved facility). The reduction in travel time causes various responses by travelers, including diversion from other routes, changes in destinations, changes in mode, departure time shifts, and possibly the creation of new trips all together. As described previously, the SACMET and VISUM models have limitations, but they do account for most of the factors that influence induced travel (e.g., changes in route, mode, and destination). The main factors they do not fully account for is the potential generation of new trips and long-term induced land use growth.

Since the SACMET trip generation model was calibrated to 2008 base year conditions when vehicle trip making in the region was not constrained by congestion, pricing, or some other means, the model represents a full level of travel demand being generated by households and employment. This means that new trips being created as a result of a network change are very unlikely because there is no constraint preventing these trips from occurring.

Long-term induced land use growth is the one factor that may not be fully represented because there is no direct feedback process to the land use growth forecasts. However, as part of this project, land use growth was assessed by the PDT. The PDT increased the growth of households and employment in the study area recognizing this area has been planned for additional growth and the transportation improvements associated with this project are intended to help accommodate that growth.

Alternative	Vehicle Miles of Travel (millions)			Percent Reduction from No Build		
	AM	PM	AM & PM	AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	1.65	1.92	3.57	-0.33%	-0.12%	-0.22%
2 - Collector-Distributor System Ramps	1.65	1.91	3.56	-0.13%	0.13%	0.01%
3 - Taylor Road Interchange Eliminated	1.65	1.91	3.56	-0.20%	0.08%	-0.05%
4 - TSM	1.65	1.91	3.56	-0.09%	0.01%	-0.04%
5 - No Build	1.64	1.91	3.56	-	-	-



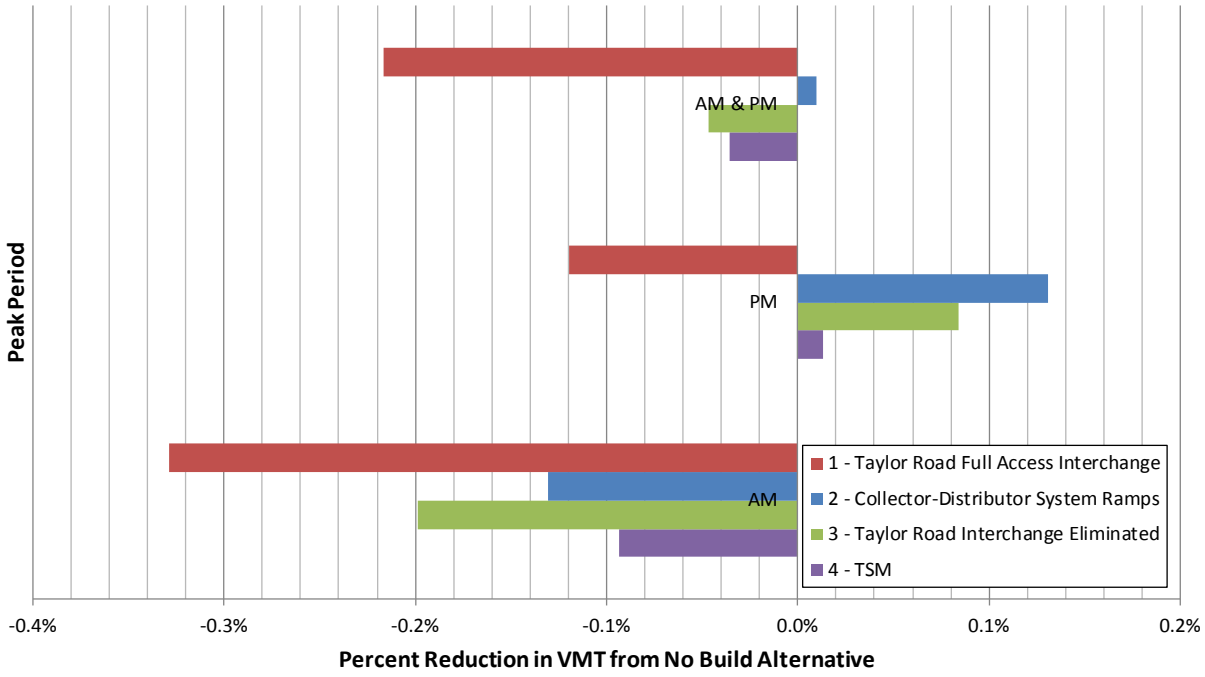
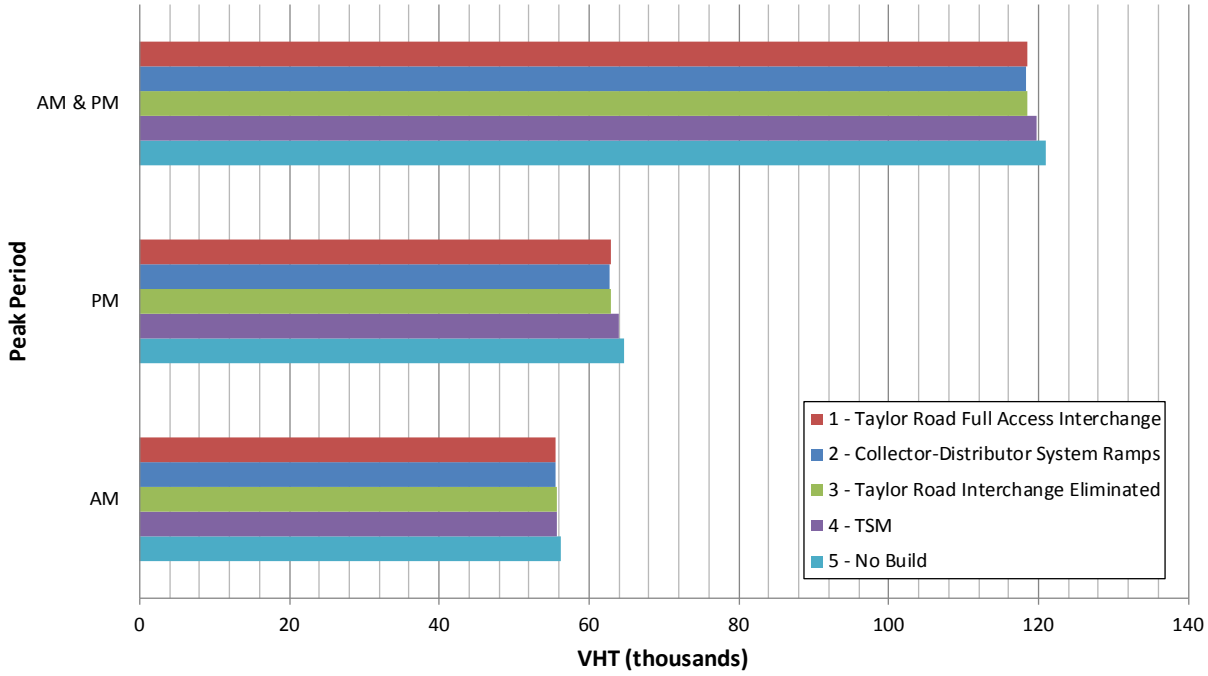


Figure 38 – Construction Year Meso-Scale VMT Comparison

Alternative	Vehicle Hours of Travel (thousands) AM	PM	AM & PM	Percent Reduction from No Build AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	55.6	62.9	118.5	1.16%	2.84%	2.06%
2 - Collector-Distributor System Ramps	55.6	62.8	118.4	1.20%	2.96%	2.14%
3 - Taylor Road Interchange Eliminated	55.6	62.9	118.6	1.08%	2.79%	2.00%
4 - TSM	55.6	64.1	119.7	1.08%	1.06%	1.07%
5 - No Build	56.2	64.7	121.0	-	-	-



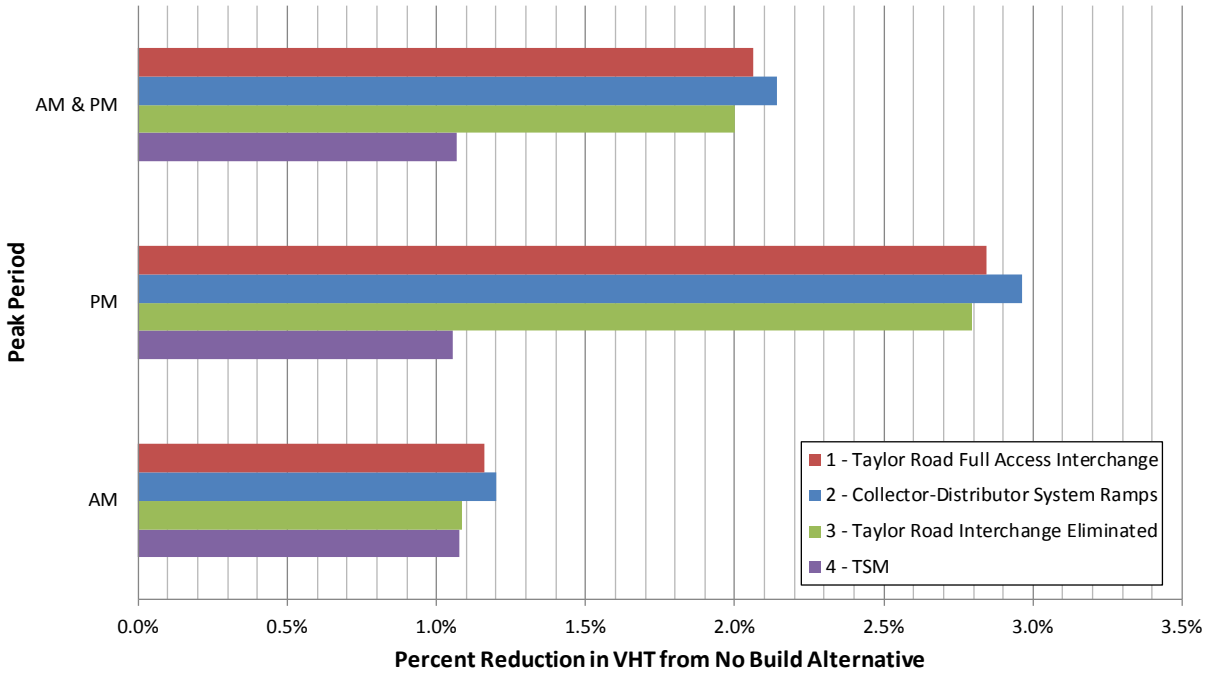
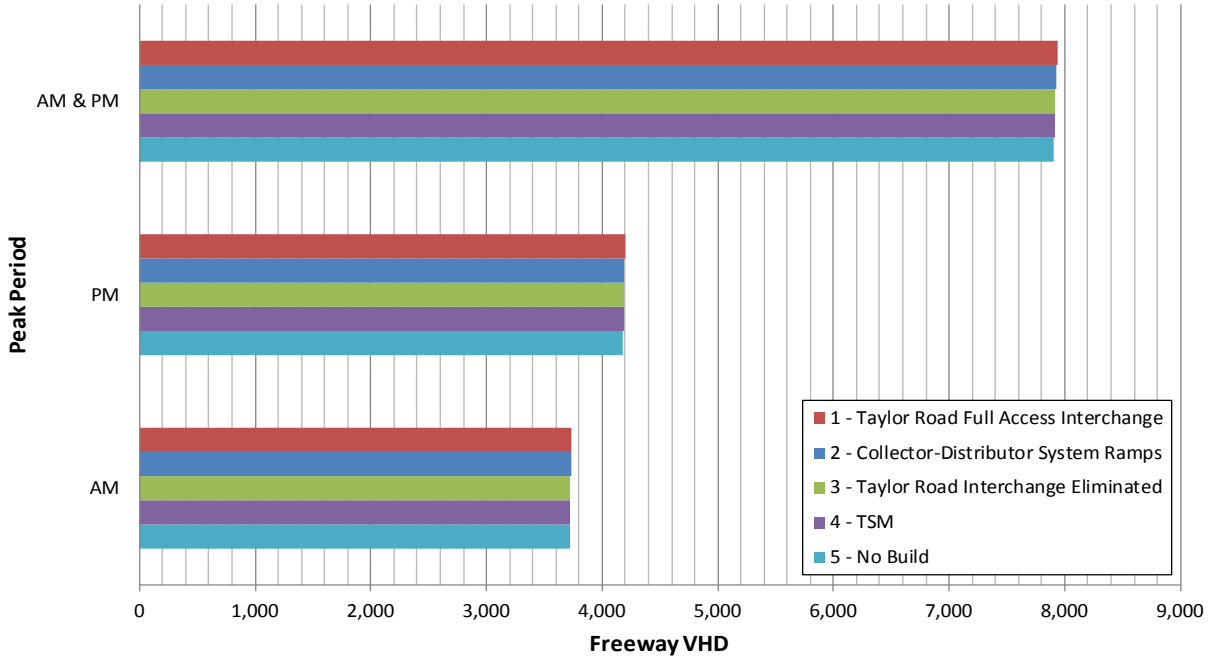


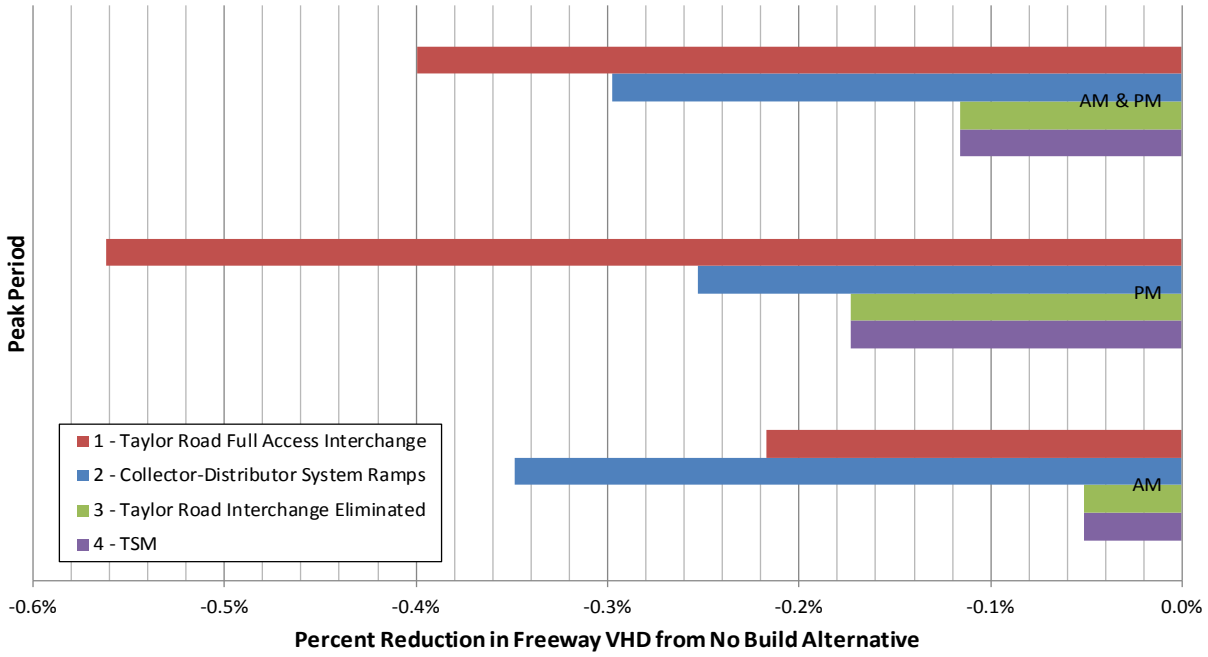
Figure 39 – Construction Year Meso-Scale VHT Comparison

Alternative	Vehicle Hours of Delay (thousands) AM	PM	AM & PM	Percent Reduction from No Build AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	22.3	23.4	45.7	2.30%	6.04%	4.25%
2 - Collector-Distributor System Ramps	22.3	23.4	45.7	2.21%	6.14%	4.26%
3 - Taylor Road Interchange Eliminated	22.3	23.5	45.8	2.09%	5.88%	4.07%
4 - TSM	22.2	24.3	46.5	2.59%	2.59%	2.59%
5 - No Build	22.8	24.9	47.7	-	-	-

Figure 40 – Construction Year Meso-Scale VHD Comparison

Alternative	Freeway Vehicle Hours of Delay*			Percent Reduction from No Build		
	AM	PM	AM & PM	AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	3,728	4,205	7,933	-0.22%	-0.56%	-0.40%
2 - Collector-Distributor System Ramps	3,733	4,192	7,925	-0.35%	-0.25%	-0.30%
3 - Taylor Road Interchange Eliminated	3,722	4,188	7,911	-0.05%	-0.17%	-0.12%
4 - TSM	3,722	4,188	7,911	-0.05%	-0.17%	-0.12%
5 - No Build	3,720	4,181	7,902	-	-	-





* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

Figure 41 – Construction Year Meso-Scale Freeway VHD Comparison

Alternative	Freeway Vehicle Hours of Delay*			Percent Reduction from No Build		
	AM	PM	AM & PM	AM	PM	AM & PM
1 - Taylor Road Full Access Interchange	87	369	456	-37.2%	2.6%	-3.1%
2 - Collector-Distributor System Ramps	84	354	438	-33.5%	6.5%	0.8%
3 - Taylor Road Interchange Eliminated	83	357	440	-31.5%	5.7%	0.4%
4 - TSM	70	355	425	-11.2%	6.3%	3.8%
5 - No Build	63	379	442	-	-	-

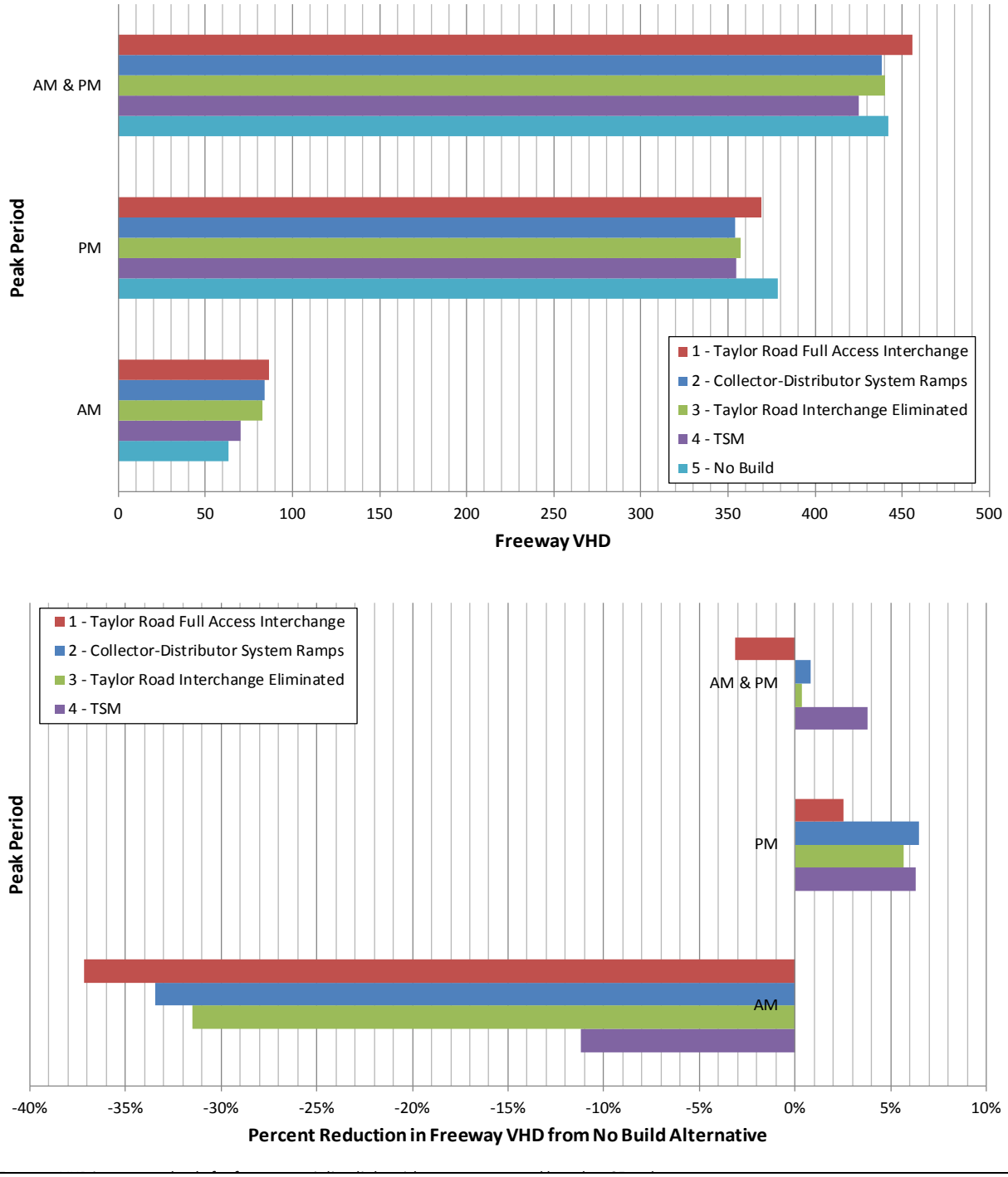


Figure 42 – Construction Year Meso-Scale Project-Area Freeway VHD Comparison

4.3.7. Daily Forecasts

Using the SACMET model files that were the starting point for the peak period forecasts, daily forecasts were prepared for the no build and build alternatives under design year conditions. As described above, separate models for each build alternative were not prepared since the alternatives have similar capacity at the aggregate level. Table 16 provides the daily mainline volume on I-80 and SR 65 in the project area.

TABLE 16: AVERAGE ANNUAL DAILY TRAFFIC VOLUME

Freeway	Segment	Existing Conditions		Design Year No Build		Design Year Build	
		Total	Trucks	Total	Trucks	Total	Trucks
I-80	Douglas Blvd to Eureka Rd	155,000	9,000	197,400	14,200	204,200	14,300
	Eureka Rd to Taylor Rd	158,700	9,600	203,800	14,400	217,800	14,400
	Taylor Rd to SR 65	150,000	8,700	194,200	13,900	213,000	14,300
	SR 65 to Rocklin Rd	109,600	6,400	139,500	9,900	137,300	9,700
SR 65	I-80 to Galleria Blvd	106,100	3,500	151,500	6,000	155,600	6,000
	Galleria Blvd to Pleasant Grove Blvd	104,400	3,500	159,100	6,600	154,800	6,300

Notes: The existing conditions total volume data is from 2009 as reported in the PeMS database. The existing truck volumes for I-80 are estimated from the truck percentage reported in the Caltrans Annual Average Daily Truck Traffic publication. The SR 65 existing truck volumes are estimated from the base year SACMET model.

Source: Fehr & Peers, 2014

Chapter 5. Traffic Operations Analysis

This section summarizes the traffic operations analysis results based on the VISSIM microsimulation traffic operations model (refer to Figure 8 for the VISSIM network limits). This analysis provides more detailed insights about peak period and peak hour traffic operations under each alternative. Technical calculations supporting the results can be found in the separately bound Technical Appendix. Design year analysis results are presented first followed by the construction year. All analysis was conducted with the same methodology described in Chapter 2. Further, the evaluation criteria from Chapter 2 were used to identify locations with deficient operations. For these locations, improvements are proposed that may be considered as project refinements or mitigation.

The project alternatives were analyzed previously using marginally different traffic forecasts and network assumptions. In that analysis, Alternative 4 (TSM) and Alternative 5 (No Build) performed significantly worse than the other alternatives and did not meet the project purpose and need. As a result, the traffic operations analysis for these alternatives was not updated. The Alternative 4 and 5 forecasts and Alternative 4 analysis results from the previous version are provided in the Technical Appendix. The analysis results presented here for Alternatives 1, 2, and 3 use the traffic demand forecasts presented in the previous chapter. For comparison, the Alternative 5 analysis results using the previous forecasts and network assumptions are provided below. The previous forecasts did not include the westbound I-80 auxiliary lane between Douglas Boulevard and Riverside Avenue. The Vissim network changes from the previous analysis are listed below.

- Widening of the eastbound approach to the Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps intersection
- Conversion of the I-80/Rocklin Road Interchange improvement project from the roundabout to the signal alternative
- Widening of the eastbound I-80 Rocklin Road off-ramp to two lanes
- Shortening the southbound auxiliary lane between Placer Parkway and Sunset Boulevard from the loop on-ramp to the slip on-ramp

5.1. **Design Year Conditions**

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 17 and 18 below, respectively.

TABLE 17: COMPARISON OF OVERALL NETWORK PERFORMANCE – DESIGN YEAR AM PEAK PERIOD

Performance Measure		Existing Conditions	Design Year Conditions			
			Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)		143,450 (100%)	207,230 (99%)	206,770 (99%)	206,770 (99%)	200,650 (95%)
VMT		645,270	920,910	921,610	915,790	831,280
PMT		786,260	1,106,120	1,110,890	1,100,400	1,004,060
VHT		13,760	21,450	21,190	21,450	26,470
VHD (% of VHT)		2,670 (19%)	5,560 (26%)	5,310 (25%)	5,660 (26%)	12,040 (46%)
Average Delay per Vehicle (min)		1.12	1.61	1.54	1.64	3.60
PHD		3,240	6,360	6,080	6,520	13,880
Average Speed		46.9	42.9	43.5	42.7	31.4
Average Speed for HOVs		47.0	46.8	47.5	46.1	36.2
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	14:59	14:31	14:09	9:29
	HOV	9:27	8:45	8:43	8:44	8:31

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

Reviewing the results in Tables 17 and 18 should consider the following information.

- Overall, the build alternatives improve overall network performance compared to no build conditions.
- The three build alternatives serve nearly all of the peak period demand volume, but Alternative 5 (No Build) does not. The performance metrics do not fully account for vehicles that could not enter the network during the peak periods.
- Alternative 2 (Collector-Distributor System Ramps) has slightly lower delay and higher average speed during the AM peak period than the other two build alternatives. Compared to Alternative 1 (Taylor Road Full Access Interchange), Alternative 2 has fewer freeway ramps, which minimizes freeway congestion. Although Alternative 3 (Taylor Road Interchange Eliminated) has even fewer ramps, the local system is more congested offsetting the benefit to the freeway network.
- The PM peak period results reveal that Alternative 1 serves the most vehicles while having the lowest delay for vehicles and persons, as well as the lowest travel times for SOVs and HOVs. In this case, the additional ramps to and from the east at Taylor Road reduce the demand for the

ramps to and from the east at Eureka Road/Atlantic Street and, consequently, the weaving volume between Eureka Road/Atlantic Street and SR 65.

TABLE 18: COMPARISON OF OVERALL NETWORK PERFORMANCE – DESIGN YEAR PM PEAK PERIOD

Performance Measure		Existing Conditions	Design Year Conditions			
			Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)		198,170 (101%)	300,410 (100%)	300,020 (100%)	300,690 (100%)	259,410 (86%)
VMT		730,100	1,114,000	1,109,610	1,110,480	863,410
PMT		880,180	1,355,200	1,349,510	1,352,230	1,071,230
VHT		16,850	29,970	30,790	30,680	43,430
VHD (% of VHT)		3,950 (23%)	10,300 (34%)	11,210 (36%)	11,080 (36%)	28,070 (65%)
Average Delay per Vehicle (min)		1.20	2.06	2.24	2.21	6.49
PHD		4,670	12,020	13,020	12,900	32,910
Average Speed		43.3	37.2	36.0	36.2	19.9
Average Speed for HOVs		44.7	40.8	40.1	40.1	24.7
Travel Time: Auburn Blvd to Blue Oaks Blvd	SOV	9:16	7:52	9:38	9:07	45:38
	HOV	9:11	6:28	6:30	6:29	15:38

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

- The AM peak-hour SOV travel time from Blue Oaks Boulevard to Antelope Road for the build alternatives (1, 2, and 3) is worse under design year conditions than existing conditions. Even with a future project to provide an auxiliary lane from Douglas Boulevard to Riverside Avenue, this location is predicted to be a bottleneck. (Alternative 5 shows a better travel time for SOVs primarily due to different forecasts as noted above.)
- The PM peak-hour SOV travel time from Auburn Boulevard to Blue Oaks Boulevard for the build alternatives is similar or better under design year than existing conditions. The improvement is due to auxiliary lane and HOV lane improvements that are common to all alternatives.
- AM and PM HOV travel times are better than existing conditions for all build alternatives.

Specific details about design year freeway and arterial intersection operations are discussed in more detail in the following sections.

5.1.1. Freeway Operations

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM and 4:30 to 5:30 PM) of the four hour AM and PM peak periods. The AM and PM peak-hour served volume are listed in Figure 43. The AM and PM peak hour results for select locations are reported in Tables 19 and 20, respectively. The full set of results is available in the Technical Appendix. Figures 44 through 51 display the average speed in the mixed-flow lanes throughout the network during the peak periods for each alternative.

Eastbound I-80

The freeway operations results indicate the No Build alternative would result in LOS F operations on I-80 in the eastbound direction between the beginning of the analysis area at Auburn Blvd and the SR 65 off-ramp during the AM and PM peak periods. The speed for vehicles in the mixed flow lanes would be less than 10 mph for most of this section, and about 60 percent of the demand would be served in the PM peak hour. All of the build alternatives provide significant congestion relief in both the AM and PM peak periods; therefore, no deficiencies occur on eastbound I-80. Most segments would operate with LOS D or better conditions. Under all build alternatives, LOS E would occur between Auburn Boulevard and Douglas Boulevard during both peak hours. Unlike the LOS D conditions under the other two build alternatives, Alternative 1 (Taylor Road Full Access Interchange) would have LOS E between Douglas Boulevard and Eureka Road since no auxiliary lane would be constructed. During the PM peak hour, Alternative 3 (Taylor Road Interchange Eliminated) would have minor slowing (less than 30 minutes) due to congestion from the SR 65 northbound connector ramp.

Westbound I-80

During the AM peak period, congestion would occur between SR 65 and Douglas Boulevard and between the truck scales and Elkhorn Boulevard. The build alternatives would have LOS F from the SR 65 to Atlantic Street weaving section to the eastbound Douglas Boulevard on-ramp. In contrast, the Alternative 5 (No Build) would have LOS F only at the eastbound Atlantic Street off-ramp. The difference is caused in part by different forecast assumptions (as discussed above) and in part by upstream congestion on southbound SR 65 between Pleasant Grove Boulevard and Galleria Boulevard. The proposed project (Alternatives 1, 2, and 3) would result in impacts at the following locations on westbound I-80 in the AM peak hour.

- From the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp
- Truck Scales off-ramp to on-ramp (Alternative 1 only)
- From the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp

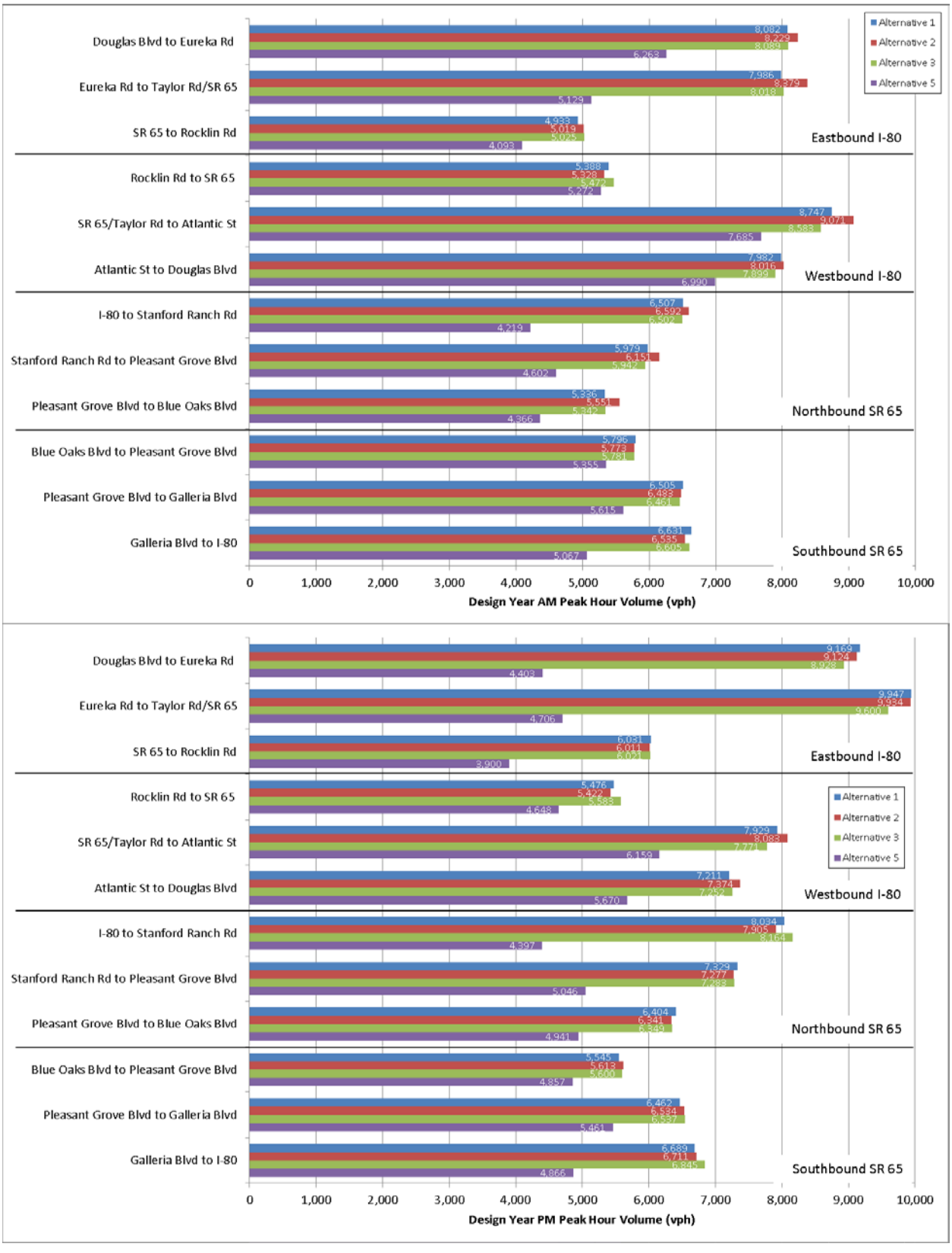


Figure 43 – Freeway Served Volume for Design Year Conditions

TABLE 19: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
EB I-80	Auburn Blvd On-ramp	Merge	D / 33	E / 36	D / 33	**F / 55**
	Auburn Blvd to Douglas Blvd	Basic	E / 40	E / 37	E / 39	**F / 78**
	Douglas Blvd EB Off-ramp	Diverge	D / 31	D / 29	D / 33	**F / 71**
	Douglas Blvd WB Off-ramp	Diverge	C / 26	C / 26	E / 36	**F / 127**
	Douglas Blvd On-ramp	Merge	D / 35	C / 26	C / 26	**F / 153**
	Eureka Rd Off-ramp	Diverge	E / 37			**F / 114**
	Eureka Rd to SR 65	Weave	C / 23	D / 30	D / 31	**F / 131**
	Taylor Rd Off-ramp	Diverge	B / 16	-	-	
	SR 65 Off-ramp	Diverge	-	C / 25	C / 25	**F / 86**
	SR 65 On-ramp	Merge	D / 30	D / 30	D / 30	B / 20
WB I-80	Rocklin Rd to HOV Lane Start	Basic	D / 32	D / 31	D / 32	D / 29
	SR 65 Off-ramp	Diverge	C / 24	C / 22	C / 23	C / 27
	SR 65 to Atlantic St	Weave	**F / 90**	**F / 83**	**F / 78**	C / 27
	Atlantic St EB Off-ramp	Diverge	**F / 112**	**F / 107**	**F / 111**	**F / 53**
	Atlantic St On-ramp	Merge	**F / 75**	**F / 73**	**F / 77**	C / 28
	Douglas Blvd Off-ramp	Diverge	**F / 63**	**F / 60**	**F / 63**	C / 21
	Douglas Blvd WB On-ramp	Merge	**F / 113**	**F / 113**	**F / 112**	C / 25
	Douglas Blvd EB On-ramp	Merge	**F / 77**	**F / 76**	**F / 76**	C / 23
	Truck Scales to Elkhorn Blvd	Basic	**F / 56**	**F / 57**	**F / 55**	E / 39
	Elkhorn Blvd WB On-ramp	Merge	**F / 72**	**F / 55**	**F / 80**	C / 28
	Elkhorn Blvd EB On-ramp	Merge	**F / 67**	**F / 61**	**F / 71**	E / 39

TABLE 19: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3	Alternative 5
NB SR 65	I-80 to Stanford Ranch Rd	Weave	C / 27	C / 26	C / 26	**F / 57**
	Stanford Ranch Rd On-ramp	Merge	**F / 61**	**F / 57**	**F / 61**	D / 30
	Pleasant Grove Blvd Off-ramp	Diverge	E / 40	E / 39	E / 40	
	Whitney Ranch Pkwy WB On-ramp	Merge	C / 26	D / 30	C / 25	C / 24
	Twelve Bridges Dr Off-ramp	Diverge	D / 30	D / 33	D / 28	C / 26
SB SR 65	Ferrari Ranch Rd EB On-ramp	Merge	**F / 133**	**F / 97**	**F / 104**	C / 24
	Lincoln Blvd to Twelve Bridges Dr	Weave	**F / 87**	**F / 87**	**F / 87**	E / 37
	Twelve Bridges Dr On-ramp	Merge	**F / 73**	**F / 74**	**F / 73**	**F / 61**
	Placer Pkwy WB On-ramp	Merge	**F / 54**	E / 42	E / 43	C / 28
	Sunset Blvd WB On-ramp	Merge	E / 36	E / 37	E / 36	E / 43
	Blue Oaks Blvd WB On-ramp	Merge	E / 43	E / 37	E / 36	D / 34
	Pleasant Grove Blvd EB On-ramp	Merge	E / 38	E / 36	D / 34	E / 44
	Galleria Blvd Off-ramp	Diverge	D / 29	D / 29	D / 29	**F / 55**
	Galleria Blvd to I-80	Weave	C / 26	C / 26	C / 28	**F / 77**

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
[1] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

Source: Fehr & Peers, 2014

TABLE 20: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
EB I-80	Auburn Blvd On-ramp	Merge	C / 28	D / 29	E / 36	**F / 164**
	Auburn Blvd to Douglas Blvd	Basic	D / 33	D / 33	E / 37	**F / 154**
	Douglas Blvd EB Off-ramp	Diverge	E / 37	D / 30	E / 37	**F / 107**
	Douglas Blvd WB Off-ramp	Diverge	D / 30	C / 27	E / 39	**F / 180**
	Douglas Blvd On-ramp	Merge	E / 35	C / 27	C / 26	**F / 181**
	Eureka Rd Off-ramp	Diverge	E / 38			**F / 149**
	Eureka Rd to SR 65	Weave	C / 27	D / 32	D / 33	**F / 142**
	Taylor Rd Off-ramp	Diverge	B / 17	-	-	
	SR 65 Off-ramp	Diverge	-	C / 25	C / 28	**F / 65**
	SR 65 On-ramp	Merge	D / 33	D / 32	D / 33	C / 21
WB I-80	Rocklin Rd to HOV Lane Start	Basic	E / 36	E / 37	E / 40	**F / 113**
	SR 65 Off-ramp	Diverge	C / 23	C / 21	C / 22	**F / 114**
	SR 65 to Atlantic St	Weave	E / 39	C / 24	D / 28	E / 41
	Atlantic St EB Off-ramp	Diverge	**F / 91**	**F / 51**	E / 39	**F / 61**
	Atlantic St On-ramp	Merge	**F / 84**	**F / 79**	**F / 61**	**F / 100**
	Douglas Blvd Off-ramp	Diverge	**F / 77**	**F / 71**	**F / 70**	**F / 108**
	Douglas Blvd WB On-ramp	Merge	**F / 114**	**F / 111**	**F / 114**	C / 20
	Douglas Blvd EB On-ramp	Merge	**F / 74**	**F / 75**	**F / 73**	B / 15
	Truck Scales to Elkhorn Blvd	Basic	D / 29	D / 29	D / 29	C / 21
	Elkhorn Blvd WB On-ramp	Merge	C / 26	C / 26	C / 26	B / 18
	Elkhorn Blvd EB On-ramp	Merge	D / 29	D / 28	D / 28	C / 22

TABLE 20: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

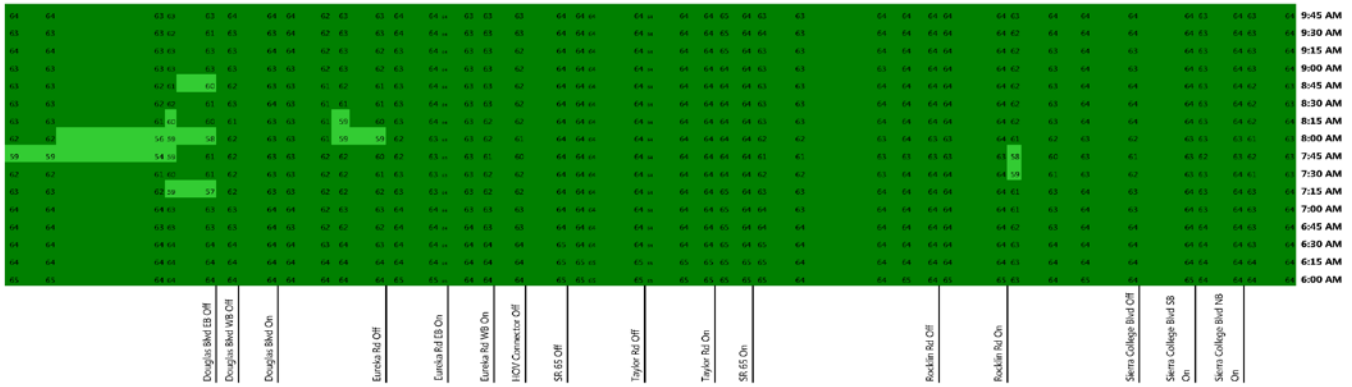
Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3	Alternative 5
NB SR 65	I-80 to Stanford Ranch Rd	Weave	E / 44	**F / 71**	**F / 65**	**F / 84**
	Stanford Ranch Rd On-ramp	Merge	**F / 73**	**F / 75**	**F / 72**	D / 30
	Pleasant Grove Blvd Off-ramp	Diverge	D / 33	D / 34	D / 34	
	Whitney Ranch Pkwy WB On-ramp	Merge	E / 37	E / 35	E / 41	D / 29
	Twelve Bridges Dr Off-ramp	Diverge	E / 37	E / 37	E / 38	D / 30
SB SR 65	Ferrari Ranch Rd EB On-ramp	Merge	B / 13	B / 13	B / 13	B / 16
	Lincoln Blvd to Twelve Bridges Dr	Weave	C / 22	C / 22	C / 23	C / 21
	Twelve Bridges Dr On-ramp	Merge	C / 27	C / 28	C / 28	C / 25
	Placer Pkwy WB On-ramp	Merge	C / 24	C / 24	C / 24	B / 18
	Sunset Blvd WB On-ramp	Merge	D / 29	D / 29	D / 29	D / 32
	Blue Oaks Blvd WB On-ramp	Merge	D / 32	D / 33	D / 32	C / 28
	Pleasant Grove Blvd EB On-ramp	Merge	D / 30	D / 32	D / 32	D / 29
	Galleria Blvd Off-ramp	Diverge	D / 29	D / 30	D / 30	D / 33
	Galleria Blvd to I-80	Weave	C / 25	C / 25	C / 26	E / 39

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
[1] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

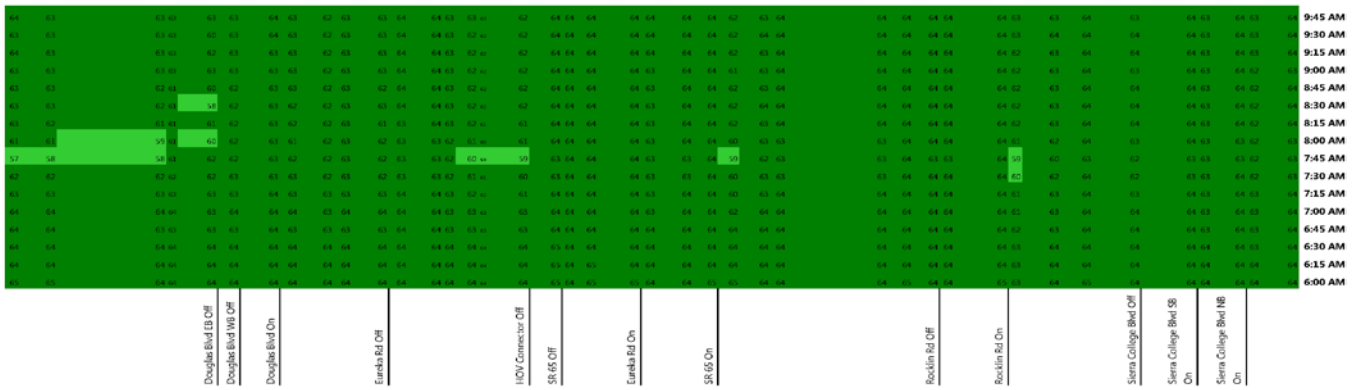
Source: Fehr & Peers, 2014

FIGURE 44 – EASTBOUND I-80 DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

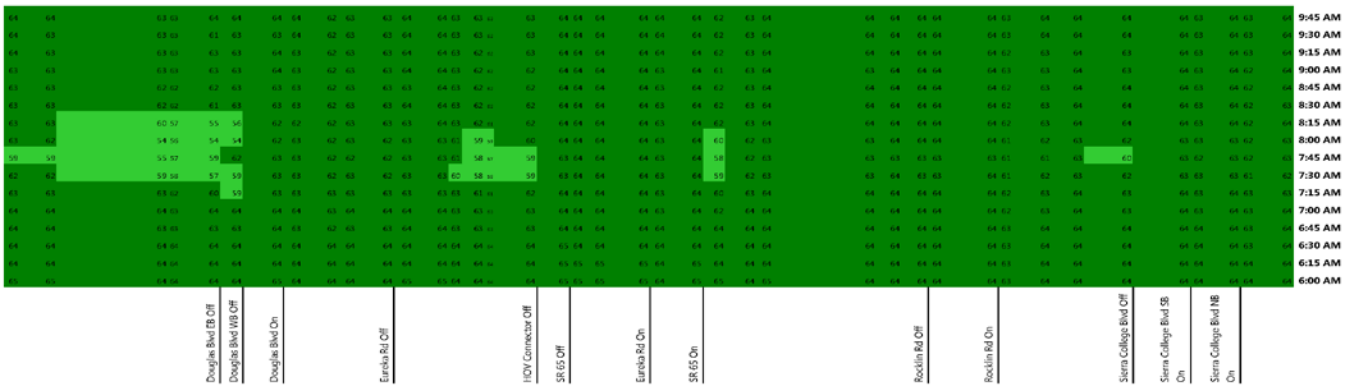
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

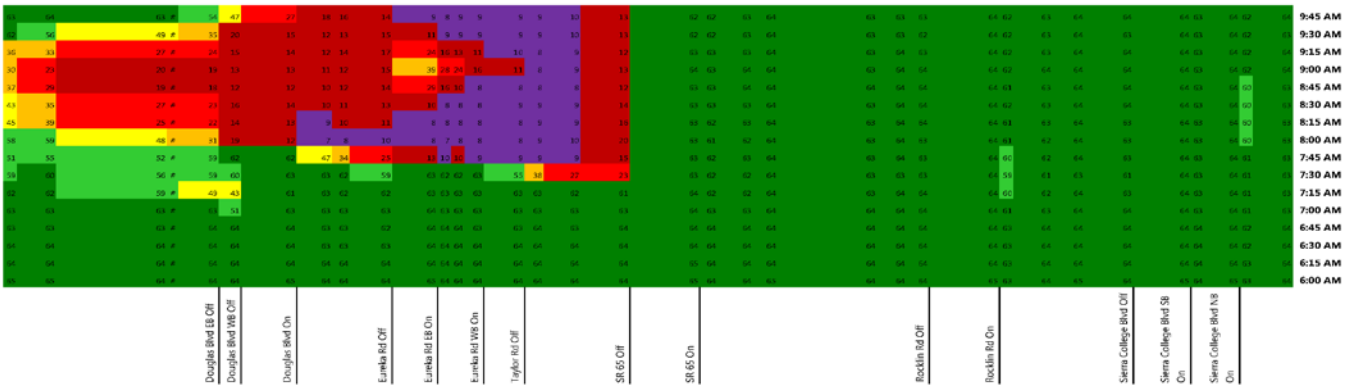
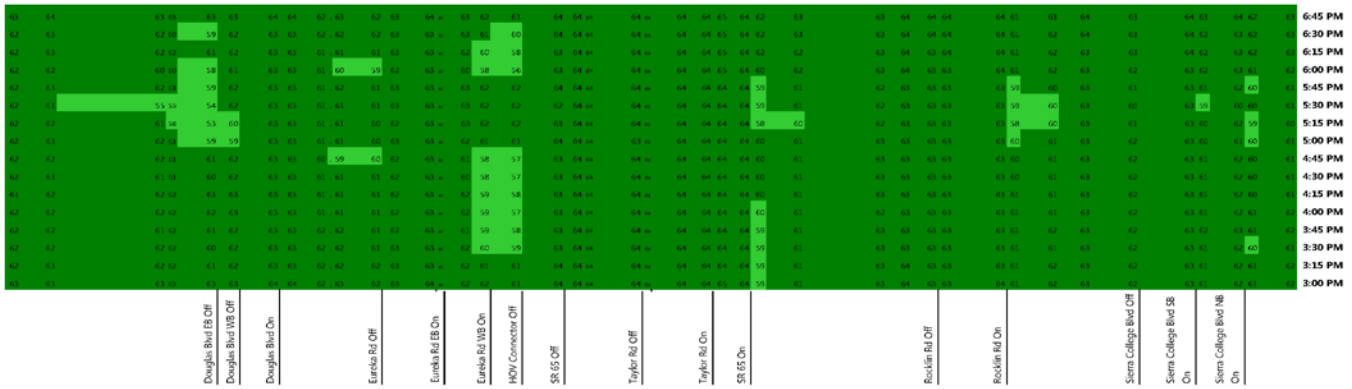
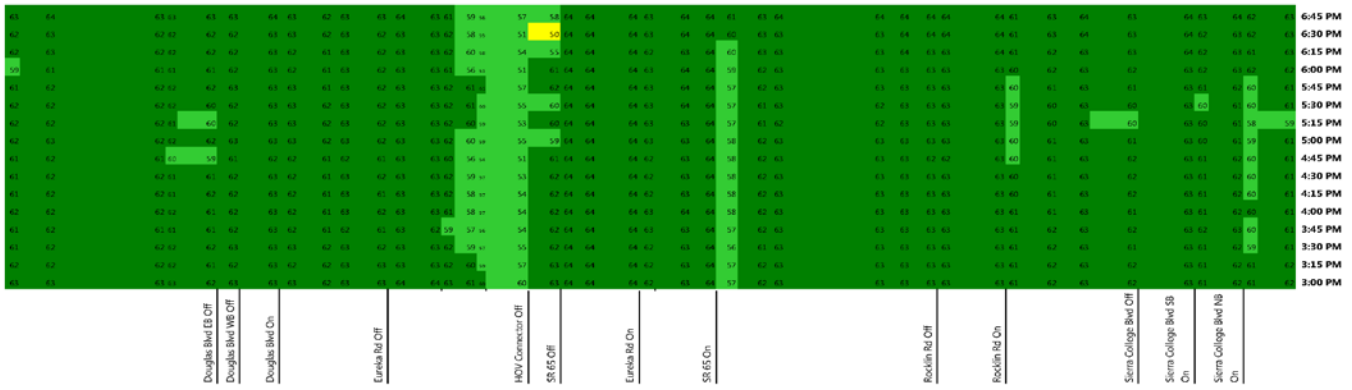


FIGURE 45 – EASTBOUND I-80 DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

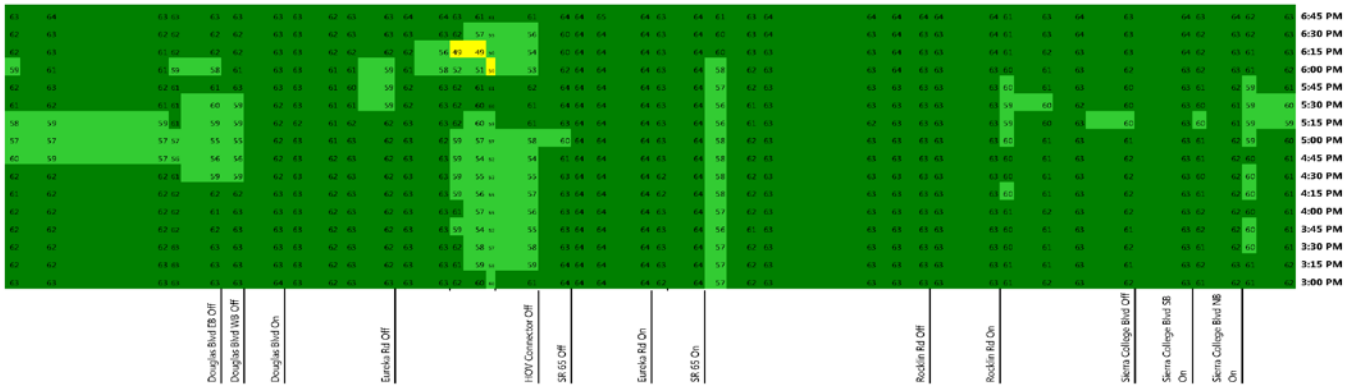
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

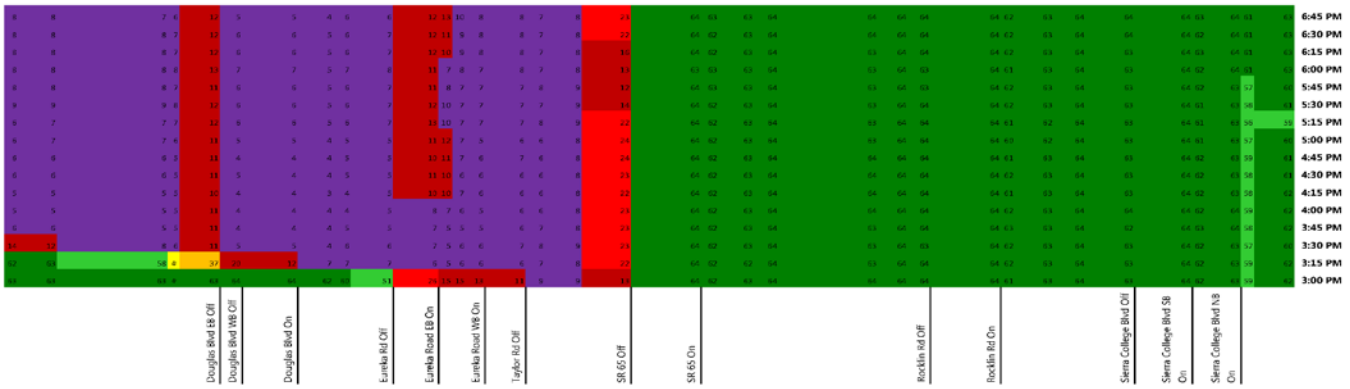
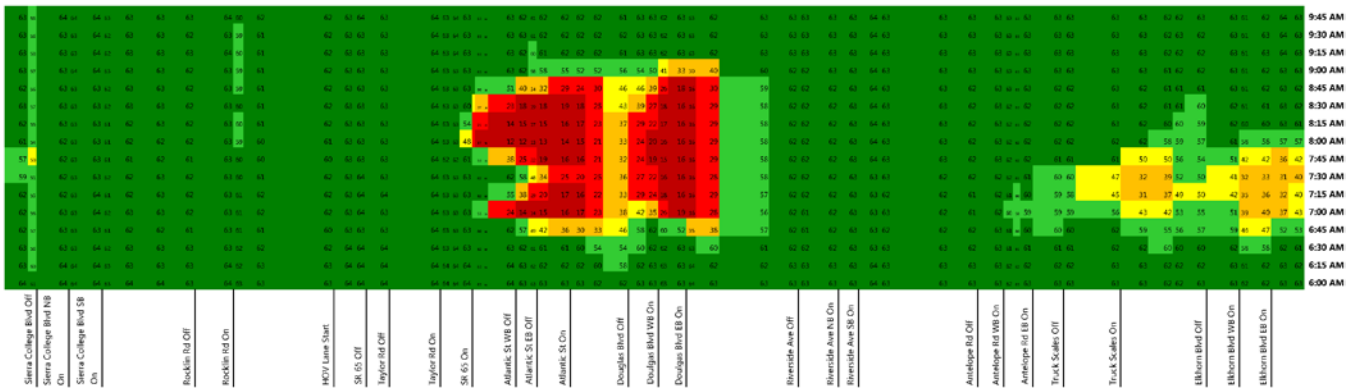
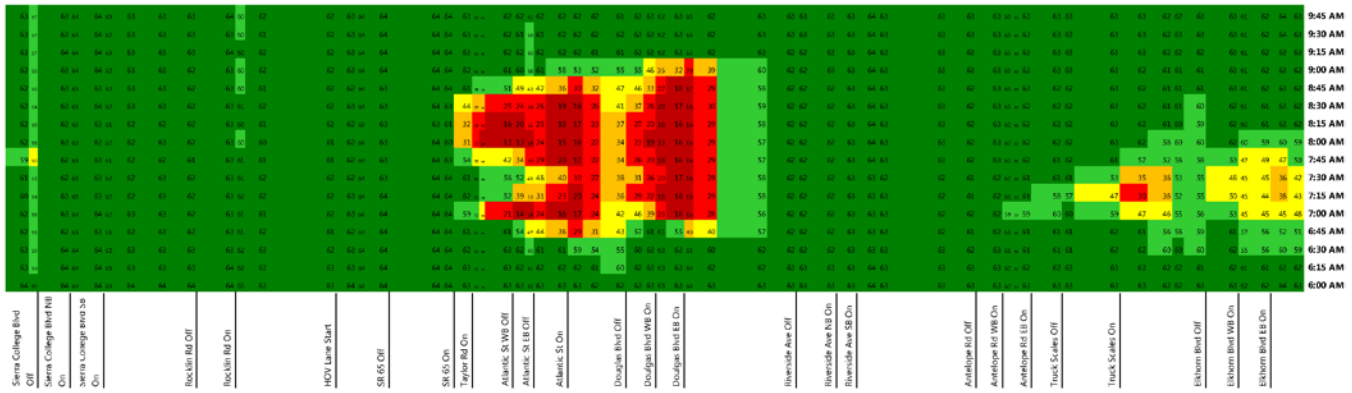


FIGURE 46 – WESTBOUND I-80 DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

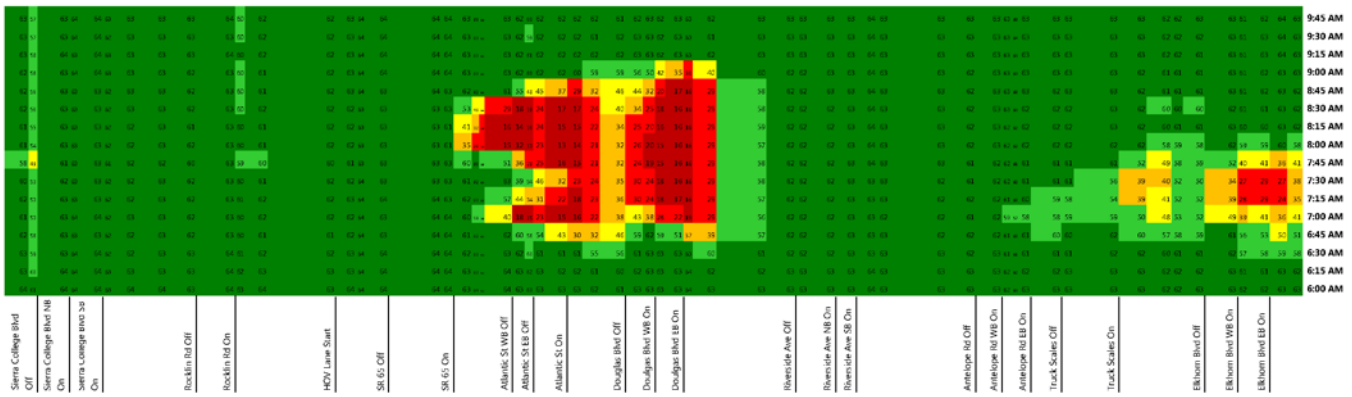
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

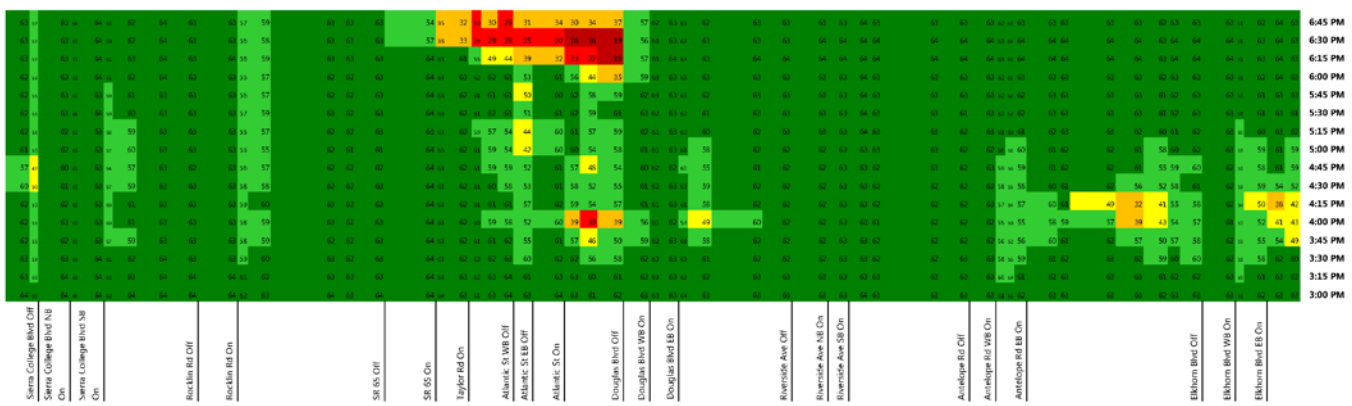
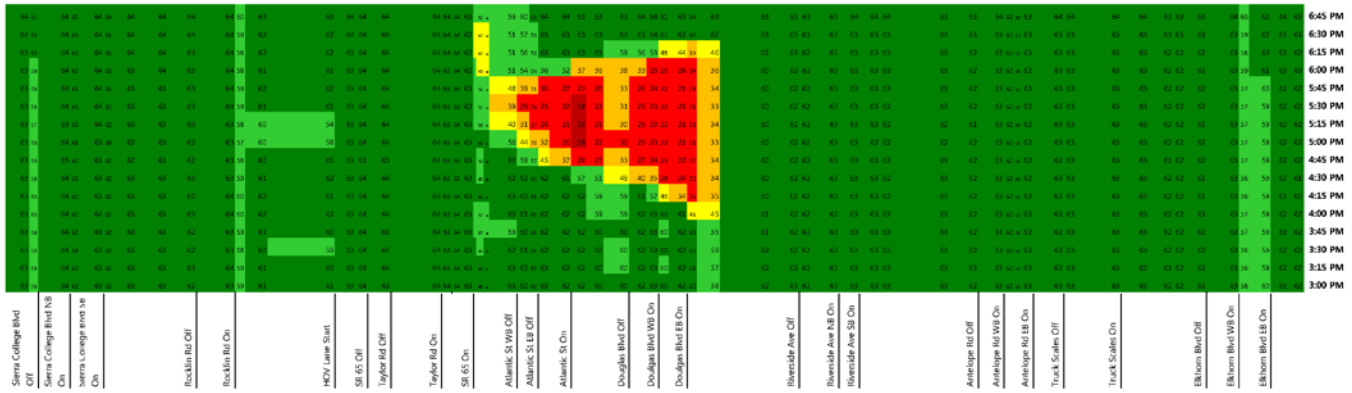
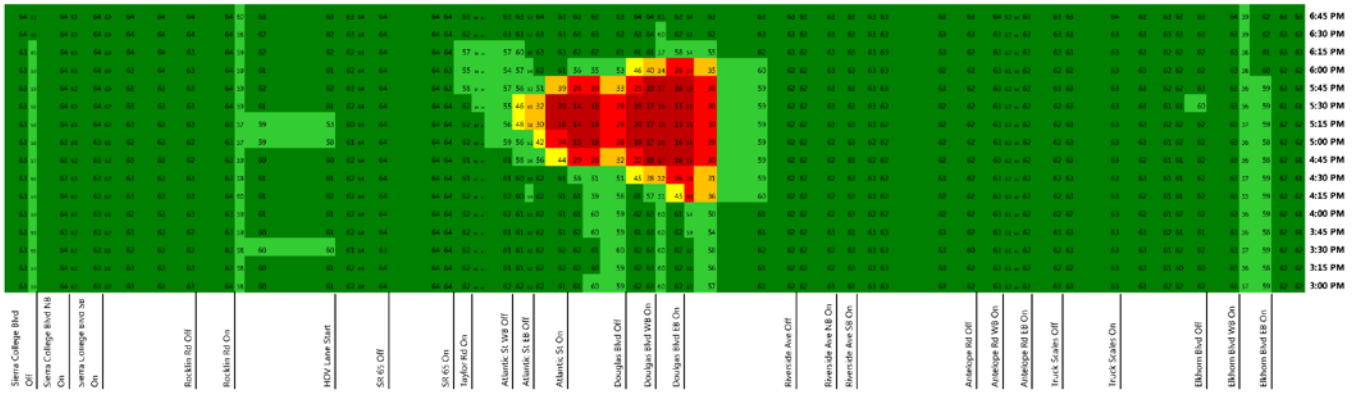


FIGURE 47 – WESTBOUND I-80 DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

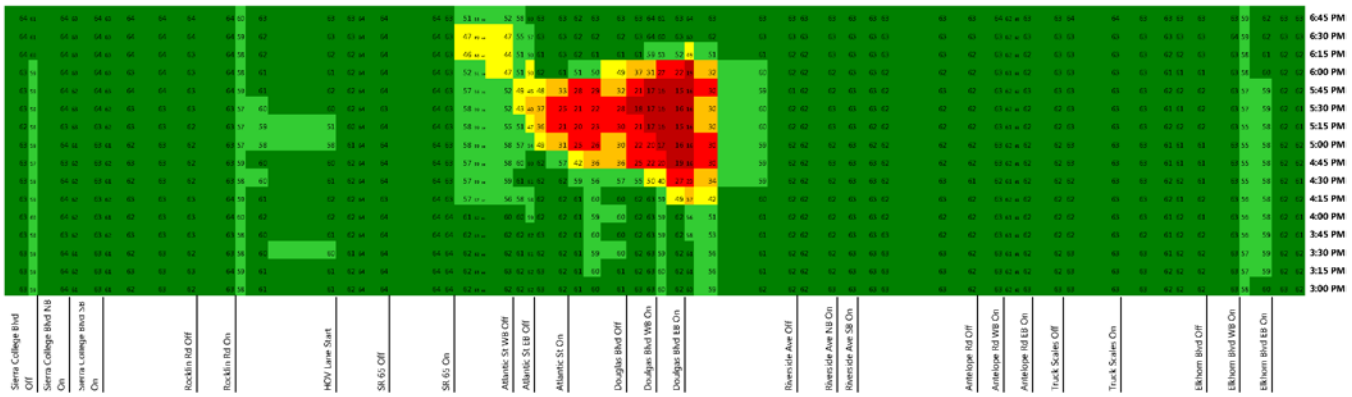
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

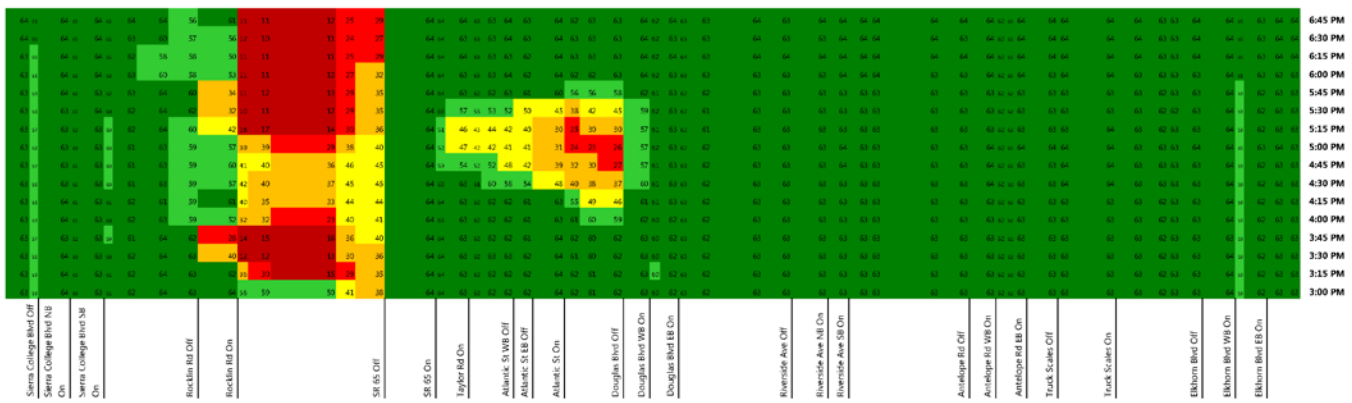
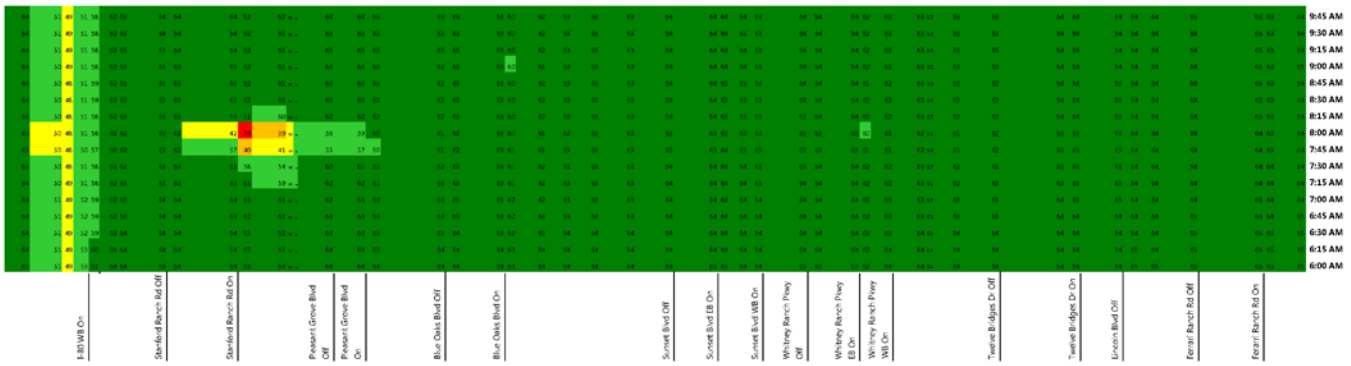
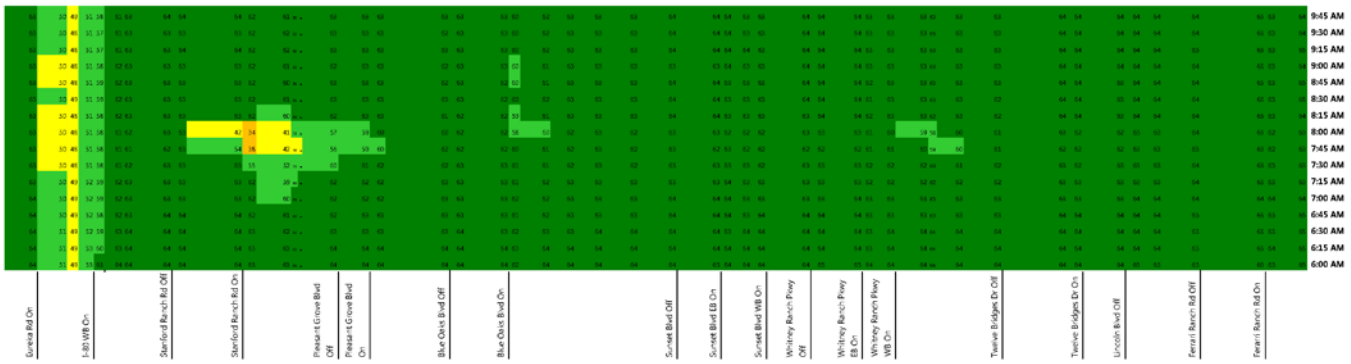


FIGURE 48 – NORTHBOUND SR 65 DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

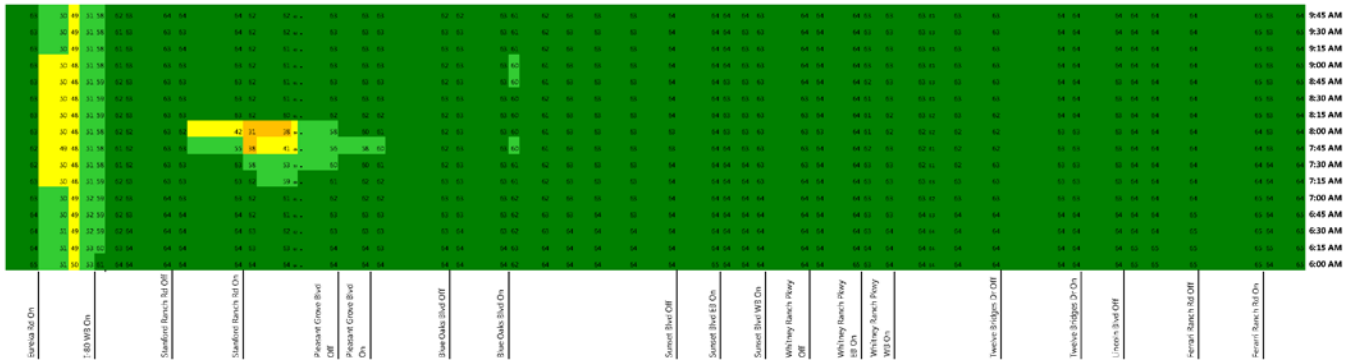
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

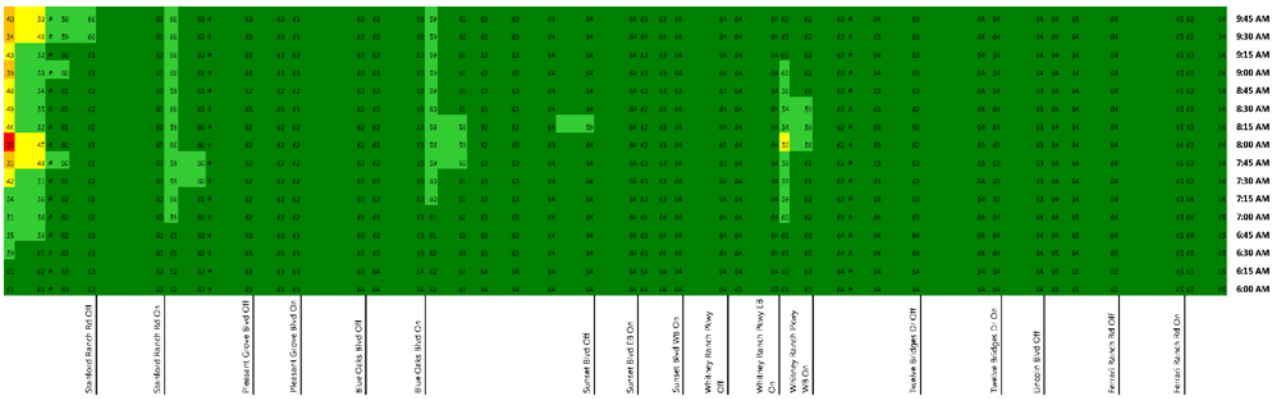
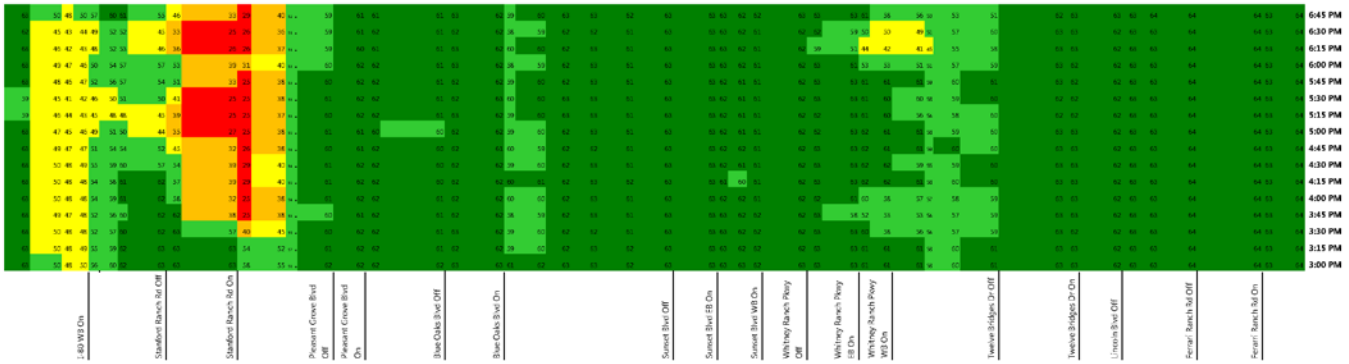
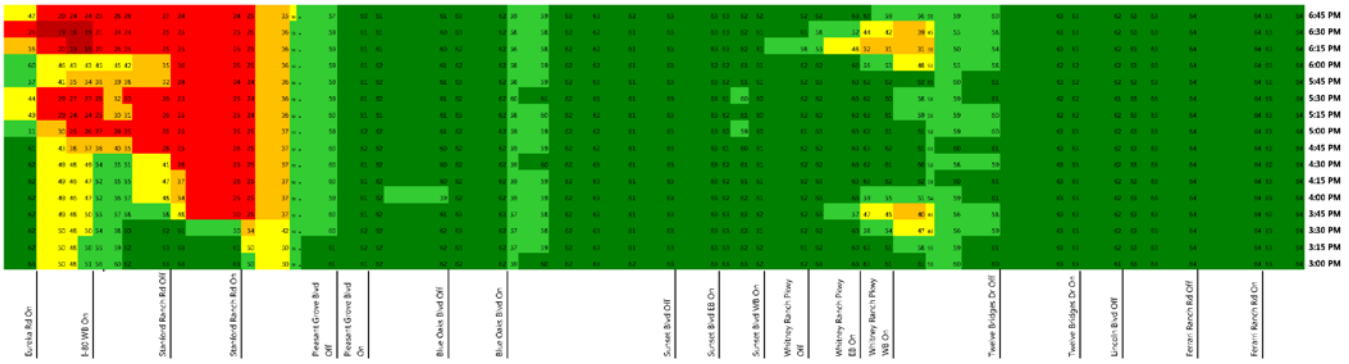


FIGURE 49 – NORTHBOUND SR 65 DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

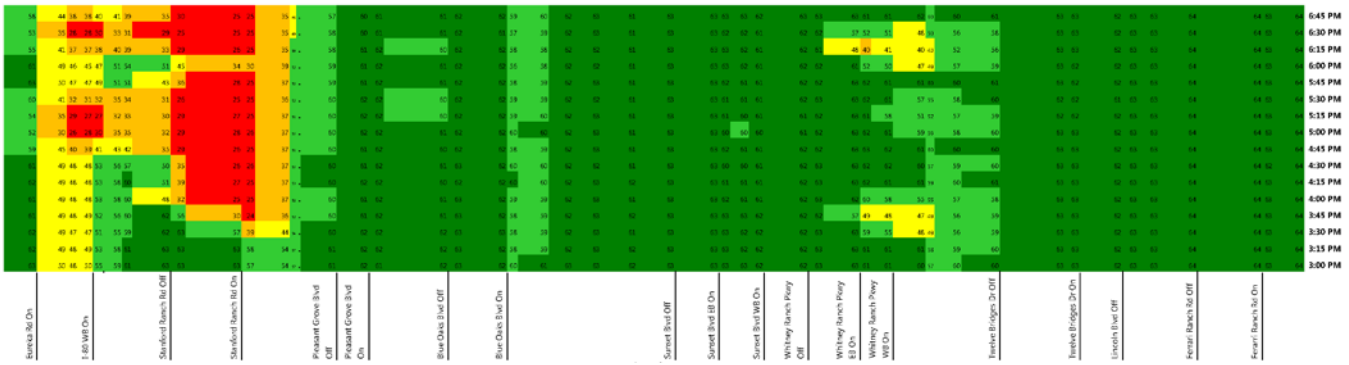
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

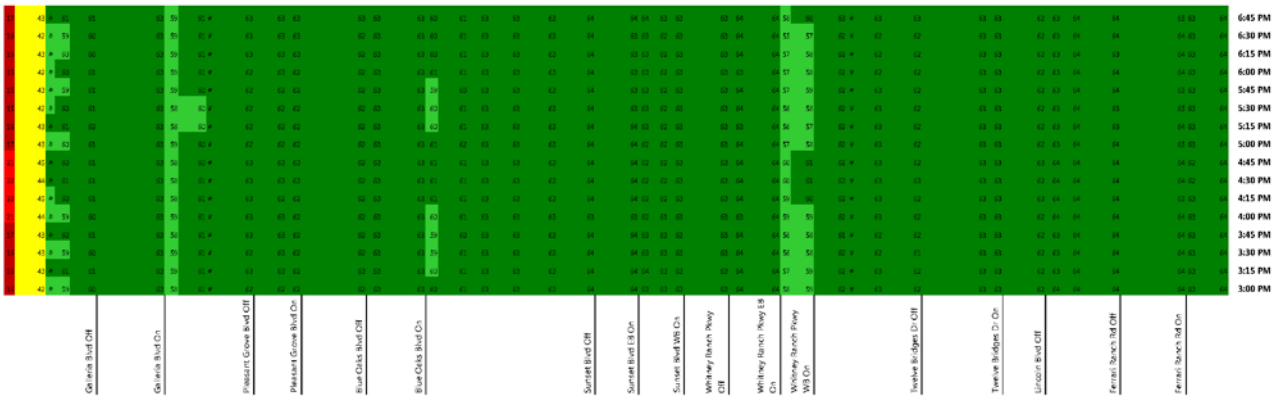
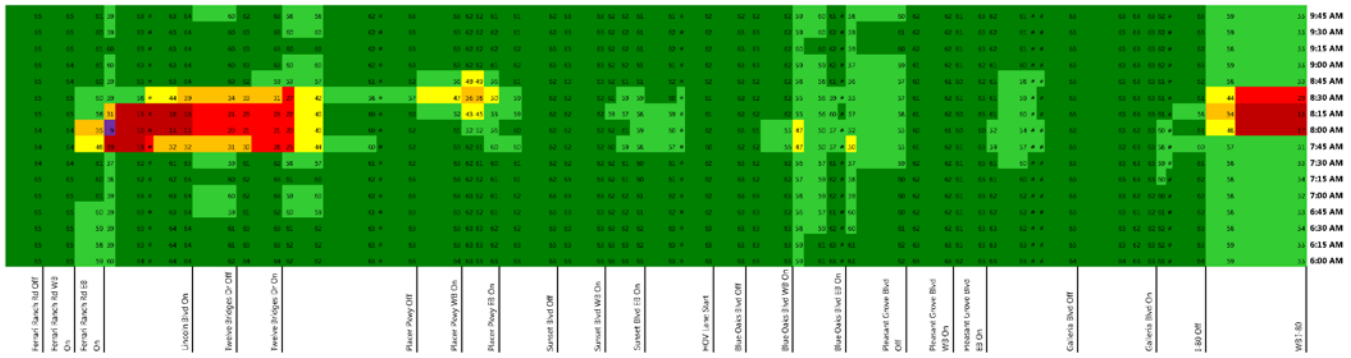
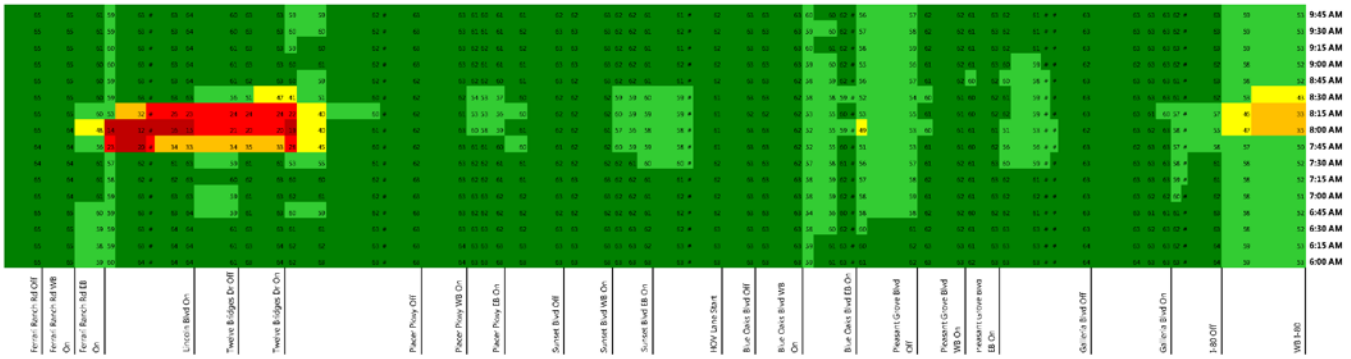


FIGURE 50 – SOUTHBOUND SR 65 DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

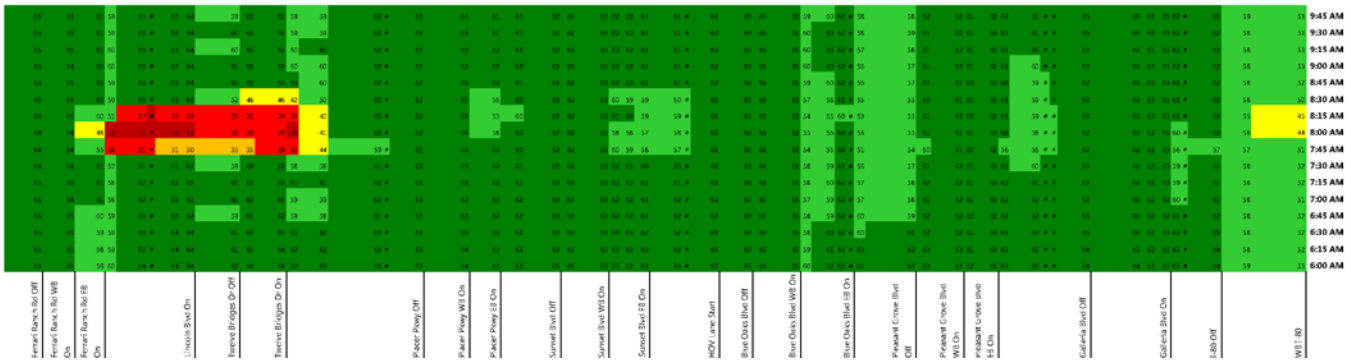
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

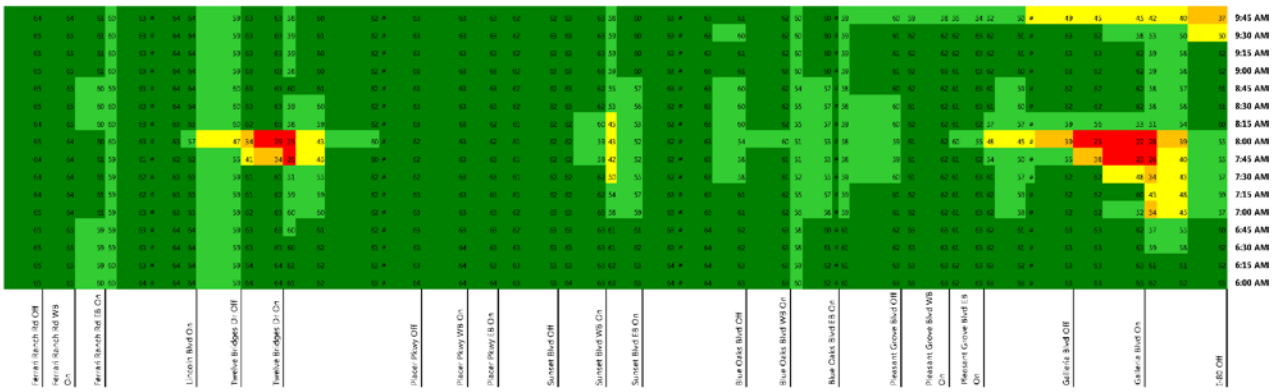
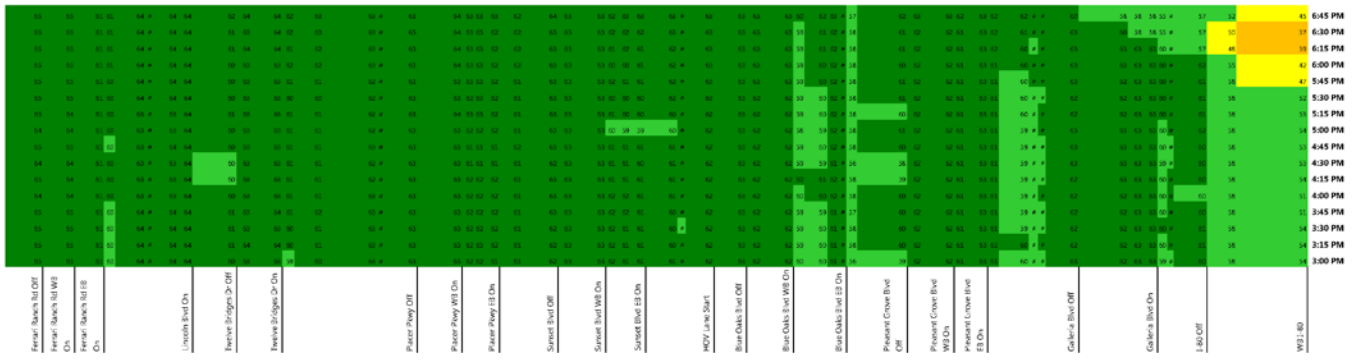
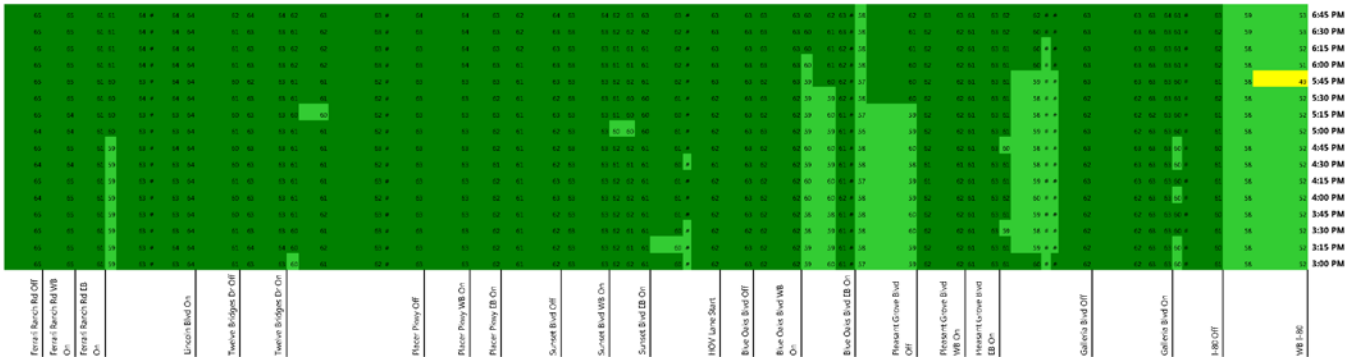


FIGURE 51 – SOUTHBOUND SR 65 DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

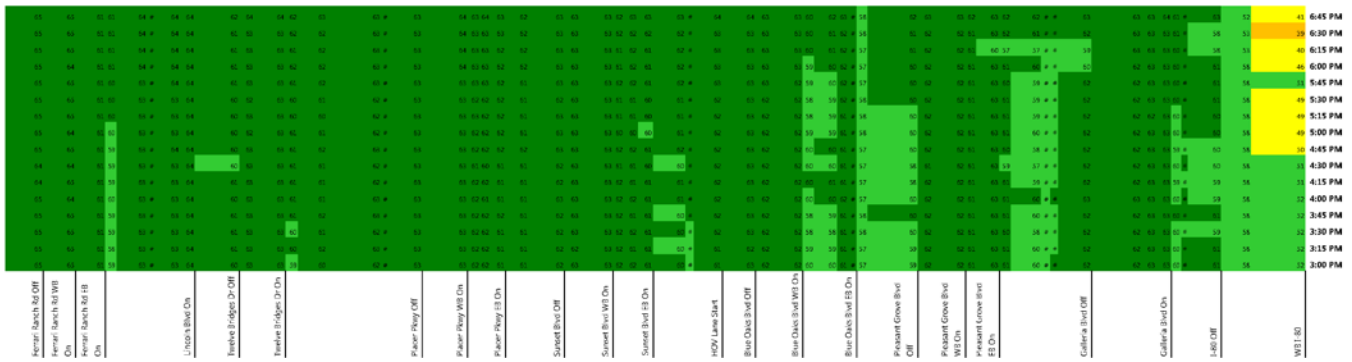
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



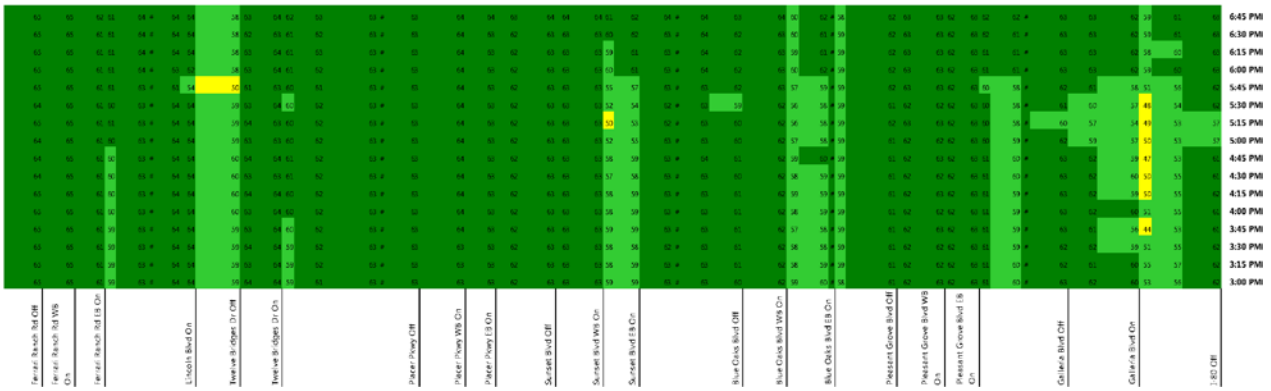
COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)



To mitigate the impact for the section from SR 65 through Douglas Boulevard, an additional through lane could be constructed at the Douglas Boulevard and Riverside Avenue interchanges. This capacity improvement may have secondary impacts downstream at Elkhorn Boulevard. An alternate mitigation would be to use more restrictive metering of westbound I-80 and southbound SR 65 on-ramps, and potentially installing a meter signal on the southbound SR 65 to westbound I-80 connector.

The impact to the section from the truck scales to Elkhorn Boulevard could be mitigated by providing additional mainline capacity such as a continuous auxiliary lane between the truck scales on-ramp and Elkhorn Boulevard off-ramp or more restrictive metering on-ramps. More restrictive metering for ramps at Elkhorn Boulevard, Antelope Road, and Riverside Avenue could cause queuing that would extend onto the local street network.

During the PM peak hour, LOS F conditions would occur between Atlantic Street and Douglas Boulevard under Alternatives 1, 2, and 3. For Alternative 5 (No Build), LOS F would also occur in this area, the upstream section between Rocklin Road and SR 65 would also have LOS F. Under Alternative 5, congestion on SR 65 northbound would spill back onto westbound I-80 for longer than the four-hour peak period. This bottleneck would constrain westbound through volumes (95 percent demand served downstream after SR 65 in the peak hour) which would result in better conditions downstream for the no build alternative compared to the build alternatives. The proposed project (Alternatives 1, 2, and 3) would result in impacts on westbound I-80 in the PM peak hour at Atlantic Street and at Douglas Boulevard. The potential mitigations are the same as discussed above: mainline widening at Douglas Boulevard and Riverside Avenue or more restrictive ramp meter operation.

Northbound SR 65

During the AM peak hour, Alternatives 1, 2, and 3 would have LOS F conditions at Stanford Ranch Road. The lane drop at the Pleasant Grove Boulevard off-ramp would be the bottleneck. Despite the LOS F conditions, the congested period would last for about 30 minutes (see Figure 48). Alternative 5 (No Build) would have in LOS F conditions at the I-80 westbound on-ramp to northbound SR 65. This bottleneck would constrain traffic (72 percent demand served in the peak hour) such that the downstream segments at Stanford Ranch Road would have LOS D conditions. The proposed project (Alternatives 1, 2, and 3) would result in an impact at the following locations.

- Stanford Ranch Road off-ramp to on-ramp
- Stanford Ranch Road on-ramp
- Stanford Ranch Road to Pleasant Grove Boulevard

These impacts could be mitigated by adding mainline capacity such as another through lane at Pleasant Grove Boulevard.

The PM peak hour results show the same trends as the AM peak hour; however, the demand volumes are higher, which results in more congestion. Alternative 1 (Taylor Road Full Access Interchange) has LOS F conditions at the same locations as in the AM peak hour. For Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated), the LOS F conditions extend back to I-80. Despite this congestion, the build alternatives would serve 97 to 99 percent of the peak-hour demand volume. Alternative 5 (No Build) has LOS F conditions at the I-80 westbound on-ramp and would serve about 70 percent of the demand. As shown in Figure 49, the northbound SR 65 bottleneck at Pleasant Grove Boulevard would occur for longer than three hours even in the build alternatives. Farther north, LOS E conditions occur for the build alternatives between Whitney Ranch Parkway and Twelve Bridges Drive indicating that further increases in volume may result in congested conditions.

Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated) show more congestion compared to Alternative 1 (Taylor Road Full Access Interchange). The three build alternatives have similar peak-hour volumes (within 40 vehicles per hour). However, the volume of weaving traffic between Stanford Ranch Road and Pleasant Grove Boulevard differs. The 4 to 5 PM demand volume for the weaving movements (on-ramp to downstream mainline and upstream mainline to off-ramp) are 46 vehicles per hour lower for Alternative 1 compared to Alternative 2 and 33 vehicles per hour lower for Alternative 3. The higher weaving volume disrupts the traffic flow in Alternatives 2 and 3, which results in worse operations compared to Alternative 1. The Vissim analysis results were confirmed using the Leisch Method procedure for the freeway segments between I-80 and Pleasant Grove Boulevard (see the Sensitivity Tests section of the appendix), which show LOS F conditions under all three build alternatives.

The proposed project (Alternatives 1, 2, and 3) would result in impacts during both peak hours to the segment between the Stanford Ranch Road off-ramp and on-ramp and at the Stanford Ranch Road on-ramp. Alternatives 2 and 3 would have impacts during the AM peak hour to the segment between Stanford Ranch Road and Pleasant Grove Boulevard. These impacts could be mitigated by adding mainline capacity such as another through lane at Pleasant Grove Boulevard.

Southbound SR 65

During the AM peak hour, all project alternatives have LOS F conditions on southbound SR 65 at the Twelve Bridges Drive on-ramp. For the build alternatives, LOS F conditions extend upstream to the Ferrari Ranch Road interchange. As noted previously, the difference is caused by different forecasts used for the analysis of Alternative 5 (No Build). For Alternatives 1, 2, and 3, slowing is also present at the Placer Parkway, Sunset Boulevard, and Blue Oaks Boulevard westbound on-ramps, and at the Pleasant Grove Boulevard interchange. For Alternative 5, a bottleneck at the Galleria Boulevard to I-80 weaving section causes LOS F conditions to extend back to Pleasant Grove Boulevard. Alternatives 1 and 2 have LOS F conditions on the connector to westbound I-80 due to downstream bottlenecks at Douglas Boulevard.

The proposed project (Alternatives 1, 2, and 3) would result in impacts at the following locations on southbound SR 65 during the AM peak hour.

- Between the eastbound Ferrari Ranch Road on-ramp and the Twelve Bridges Drive on-ramp
- Westbound Placer Parkway westbound on-ramp (Alternative 1 only)
- Southbound SR 65 to westbound I-80 connector (Alternatives 1 and 2 only)

To mitigate the impacts between Ferrari Ranch Road and Twelve Bridges Drive, additional mainline capacity is needed such as an auxiliary lane between Twelve Bridges Drive and Placer Parkway. This improvement would likely create additional impacts to facilities downstream by allowing more vehicles to reach locations that already operate at LOS E or worse, such as the ramps at Sunset Boulevard, Blue Oaks Boulevard, and Pleasant Grove Boulevard. Further, improving mixed-flow bottlenecks may influence demand for future HOV lanes. This suggests that the long-term solution for SR 65 carefully consider where additional mixed-flow lanes versus auxiliary lanes are warranted between Lincoln Boulevard and Pleasant Grove Boulevard. The impact to the Placer Parkway on-ramp can be mitigated by extending the auxiliary lane that starts at the eastbound on-ramp upstream to start at the westbound on-ramp. Potential mitigation for the impacts to the westbound I-80 connector is discussed above in the westbound I-80 section.

All of the study facilities operate at LOS E or better in the southbound direction during the PM peak hour.

5.1.2. Arterial Intersection Operations

Tables 21 and 23 show the LOS and average delay at key study intersections under design year conditions during the AM and PM peak hours, respectively. Tables 22 and 24 show the average maximum queue length at off-ramps under design year conditions during the AM and PM peak hours. Based on the evaluation criteria for this study, Alternative 1 (Taylor Road Full Access Interchange) has five impacts, Alternative 2 (Collector-Distributor System Ramps) has four impacts, and Alternative 3 (Taylor Road Interchange Eliminated) has six impacts. See the Technical Appendix for all study intersection results.

TABLE 21: SELECTED INTERSECTION OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Intersection	Alternative 1	Alternative 2	Alternative 3	Alternative 5
6. Blue Oaks Blvd / Washington Blvd	**D / 45**	**D / 49**	**D / 50**	**F / 136**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 10	B / 11	B / 12	**F / 116**
10. Stanford Ranch Rd / Five Star Blvd	C / 28	C / 26	C / 28	**F / 151**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 16	C / 25	B / 19	**F / 127**
12. Galleria Blvd / SR 65 SB Ramps	C / 24	C / 34	C / 25	D / 38
14. Galleria Blvd / Roseville Pkwy	D / 45	D / 45	D / 46	D / 39
15. Roseville Pkwy / Creekside Ridge Dr	A / 7	A / 7	A / 7	B / 10
16. Roseville Pkwy / Taylor Rd	**E / 61**	**E / 62**	**F / 95**	**F / 98**
19. Atlantic St / I-80 WB Ramps	**D / 43**	C / 25	**D / 38**	B / 12
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 32	C / 29	D / 42	E / 55
21. Eureka Rd / Sunrise Ave	**D / 38**	**D / 37**	**D / 39**	C / 29
23. Douglas Blvd / Harding Blvd	C / 28	C / 29	C / 30	C / 25
26. Douglas Blvd / Sunrise Ave	D / 37	D / 40	D / 47	C / 35
29. Rocklin Rd / Granite Dr	C / 27	C / 25	D / 42	D / 29

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

TABLE 22: SELECTED MAXIMUM QUEUE LENGTH RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eureka Rd	1,700	600	650	900
Eastbound I-80 at Taylor Rd	>1,000	325	25	-
Eastbound I-80 at Rocklin Rd	1,080	275	275	275
Westbound I-80 at Rocklin Rd	1,230	200	175	200
Westbound I-80 at Taylor Rd	>1,000	325	-	-
Westbound I-80 at Douglas Blvd	1,530	375	375	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	150	200	150
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	75	75	75
Southbound SR 65 at Southbound Galleria Blvd	1,130	275	300	300
Southbound SR 65 at Northbound Galleria Blvd	1,780	50	75	75

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

TABLE 23: SELECTED INTERSECTION OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Intersection	Alternative 1	Alternative 2	Alternative 3	Alternative 5
6. Blue Oaks Blvd / Washington Blvd	**F / 165**	**F / 164**	**F / 175**	**F / >240**
7. Blue Oaks Blvd / SR 65 NB Ramps	**F / 85**	**E / 69**	**E / 80**	**F / 115**
10. Stanford Ranch Rd / Five Star Blvd	**E / 56**	**E / 55**	**E / 59**	**D / 36**
11. Stanford Ranch Rd / SR 65 NB Ramps	C / 26	C / 22	C / 22	D / 36
12. Galleria Blvd / SR 65 SB Ramps	C / 24	C / 23	C / 25	C / 29
14. Galleria Blvd / Roseville Pkwy	**F / 91**	**F / 131**	**F / 102**	**F / 213**
15. Roseville Pkwy / Creekside Ridge Dr	**E / 77**	**E / 72**	**D / 40**	C / 24
16. Roseville Pkwy / Taylor Rd	D / 54	D / 53	**E / 71**	D / 48
19. Atlantic St / I-80 WB Ramps	B / 15	B / 18	C / 34	**D / 51**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	**F / 104**	**F / 103**	**F / 104**	**F / 92**
21. Eureka Rd / Sunrise Ave	**F / 99**	**F / 132**	**F / 113**	**F / 184**
23. Douglas Blvd / Harding Blvd	**F / 81**	E / 80	**F / 111**	**F / >240**
26. Douglas Blvd / Sunrise Ave	**F / 158**	**F / 240**	**F / 166**	**F / >240**
29. Rocklin Rd / Granite Dr	**F / 83**	**F / 97**	**F / 105**	**F / >240**

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

TABLE 24: SELECTED MAXIMUM QUEUE LENGTH RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eureka Rd	1,700	725	450	1,000
Eastbound I-80 at Taylor Rd	>1,000	300	75	-
Eastbound I-80 at Rocklin Rd	1,080	275	275	275
Westbound I-80 at Rocklin Rd	1,230	375	400	450
Westbound I-80 at Taylor Rd	>1,000	300	-	-
Westbound I-80 at Douglas Blvd	1,530	425	425	450
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	425	375	400
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	100	125	125
Southbound SR 65 at Southbound Galleria Blvd	1,130	325	325	350
Southbound SR 65 at Northbound Galleria Blvd	1,780	125	100	125

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

The following intersections would operate an unacceptable peak hour LOS based on the evaluation criteria under all project alternatives.

- Blue Oaks Boulevard/Washington Boulevard (AM and PM)
- Blue Oaks Boulevard/SR 65 Northbound Ramps (PM)
- Stanford Ranch Road/Five Star Boulevard (PM)
- Galleria Boulevard/Roseville Parkway (PM)
- Roseville Parkway/Taylor Road (AM)
- Eureka Road/Taylor Road/I-80 Eastbound Ramps (PM)
- Eureka Road/Sunrise Avenue (PM)
- Douglas Boulevard/Sunrise Avenue (PM)
- Rocklin Road/Granite Drive (PM)

The analysis results indicate these intersections will need significant capacity enhancements with and without the proposed project to operate within the established LOS thresholds for these locations. Before any improvements are proposed though, the interaction between these locations and the rest of the network should be considered. In some cases, the operation of these intersections meters traffic accessing the freeway. This may be desirable in certain locations, such as at Blue Oaks Boulevard/ Washington Boulevard, at least until sufficient capacity is available on SR 65 to accommodate the demand levels. In other locations, improvements to the freeway system, such as an auxiliary lane, may reduce demand and/or queuing that would improve intersection operations.

During the AM peak hour, the two project impacts are on the Atlantic Street/Eureka Road corridor. For Alternative 1 (Taylor Road Full Access Interchange) and 3 (Taylor Road Interchange Eliminated) have LOS D conditions at the Atlantic Street/I-80 Westbound I-80 ramps intersection. The LOS threshold is C, and Alternative 5 (No Build) has LOS B. All three build alternatives have LOS D conditions at Eureka Road/Sunrise Avenue, while the No Build alternative has LOS C conditions, which is also the LOS threshold. Freeway congestion constrains demand at these intersections under Alternative 5. With the build alternatives, more traffic demand can reach the intersections resulting in higher average delays.

The impact at the Westbound I-80 ramps intersection is likely caused by queues from the ramp meter. So, potential mitigation would include changes to the meter signal operation or widening of the on-ramp to provide more storage. The design year model includes planned improvements at the Sunrise Avenue intersection. Further improvements could add third and fourth through lanes on some approaches. Alternately, the threshold could be adjusted to LOS D given that the intersection is accommodating a relatively high demand volume.

During the AM peak hour, the average maximum queue lengths for freeway off-ramps at all study intersections are less than the ramp storage length under all build alternatives. Even with an additional left-turn pocket lane, Alternative 3 has the longest queue on the eastbound I-80 off-ramp at Eureka Road. However, the queue is less than the ramp length, so the queue would not extend to the freeway mainline.

During the PM peak hour, the proposed project (Alternatives 1, 2, and 3) would have impacts at the following study intersections.

- Stanford Ranch Road/Five Star Boulevard
- Roseville Parkway/Creekside Ridge Drive
- Roseville Parkway/Taylor Road (Alternative 3 only)
- Eureka Road/Taylor Road/I-80 Eastbound Ramps

Under Alternative 5, traffic demand is constrained on eastbound I-80 at the SR 65 interchange. As a result, less traffic can reach the Stanford Ranch Road, Roseville Parkway, and Taylor Road corridors. With the project improvements, the increased volume results in a delay at the Five Star Boulevard intersection that is within 5 seconds of the LOS E threshold of 55 seconds for all three build alternatives. The impact at the Creekside Ridge Drive intersection is caused by the signal timings used at the adjacent Galleria Boulevard intersection. The westbound queue at Galleria Boulevard extends upstream into the Creekside Ridge Drive intersection.

At Eureka Road/Taylor Road, the average delay increases by about 10 seconds for all three build alternatives compared to the no build alternative. Even though Alternative 3 (Taylor Road Interchange Eliminated) has additional capacity on the northbound and southbound legs compared to Alternatives 1 (Taylor Road Full Access Interchange) and 2 (Collector-Distributor System Ramps), all three alternatives have about the same average delay. The additional westbound right-turn pocket for Alternative 3 at the Roseville Parkway/Taylor Road intersection provides LOS E rather than LOS F conditions, but the intersection threshold is LOS D.

Intersection mitigations would involve additional approach lanes. At Five Star Boulevard, adding a second eastbound right-turn lane would likely reduce intersection delay without affecting pedestrian safety since no conflicting crosswalk exists for this movement. For Creekside Ridge Drive, the signal timing or geometry at the adjacent Galleria Boulevard intersection would need to be modified. The Roseville Parkway/Taylor Road intersection already has right-turn overlap phases and dual left-turn lanes. Further improvements could include a fourth east or westbound through lane or a third southbound left-turn lane. For Eureka Road/Taylor Road, the Alternative 3 improvements (a second northbound left-turn lane and a second southbound right-turn lane) could be applied to Alternatives 1 and 2. The Alternative 3 intersection is built-out, so grade separation of certain movements – for example, westbound Eureka Road

to eastbound I-80 – may be needed. Mitigation of the impact at Roseville Parkway/Taylor Road under Alternative 3 may be accomplished by adding a third southbound left-turn lane.

5.2. **Construction Year Conditions**

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 25 and 26 below, respectively.

TABLE 25: COMPARISON OF OVERALL NETWORK PERFORMANCE – CONSTRUCTION YEAR AM PEAK PERIOD

Performance Measure		Existing Conditions	Construction Year Conditions			
			Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)		143,450 (100%)	168,990 (100%)	167,770 (99%)	167,860 (99%)	163,780 (96%)
VMT		645,270	794,080	788,250	788,060	740,650
PMT		786,260	976,830	970,480	970,660	909,000
VHT		13,760	16,990	16,800	16,760	23,040
VHD (% of VHT)		2,670 (19%)	3,360 (20%)	3,300 (20%)	3,260 (20%)	10,330 (45%)
Average Delay per Vehicle (min)		1.12	1.19	1.18	1.17	3.78
PHD		3,240	3,990	3,930	3,890	12,370
Average Speed		46.9	46.7	46.9	47.0	32.1
Average Speed for HOVs		47.0	49.0	49.2	49.1	34.4
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	8:56	8:45	9:22	17:10
	HOV	9:27	8:30	8:30	8:39	13:58

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

Reviewing the results in Tables 25 and 26 should consider the following information.

- Overall, the build alternatives improve overall network performance compared to no build conditions.
- The three build alternatives serve all of the peak period demand volume, but Alternative 5 (No Build) does not. The performance metrics do not fully account for vehicles that could not enter the network during the peak periods.

- During the AM peak period, Alternative 3 (Taylor Road Interchange Eliminated) has the lowest delay and highest average speed. However, all three build alternatives have about the same results.

TABLE 26: COMPARISON OF OVERALL NETWORK PERFORMANCE – CONSTRUCTION YEAR PM PEAK PERIOD

Performance Measure		Existing Conditions	Construction Year Conditions			
			Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)		198,170 (101%)	234,970 (101%)	235,230 (101%)	235,090 (101%)	216,610 (91%)
VMT		730,100	934,490	931,460	930,080	805,450
PMT		880,180	1,155,450	1,152,400	1,151,470	998,020
VHT		16,850	21,500	21,290	21,620	37,230
VHD (% of VHT)		3,950 (23%)	5,080 (24%)	4,940 (23%)	5,300 (25%)	23,020 (62%)
Average Delay per Vehicle (min)		1.20	1.30	1.26	1.35	6.38
PHD		4,670	6,140	5,970	6,420	27,150
Average Travel Speed		43.3	43.5	43.7	43.0	21.6
Average HOV Speed		44.7	45.2	45.4	44.7	25.8
Travel Time: Auburn Blvd to Blue Oaks Blvd	SOV	9:16	6:26	6:28	6:26	35:10
	HOV	9:11	6:23	6:23	6:23	14:07

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

- During the PM peak period, Alternative 2 (Collector-Distributor System Ramps) has the lowest delay and highest average speed. Since all three build alternatives have similar freeway operations (no congested segments), the arterial network is performing more efficiently for Alternative 2.
- The AM peak-hour SOV travel time from Blue Oaks Boulevard to Antelope Road is better for Alternative 2 than 3 even though Alternative 3 (Taylor Road Interchange Eliminated) has lower overall delay.
- The PM peak-hour travel time from Auburn Boulevard to Blue Oaks Boulevard for the build alternatives is similar.
- AM and PM travel times are better than existing conditions for all build alternatives.

Specific details about construction year freeway and arterial intersection operations are discussed in more detail in the following sections.

5.2.1. Freeway Operations

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM and 4:30 to 5:30 PM) of the four hour AM and PM peak periods. The AM and PM peak-hour served volume are percentage of the demand volume are listed in Figure 52. The AM and PM peak hour results for select locations are reported in Tables 27 and 28, respectively. The remaining results are available in the Technical Appendix. Figures 53 through 60 display the average speed in the mixed-flow lanes throughout the network during the peak periods for each alternative.

Eastbound I-80

The freeway operations results indicate that Alternative 5 (No Build) would result in LOS F operations on I-80 at the off-ramps to northbound SR 65 and Rocklin Road during the AM peak hour. In contrast, the build alternatives have LOS C or better conditions east of Eureka Road. All alternatives show LOS E between Auburn Boulevard and Douglas Boulevard. Only Alternative 1 (Taylor Road Full Access Interchange) has LOS E between Douglas Boulevard and Eureka Road due to the lack of an auxiliary lane compared to Alternatives 2 and 3.

During the PM peak hour, the No Build alternative would result in LOS F conditions from the beginning of the analysis area at Auburn Boulevard to the SR 65 off-ramp. In this area, speeds would be less than 20 mph for the majority of the peak period, and about 75 percent of the peak hour demand would be served. With the improvements at the SR 65 interchange, the build alternatives have LOS D or better conditions with one exception. Alternative 1 has LOS E at the Eureka Road off-ramp. As above, the lack of an auxiliary lane at this location compared to the other two build alternatives results in a higher density.

None of the build alternatives have in impacts on I-80 eastbound in the AM and PM peak hours.

Westbound I-80

During the AM peak period, bottlenecks would exist under all alternatives at Douglas Boulevard and Elkhorn Boulevard. Figure 55 shows that the build alternatives generally have higher levels of congestion between Antelope Road and Elkhorn Boulevard because the increase in capacity at the I-80/SR 65 interchange allows more vehicles to arrive at those locations during the peak hour. Alternative 5 has more congestion at Douglas Boulevard, which constrains traffic demand (to 92 percent) and causes less congestion downstream at Elkhorn Boulevard. As noted previously, the Alternative 5 uses different forecasts, which may partly explain these differences. The proposed project (Alternatives 1, 2, & 3) would result in impacts at the following locations during the AM peak hour.

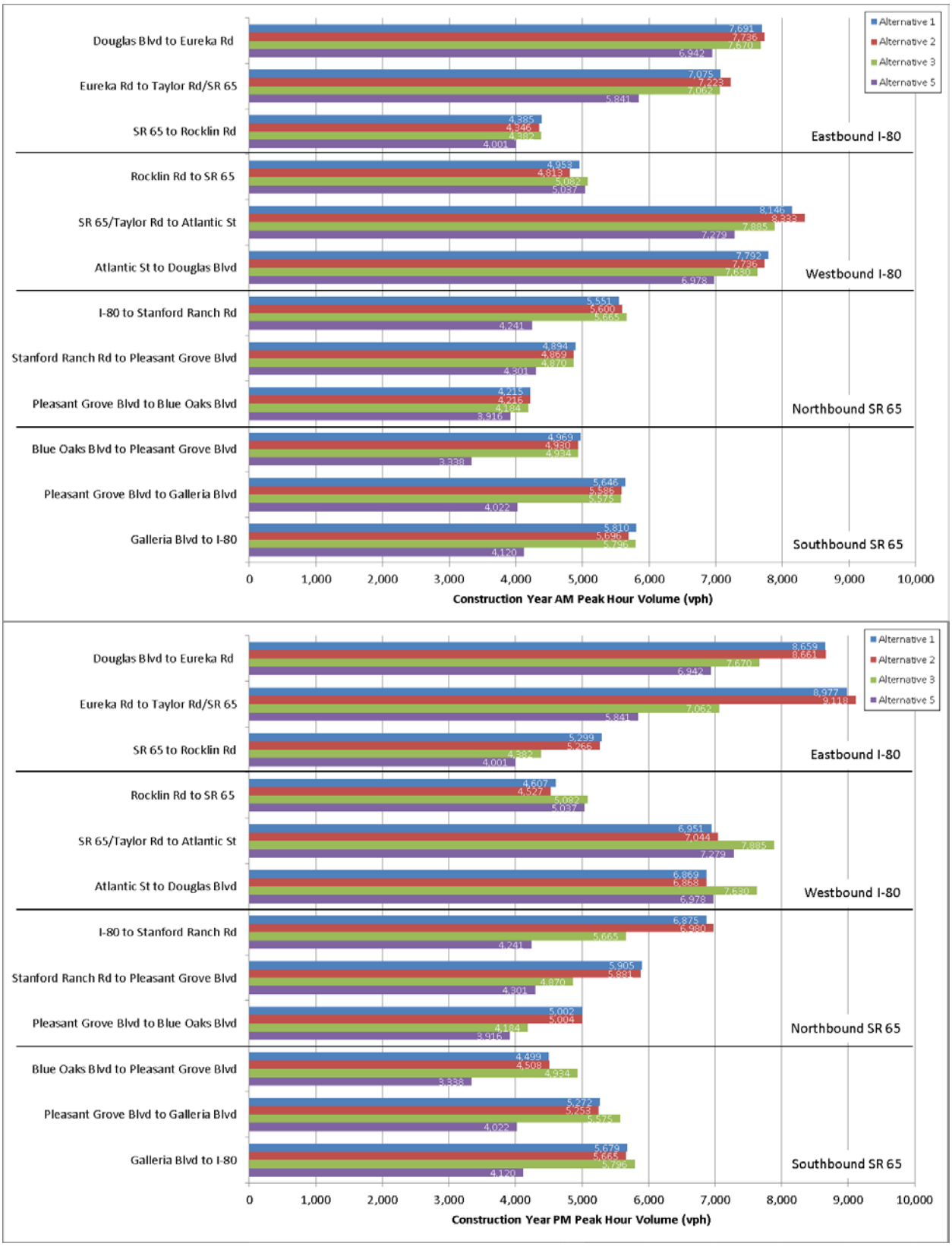


Figure 52 – Freeway Served Volume for Construction Year Conditions

TABLE 27: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
EB I-80	Auburn Blvd On-ramp	Merge	D / 29	D / 29	D / 29	E / 37
	Auburn Blvd to Douglas Blvd	Basic	E / 36	E / 36	E / 36	E / 39
	Douglas Blvd EB Off-ramp	Diverge	D / 30	D / 30	D / 30	D / 34
	Douglas Blvd WB Off-ramp	Diverge	C / 24	C / 24	C / 25	E / 40
	Douglas Blvd On-ramp	Merge	E / 35	C / 24	C / 24	D / 28
	Eureka Rd Off-ramp	Diverge	E / 38			D / 30
	Eureka Rd to SR 65	Weave	C / 20	D / 27	D / 27	C / 25
	Taylor Rd Off-ramp	Diverge	B / 15	-	-	
	SR 65 Off-ramp	Diverge	-	C / 22	C / 22	**F / 66**
	SR 65 On-ramp	Merge	C / 27	C / 26	C / 26	B / 20
WB I-80	Rocklin Rd to HOV Lane Start	Basic	D / 28	D / 27	D / 29	D / 28
	SR 65 Off-ramp	Diverge	C / 22	C / 21	C / 22	**F / 51**
	SR 65 to Atlantic St	Weave	C / 25	C / 23	C / 23	D / 32
	Atlantic St EB Off-ramp	Diverge	D / 29	D / 30	D / 28	**F / 93**
	Atlantic St On-ramp	Merge	**F / 47**	E / 41	C / 22	**F / 107**
	Douglas Blvd Off-ramp	Diverge	**F / 51**	E / 43	E / 37	**F / 46**
	Douglas Blvd WB On-ramp	Merge	**F / 99**	**F / 86**	**F / 87**	**F / 114**
	Douglas Blvd EB On-ramp	Merge	**F / 77**	**F / 76**	**F / 74**	**F / 71**
	Truck Scales to Elkhorn Blvd	Basic	**F / 67**	**F / 66**	**F / 64**	E / 41
	Elkhorn Blvd WB On-ramp	Merge	**F / 96**	**F / 96**	**F / 92**	**F / 93**
	Elkhorn Blvd EB On-ramp	Merge	**F / 76**	**F / 76**	**F / 76**	**F / 82**

TABLE 27: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
NB SR 65	I-80 to Stanford Ranch Rd	Weave	C / 21	C / 21	C / 22	**F / 87**
	Stanford Ranch Rd On-ramp	Merge	B / 11	B / 10	B / 11	**F / 64**
	Pleasant Grove Blvd Off-ramp	Diverge	D / 35	D / 34	D / 34	D / 33
	Blue Oaks Blvd On-ramp	Merge	C / 23	C / 23	C / 23	C / 21
	Twelve Bridges Dr Off-ramp	Diverge	B / 18	B / 18	B / 18	B / 17
SB SR 65	Ferrari Ranch Rd EB On-ramp	Merge	B / 16	B / 15	B / 14	E / 38
	Lincoln Blvd to Twelve Bridges Dr	Weave	C / 27	C / 25	C / 25	**F / 153**
	Twelve Bridges Dr On-ramp	Merge	E / 40	D / 35	E / 35	**F / 164**
	Placer Pkwy WB On-ramp	Merge	E / 35	D / 34	D / 31	**F / 165**
	Sunset Blvd EB On-ramp	Merge	**F / 51**	E / 45	E / 43	**F / 126**
	Blue Oaks Blvd WB On-ramp	Merge	E / 39	E / 35	E / 36	**F / 111**
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	E / 40	E / 38	E / 37	**F / 96**
	Pleasant Grove Blvd WB On-ramp	Merge	D / 29	D / 29	D / 29	**F / 79**
	Pleasant Grove Blvd EB On-ramp	Merge	D / 32	D / 32	D / 33	**F / 58**
	Galleria Blvd Off-ramp	Diverge	C / 28	D / 28	D / 28	D / 34
	Galleria Blvd to I-80	Weave	C / 24	C / 24	C / 24	C / 26

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
[1] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

Source: Fehr & Peers, 2014

TABLE 28: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
EB I-80	Auburn Blvd On-ramp	Merge	C / 27	C / 27	C / 27	**F / 180**
	Auburn Blvd to Douglas Blvd	Basic	D / 32	D / 32	D / 32	**F / 142**
	Douglas Blvd EB Off-ramp	Diverge	D / 29	D / 29	D / 29	**F / 103**
	Douglas Blvd WB Off-ramp	Diverge	C / 25	C / 25	C / 25	**F / 158**
	Douglas Blvd On-ramp	Merge	D / 33	C / 25	C / 25	**F / 165**
	Eureka Rd Off-ramp	Diverge	E / 35			**F / 131**
	Eureka Rd to SR 65	Weave	C / 24	D / 30	D / 31	**F / 135**
	Taylor Rd Off-ramp	Diverge	B / 16	-	-	
	SR 65 Off-ramp	Diverge	-	C / 24	C / 25	**F / 79**
	SR 65 On-ramp	Merge	D / 28	C / 27	C / 28	B / 19
WB I-80	Rocklin Rd to HOV Lane Start	Basic	D / 27	C / 25	D / 26	**F / 128**
	SR 65 Off-ramp	Diverge	C / 20	B / 19	B / 19	**F / 140**
	SR 65 to Atlantic St	Weave	C / 20	B / 20	B / 20	C / 25
	Atlantic St EB Off-ramp	Diverge	C / 22	C / 23	C / 21	C / 28
	Atlantic St On-ramp	Merge	C / 25	C / 25	B / 20	C / 20
	Douglas Blvd Off-ramp	Diverge	D / 31	D / 31	D / 30	B / 15
	Douglas Blvd WB On-ramp	Merge	C / 26	C / 26	C / 26	D / 29
	Douglas Blvd EB On-ramp	Merge	C / 26	C / 25	C / 24	D / 33
	Truck Scales to Elkhorn Blvd	Basic	D / 29	D / 28	D / 28	C / 26
	Elkhorn Blvd WB On-ramp	Merge	C / 27	C / 26	C / 26	C / 23
	Elkhorn Blvd EB On-ramp	Merge	D / 29	D / 29	D / 29	C / 27

TABLE 28: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

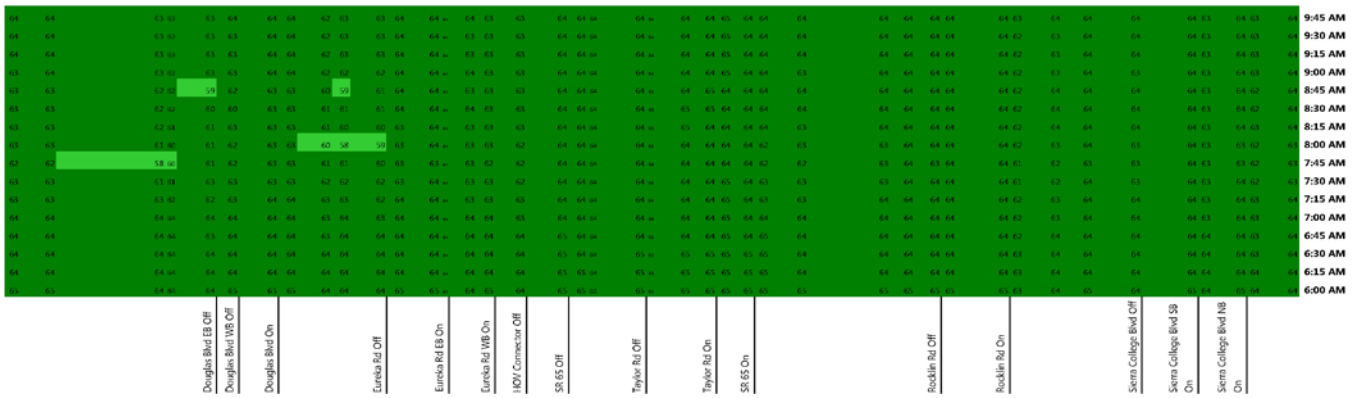
Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3	Alternative 5
NB SR 65	I-80 to Stanford Ranch Rd	Weave	C / 24	C / 25	C / 26	F / 90
	Stanford Ranch Rd On-ramp	Merge	B / 18	B / 18	B / 18	F / 83
	Pleasant Grove Blvd Off-ramp	Diverge	D / 35	E / 36	E / 35	D / 31
	Blue Oaks Blvd On-ramp	Merge	E / 36	E / 38	E / 39	C / 22
	Twelve Bridges Dr Off-ramp	Diverge	D / 30	D / 29	D / 30	C / 25
SB SR 65	Ferrari Ranch Rd EB On-ramp	Merge	A / 7	A / 7	A / 7	A / 7
	Lincoln Blvd to Twelve Bridges Dr	Weave	B / 14	B / 14	B / 14	B / 13
	Twelve Bridges Dr On-ramp	Merge	B / 19	B / 19	B / 19	B / 18
	Placer Pkwy WB On-ramp	Merge	B / 18	B / 18	B / 18	B / 18
	Sunset Blvd EB On-ramp	Merge	D / 34	D / 33	D / 33	**F / 113**
	Blue Oaks Blvd WB On-ramp	Merge	C / 27	C / 27	C / 28	**F / 129**
	Pleasant Grove Blvd EB On-ramp	Merge	C / 27	C / 26	C / 26	**F / 60**
	Galleria Blvd Off-ramp	Diverge	C / 25	C / 25	C / 25	E / 36
	Galleria Blvd to I-80	Weave	C / 22	C / 22	C / 23	D / 29

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
[1] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

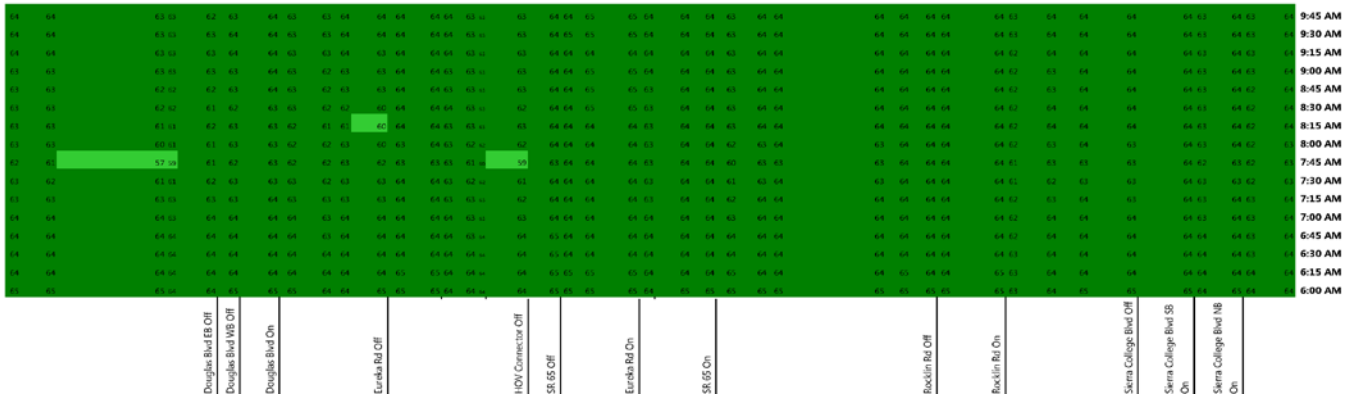
Source: Fehr & Peers, 2014

FIGURE 53 – EASTBOUND I-80 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

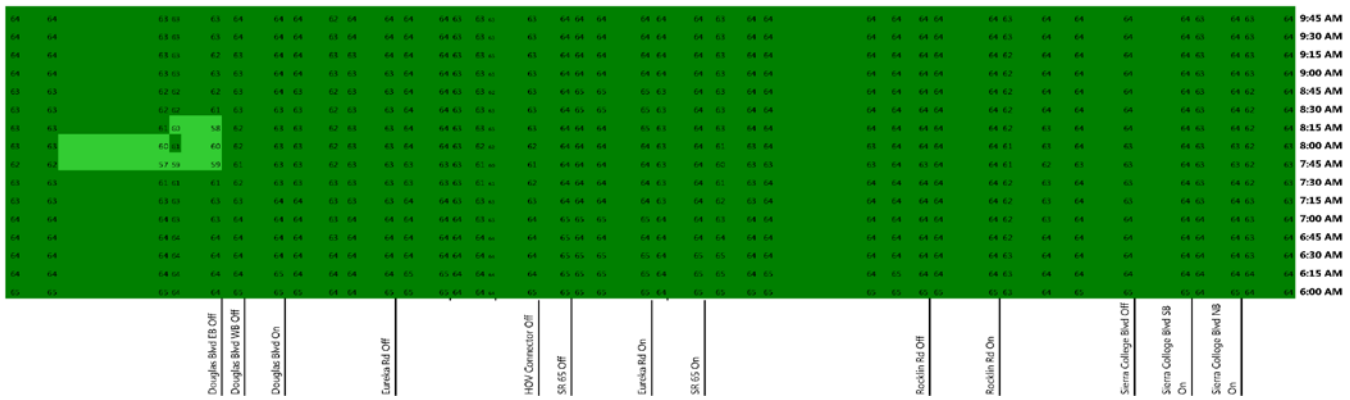
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

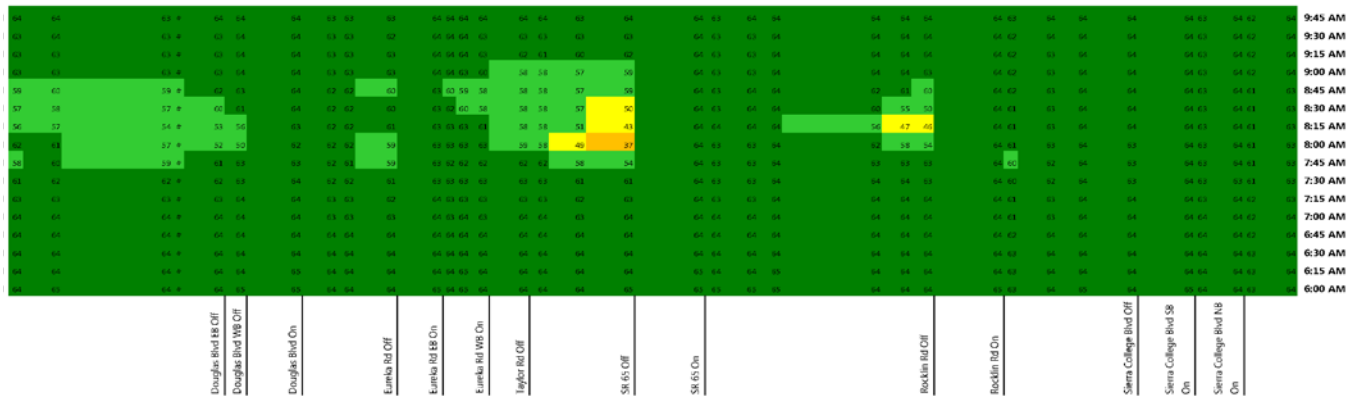
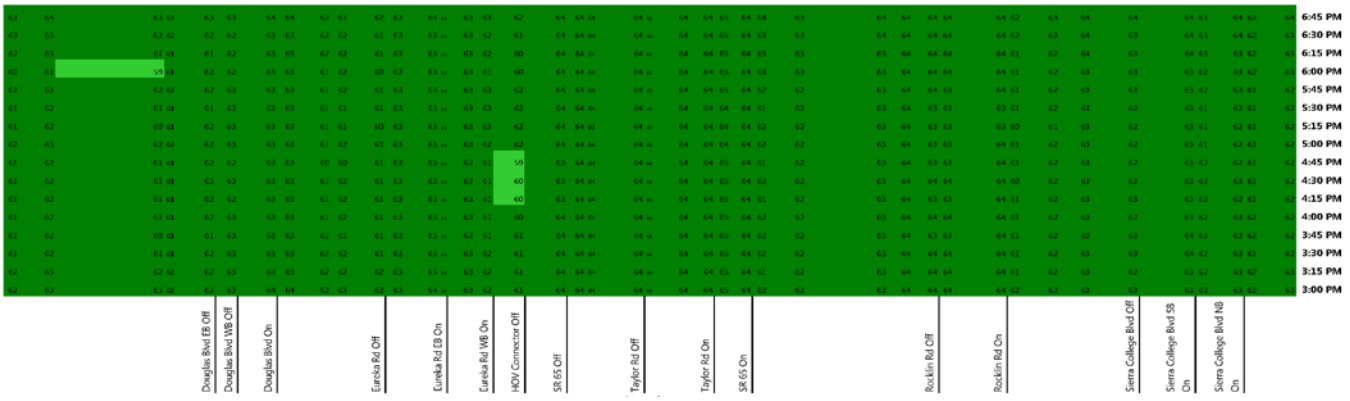
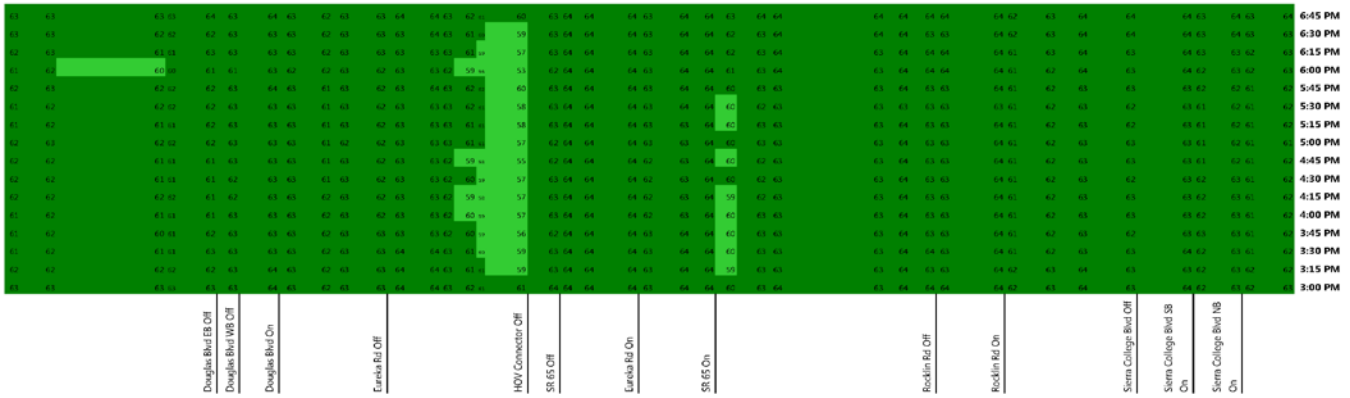


FIGURE 54 – EASTBOUND I-80 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

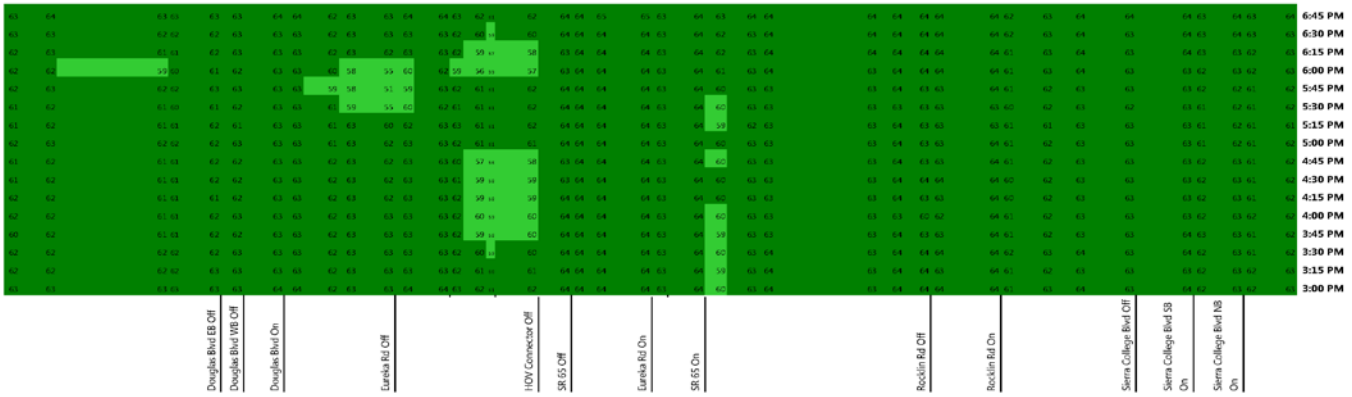
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

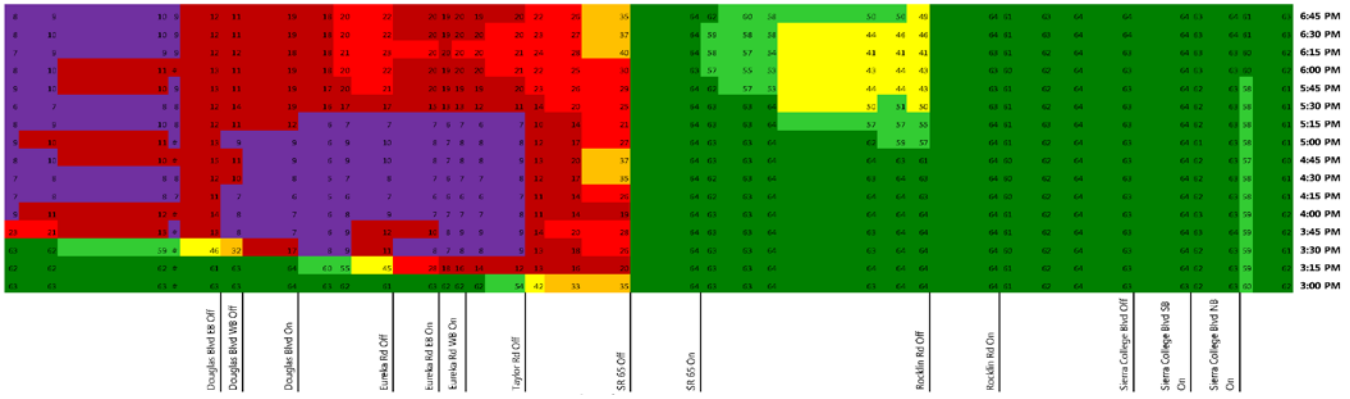
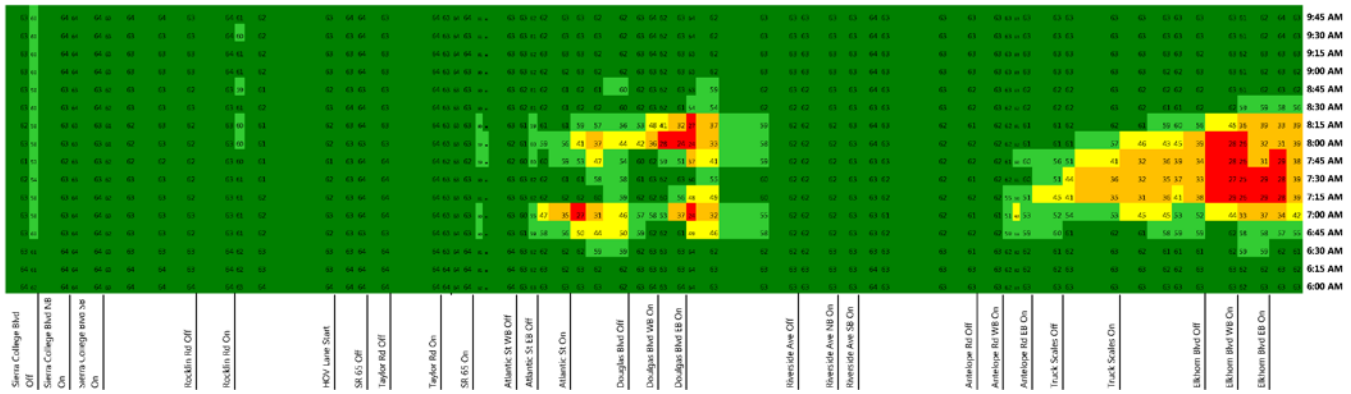
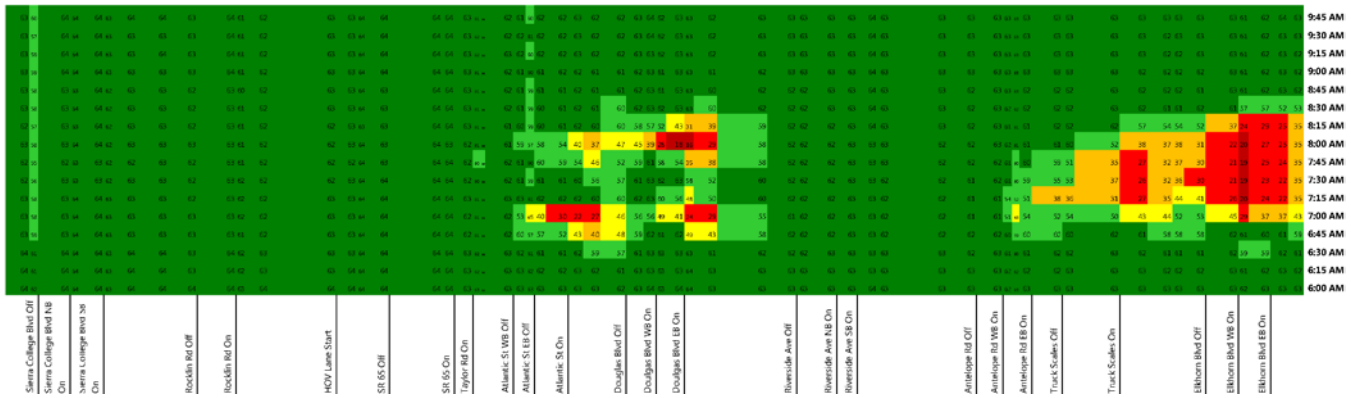


FIGURE 55 – WESTBOUND I-80 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

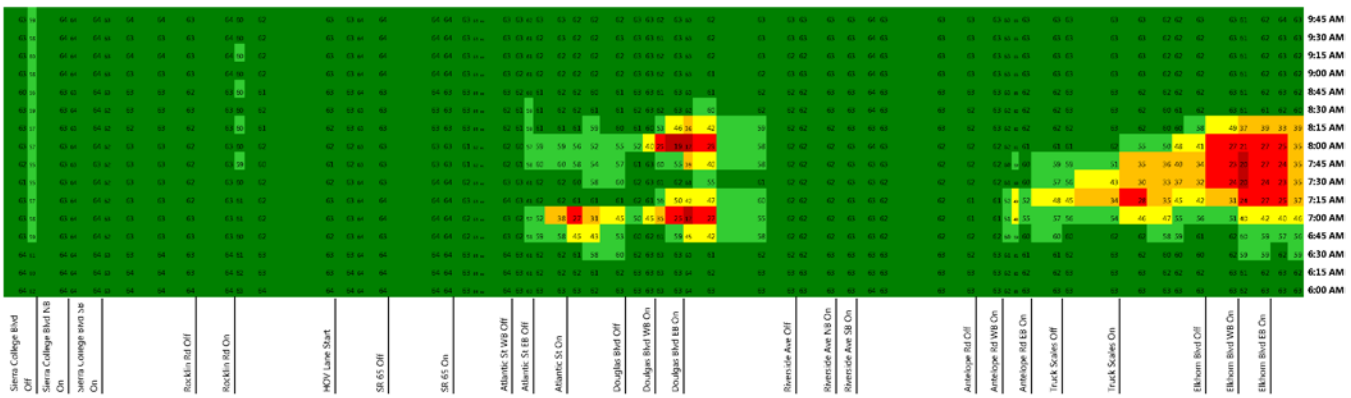
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

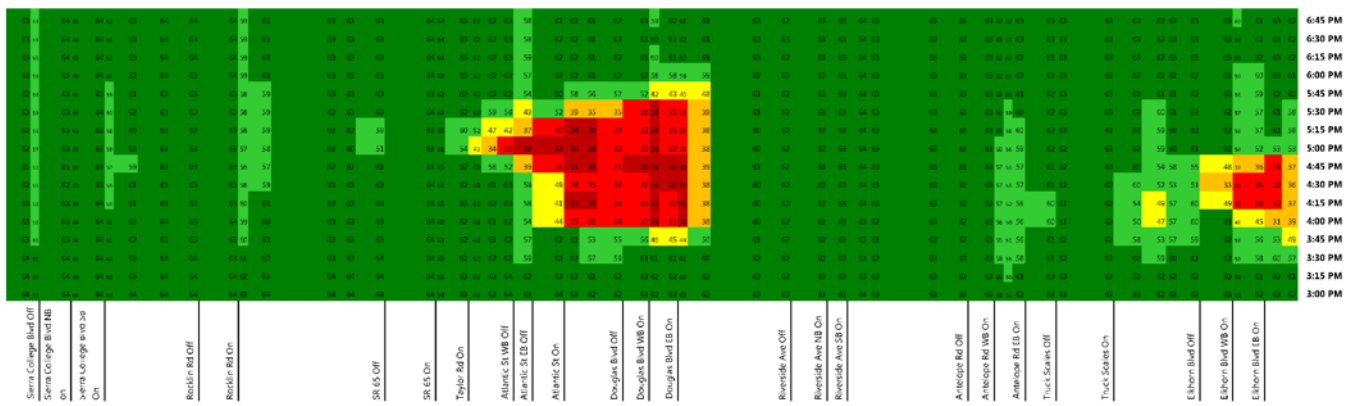
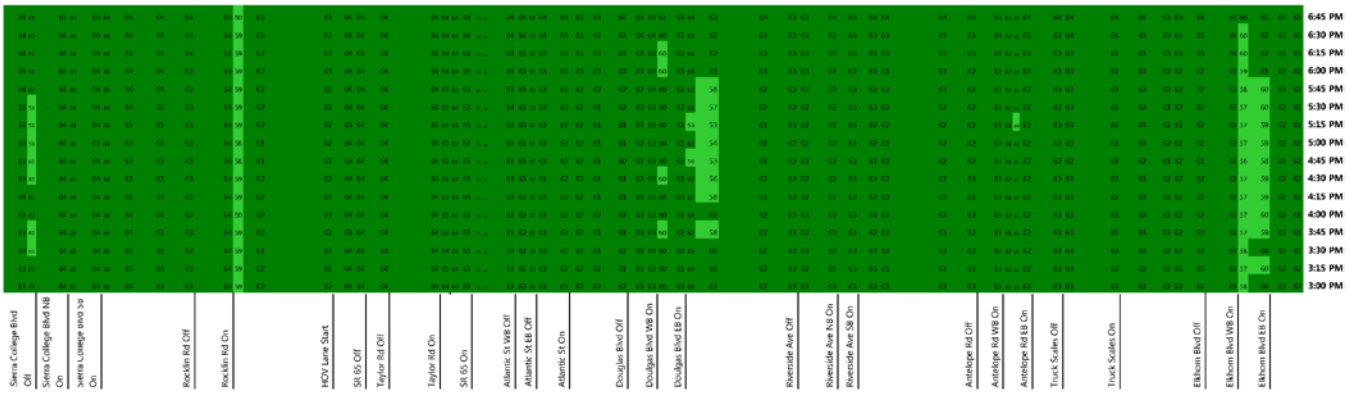
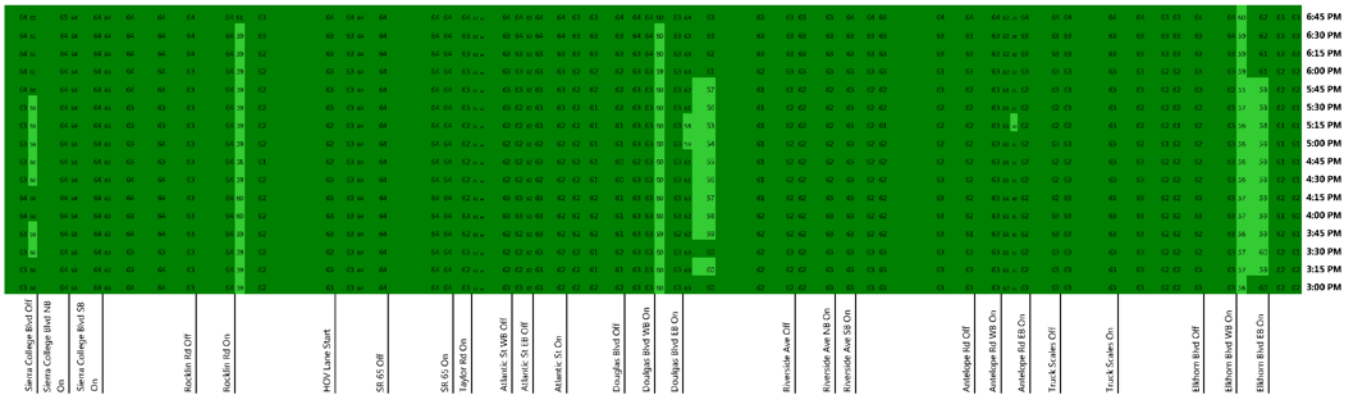


FIGURE 56 – WESTBOUND I-80 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

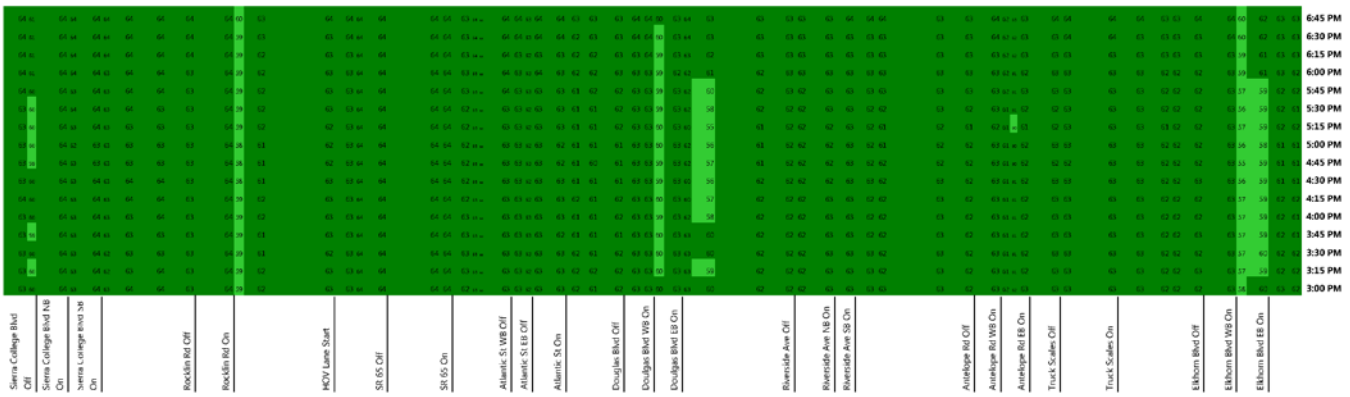
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

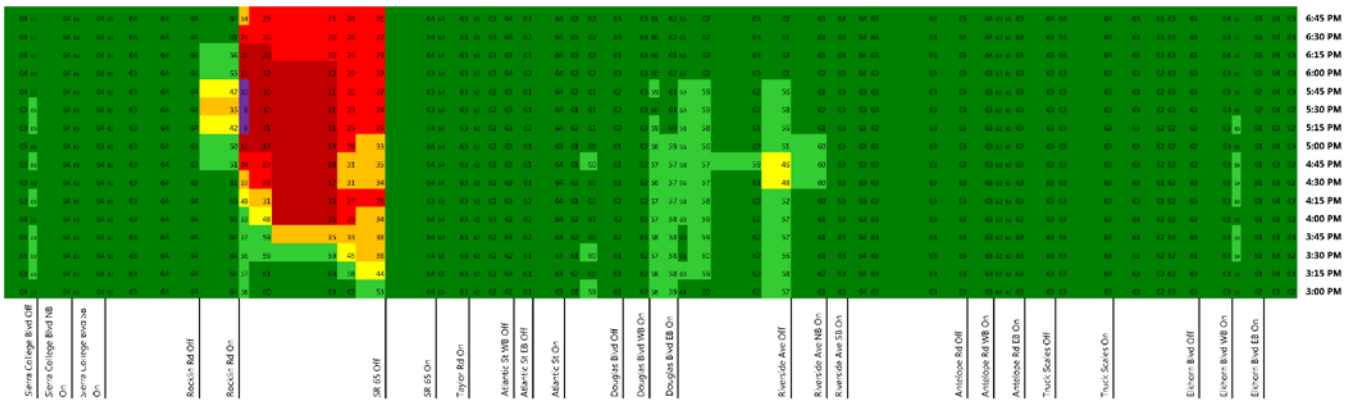
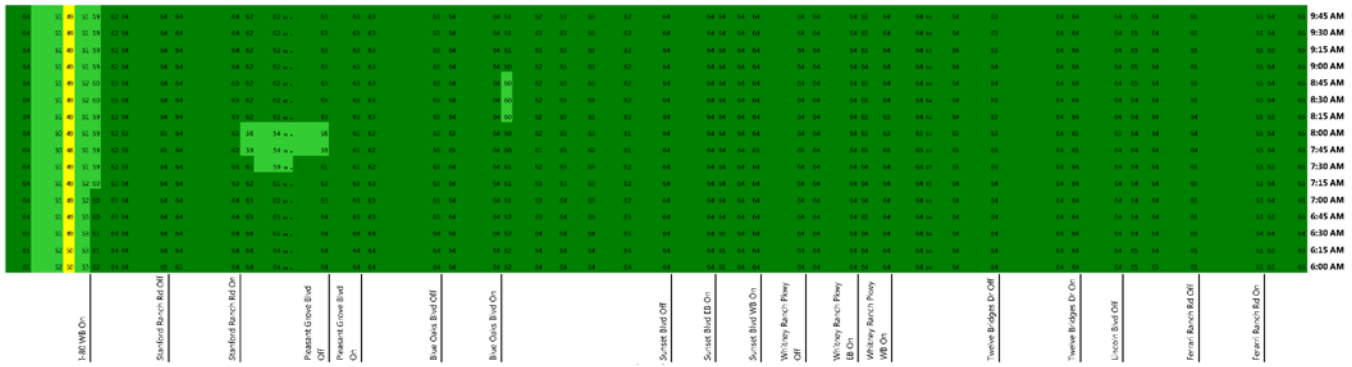
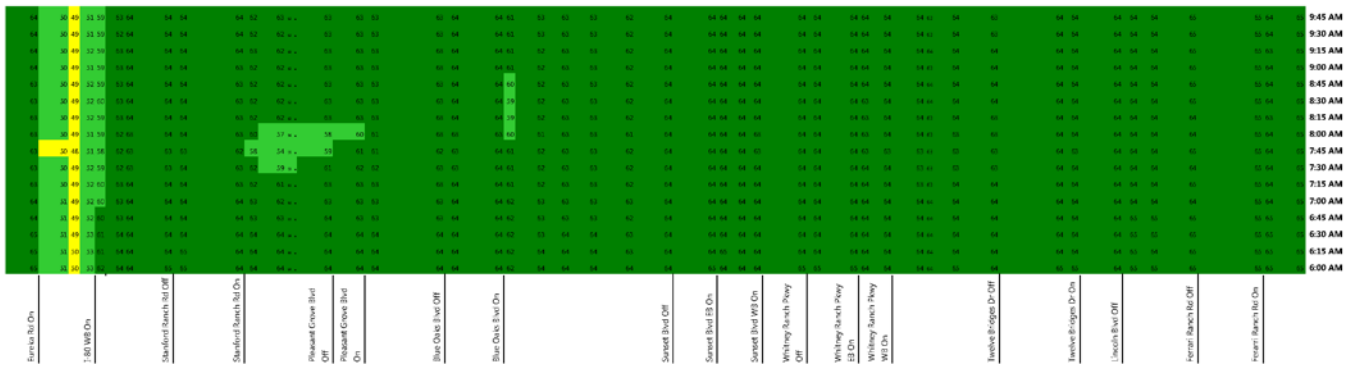


FIGURE 57 – NORTHBOUND SR 65 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

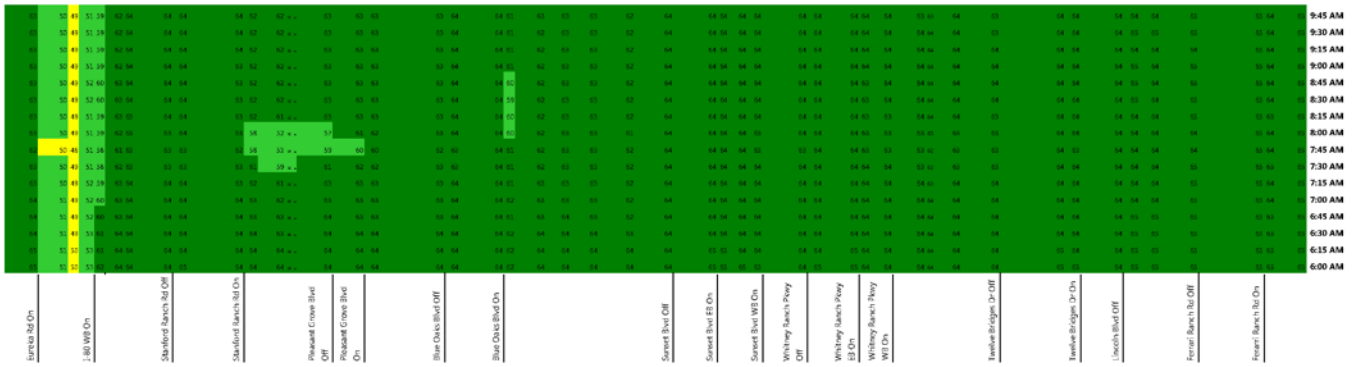
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

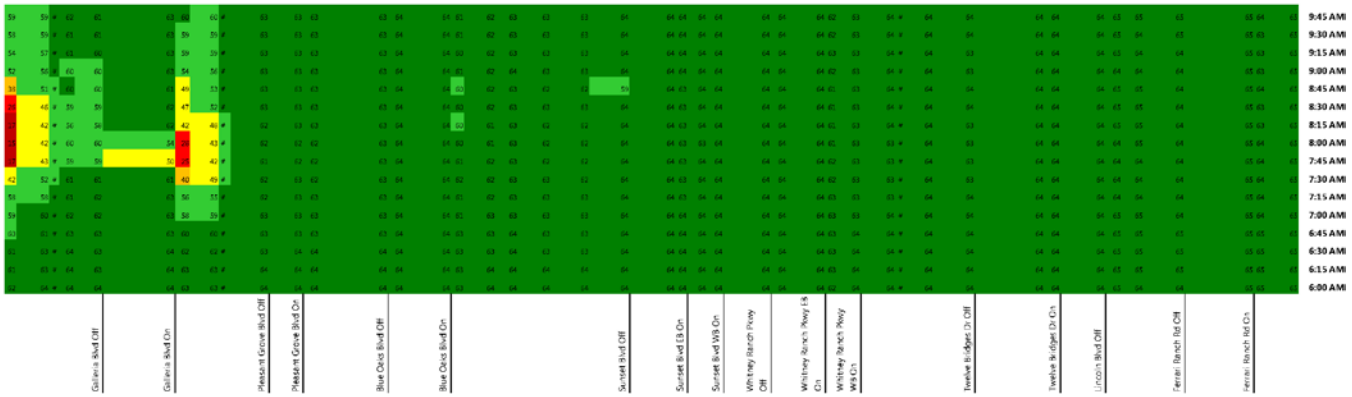
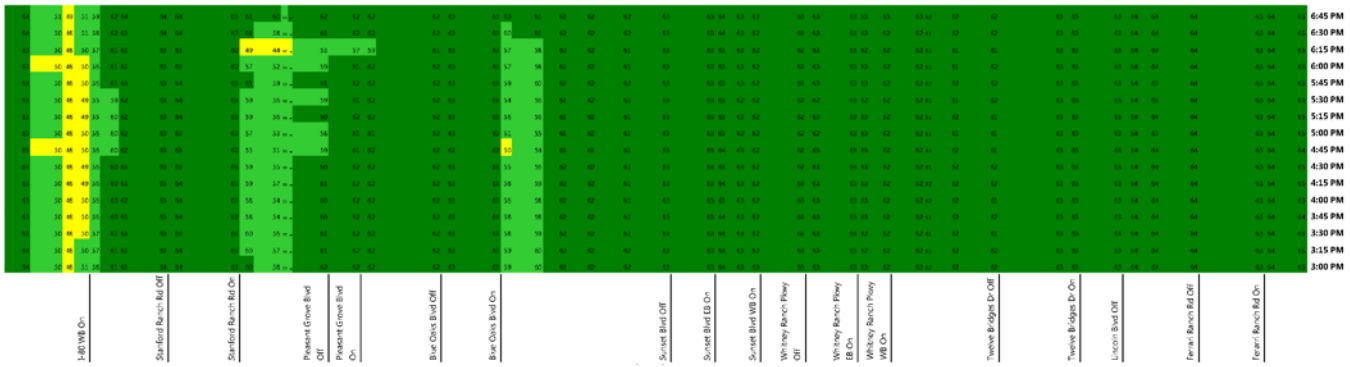
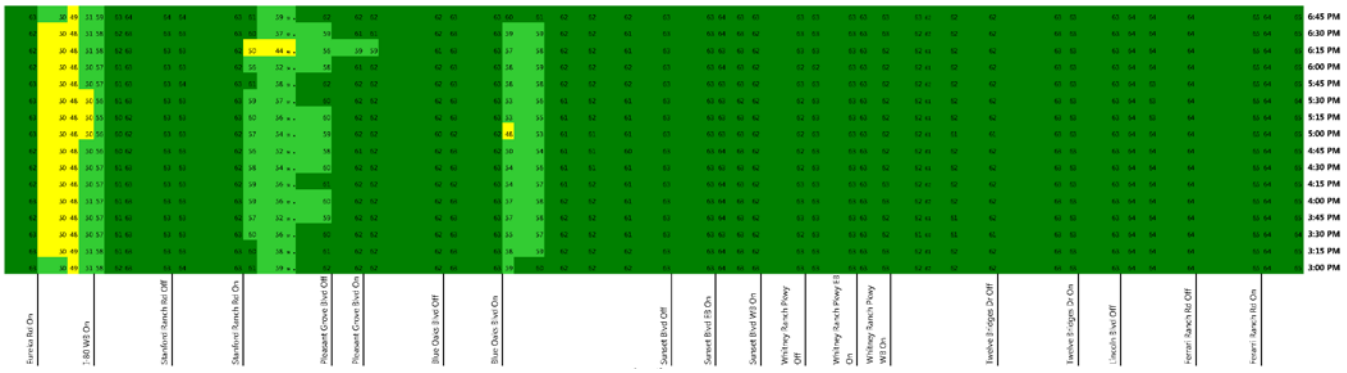


FIGURE 58 – NORTHBOUND SR 65 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

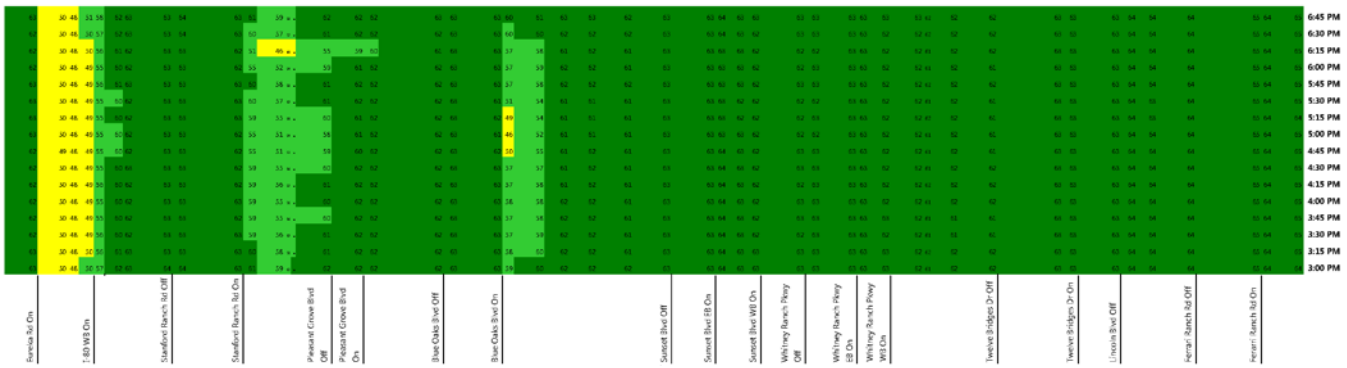
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

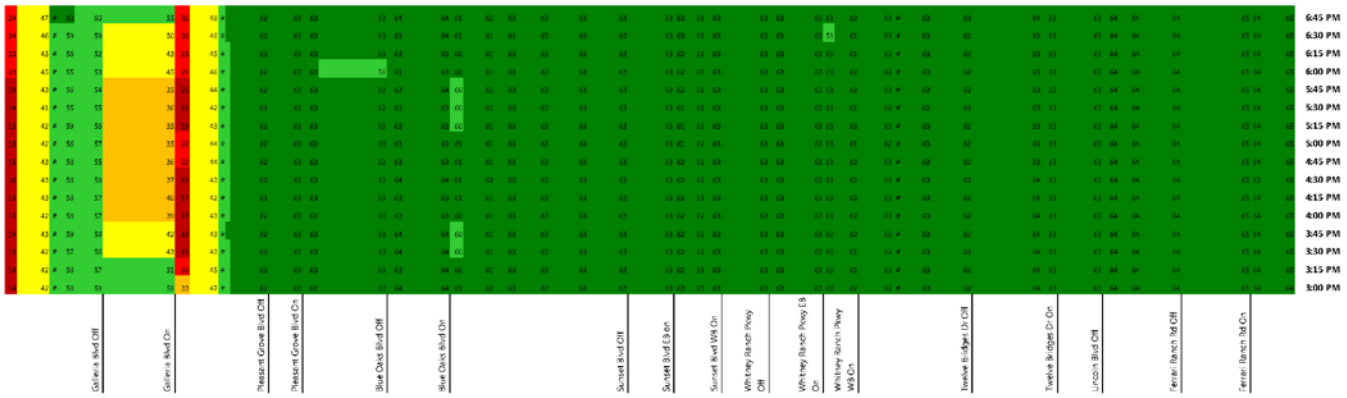
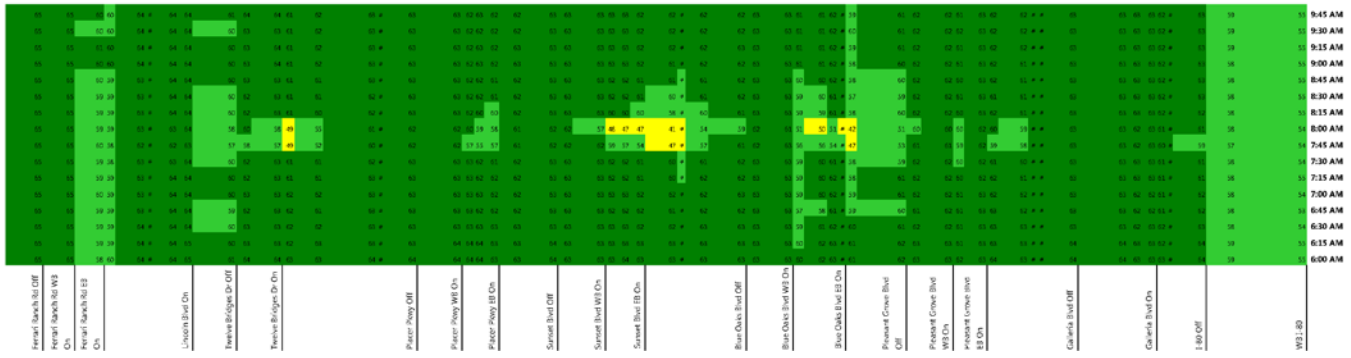
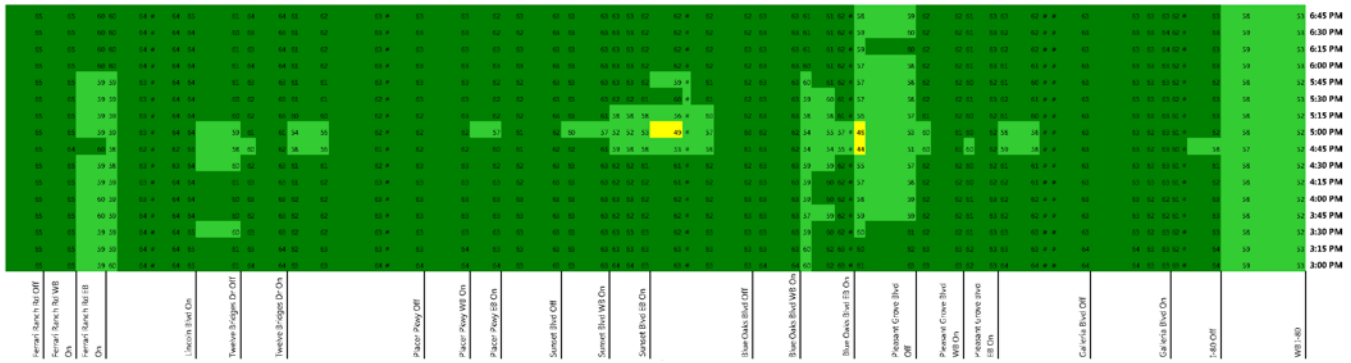


FIGURE 59 – SOUTHBOUND SR 65 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

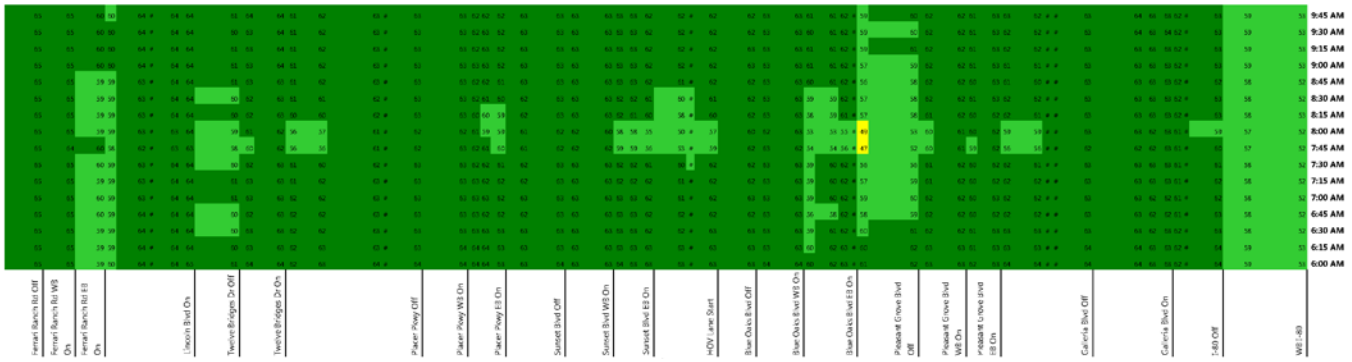
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

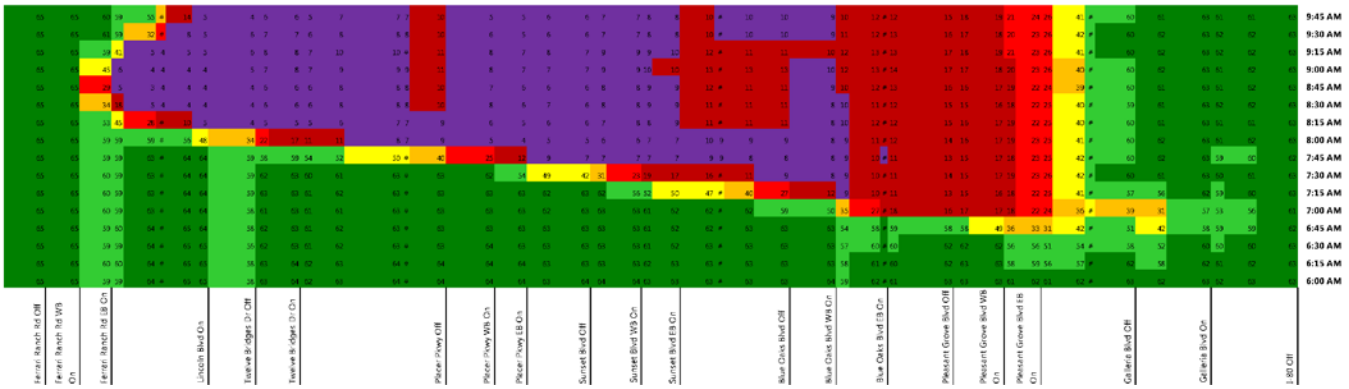
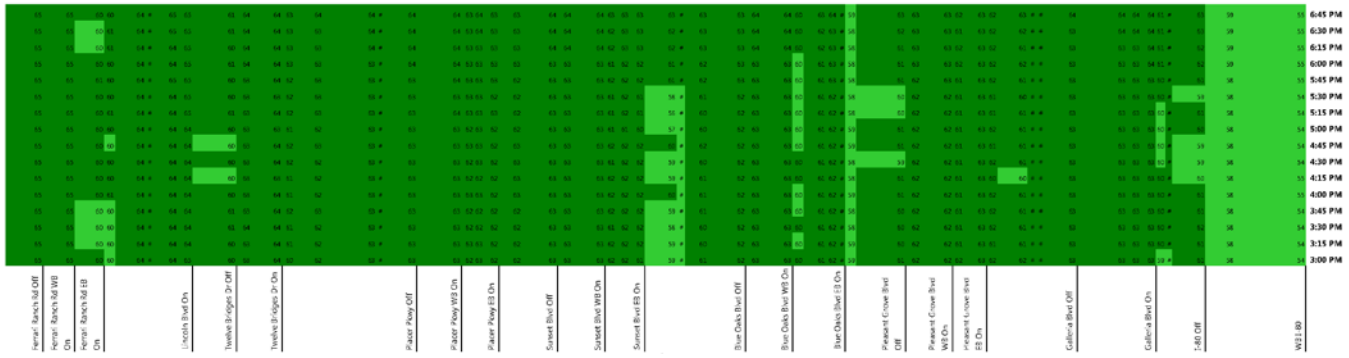
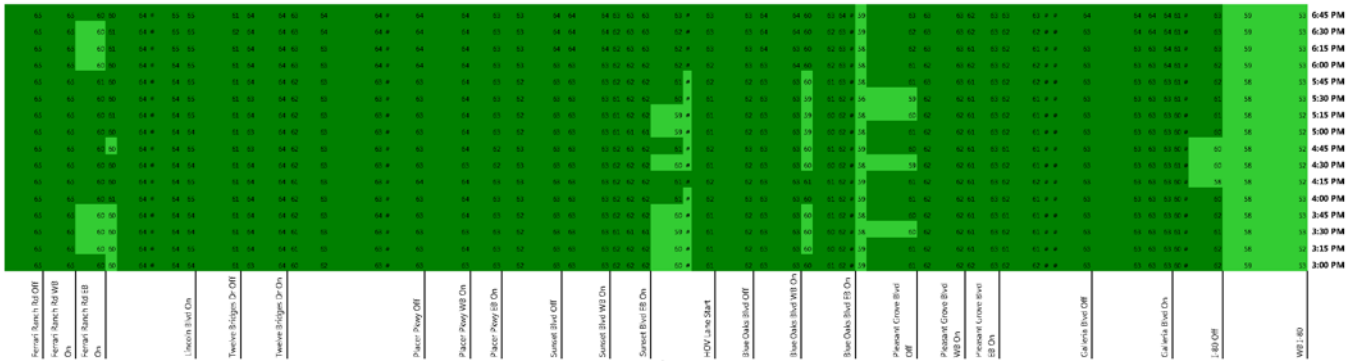


FIGURE 60 – SOUTHBOUND SR 65 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

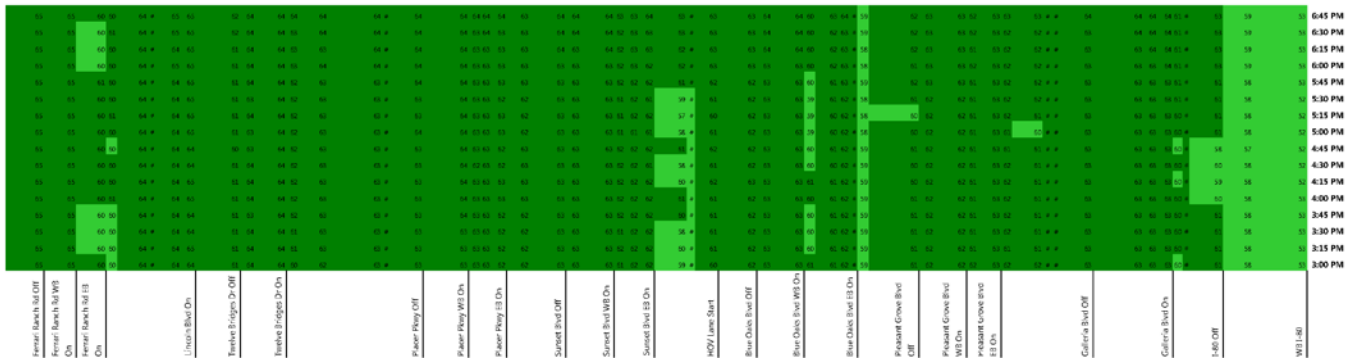
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



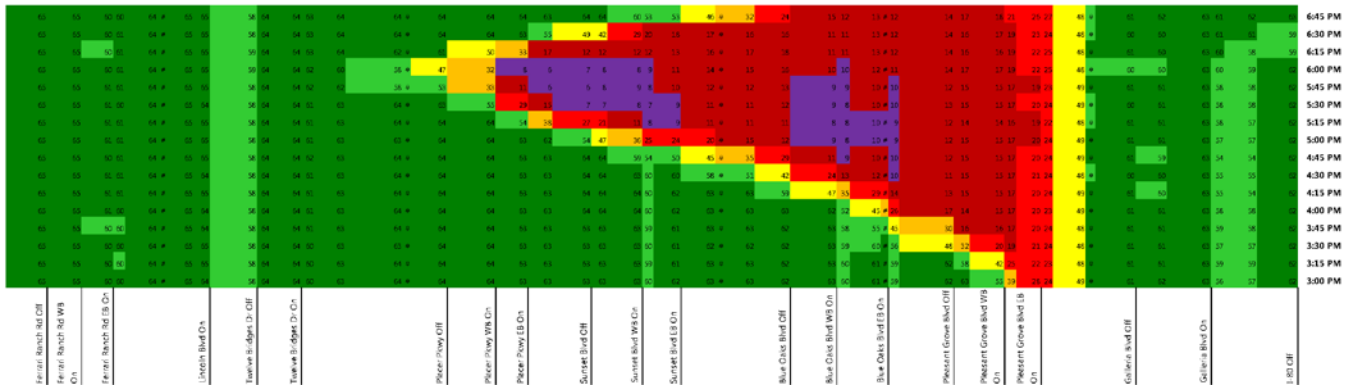
COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)



- Douglas Boulevard off-ramp (Alternative 1 only)
- Eastbound Douglas Boulevard on-ramp
- From the Truck Scales off-ramp to westbound Elkhorn Boulevard on-ramp
- Westbound Elkhorn Boulevard on-ramp (Alternatives 1 & 2 only)
- Eastbound Elkhorn Boulevard on-ramp

To mitigate the impact for the sections at Douglas Boulevard, an additional through lane could be constructed at the Douglas Boulevard and Riverside Avenue interchanges. This capacity improvement may have secondary impacts downstream at Elkhorn Boulevard. An alternate mitigation would be to use more restrictive metering of westbound I-80 and southbound SR 65 on-ramps, and potentially installing a meter signal on the southbound SR 65 to westbound I-80 connector.

The impact to the section from the truck scales to Elkhorn Boulevard could be mitigated by providing additional mainline capacity such as a continuous auxiliary lane between the truck scales on-ramp and Elkhorn Boulevard off-ramp or more restrictive metering on-ramps. More restrictive metering for ramps at Elkhorn Boulevard, Antelope Road, and Riverside Avenue could cause queuing that would extend onto the local street network.

During the PM peak hour, LOS F conditions would occur between Rocklin Road and SR 65 under Alternative 5 (No Build) due to traffic queued from northbound SR 65. Under the build alternatives, all segments would operate with LOS D or better conditions.

Northbound SR 65

During the AM and PM peak hours, the No Build alternative would have LOS F conditions at the I-80 westbound on-ramp and the Stanford Ranch Road on-ramp. The build alternatives would have LOS E conditions at Pleasant Grove Boulevard in both peak hours and at the Blue Oaks Boulevard on-ramp in the PM peak hour. The latter location would be a project impact that could be mitigated through more aggressive ramp metering or providing an auxiliary lane. All other study facilities on northbound SR 65 – including the I-80 and Stanford Ranch Road on-ramps – are projected to operate acceptably. There are no project impacts under construction year on northbound SR 65.

Southbound SR 65

During the AM peak hour, the No Build alternative would result in LOS F operations between Ferrari Ranch Road and Pleasant Grove Boulevard. Figure 59 indicates the travel speed would be less than 20 mph for most of the AM peak period.

The three build alternatives offer significantly less delay and higher travel speeds. Alternative 1 (Taylor Road Full Access Interchange) would have LOS F for the Sunset Boulevard eastbound on-ramp, but the

other two alternatives would have LOS E or better at all locations. LOS E conditions would occur under all build alternatives between Sunset Boulevard and Pleasant Grove Boulevard.

During the PM peak hour, the Alternative 5 would have significant delays from Placer Parkway to Pleasant Grove Boulevard. The build alternatives would result in acceptable operations at all study facilities on southbound SR 65 during the PM peak hour. There are no project impacts under construction year on southbound SR 65.

5.2.2. Arterial Intersection Operations

Tables 29 and 31 show the LOS and average delay at key study intersections under construction year conditions during the AM and PM peak hours, respectively. Tables 30 and 32 show the average maximum queue length at off-ramps under construction year conditions during the AM and PM peak hours. Based on the evaluation criteria for this study, Alternative 1 (Taylor Road Full Access Interchange) results in three impacts, Alternative 2 (Collector-Distributor System Ramps) results in two impacts, and Alternative 3 (Taylor Road Interchange Eliminated) has one impact. See the Technical Appendix for all study intersection results.

TABLE 29: SELECTED INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Intersection	Alternative 1	Alternative 2	Alternative 3	Alternative 5
6. Blue Oaks Blvd / Washington Blvd	C / 33	C / 33	C / 33	**F / 187**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 12	B / 11	B / 11	B / 12
10. Stanford Ranch Rd / Five Star Blvd	C / 24	C / 25	C / 24	C / 29
11. Stanford Ranch Rd / SR 65 NB Ramps	A / 7	A / 7	A / 8	C / 27
12. Galleria Blvd / SR 65 SB Ramps	B / 20	B / 19	B / 19	C / 23
14. Galleria Blvd / Roseville Pkwy	C / 31	D / 36	C / 33	D / 36
16. Roseville Pkwy / Taylor Rd	D / 47	D / 46	D / 49	**F / 130**
19. Atlantic St / I-80 WB Ramps	C / 29	B / 12	C / 26	B / 16
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 26	C / 28	C / 31	C / 22
21. Eureka Rd / Sunrise Ave	**D / 36**	C / 34	**D / 35**	C / 25
23. Douglas Blvd / Harding Blvd	C / 22	C / 25	C / 23	C / 22
26. Douglas Blvd / Sunrise Ave	D / 35	D / 37	D / 37	C / 30
28. Pacific St / Sunset Blvd	C / 22	C / 22	B / 17	C / 28
29. Rocklin Rd / Granite Dr	B / 18	B / 19	B / 19	C / 21

Notes: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

TABLE 30: SELECTED MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eureka Rd	1,700	525	700	825
Eastbound I-80 at Taylor Rd	>1,000	400	25	-
Eastbound I-80 at Rocklin Rd	1,080	275	250	275
Westbound I-80 at Rocklin Rd	1,230	225	200	250
Westbound I-80 at Taylor Rd	>1,000	400	-	-
Westbound I-80 at Douglas Blvd	1,530	350	400	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	0	0	0
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	50	75	100
Southbound SR 65 at Southbound Galleria Blvd	1,130	225	250	225
Southbound SR 65 at Northbound Galleria Blvd	1,780	50	25	50

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

TABLE 31: SELECTED INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

Intersection	Alternative 1	Alternative 2	Alternative 3	Alternative 5
6. Blue Oaks Blvd / Washington Blvd	**D / 39**	**D / 43**	**D / 40**	**F / 188**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 11	B / 12	B / 12	C / 26
10. Stanford Ranch Rd / Five Star Blvd	**D / 43**	**D / 37**	**D / 37**	**F / 107**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 11	A / 10	B / 10	D / 45
12. Galleria Blvd / SR 65 SB Ramps	B / 17	B / 16	B / 17	D / 43
14. Galleria Blvd / Roseville Pkwy	E / 61	E / 56	E / 58	**F / 227**
16. Roseville Pkwy / Taylor Rd	D / 48	D / 42	D / 53	D / 37
19. Atlantic St / I-80 WB Ramps	B / 17	B / 12	C / 29	**D / 36**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E / 63	E / 77	E / 78	D / 42
21. Eureka Rd / Sunrise Ave	**D / 52**	**E / 63**	**D / 48**	**D / 49**
23. Douglas Blvd / Harding Blvd	D / 42	D / 39	D / 49	**F / 123**
26. Douglas Blvd / Sunrise Ave	D / 50	**E / 56**	D / 47	**F / 203**
28. Pacific St / Sunset Blvd	**D / 39**	**D / 43**	C / 24	C / 30
29. Rocklin Rd / Granite Dr	**F / 101**	**F / 91**	**F / 110**	**F / 170**

Notes: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

TABLE 32: SELECTED MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eureka Rd	1,700	900	525	1,325
Eastbound I-80 at Taylor Rd	>1,000	225	125	-
Eastbound I-80 at Rocklin Rd	1,080	400	275	350
Westbound I-80 at Rocklin Rd	1,230	225	250	300
Westbound I-80 at Taylor Rd	>1,000	225	-	-
Westbound I-80 at Douglas Blvd	1,530	375	350	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	25	125	0
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	175	200	150
Southbound SR 65 at Southbound Galleria Blvd	1,130	250	225	225
Southbound SR 65 at Northbound Galleria Blvd	1,780	100	125	125

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

The following intersections would operate at an unacceptable LOS based on the evaluation criteria under all project alternatives during the PM peak hour.

- Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps
- Stanford Ranch Road/Five Star Boulevard
- Eureka Road/Sunrise Avenue
- Rocklin Road/Granite Drive

The analysis results indicate these intersections will need significant capacity enhancements with and without the proposed project to operate within the established LOS thresholds for these locations. Before any improvements are proposed though, the interaction between these locations and the rest of the network should be considered. In some cases, the operation of these intersections meters traffic accessing the freeway or contributes to queuing that may extend back onto the freeway. In other locations, improvements to the freeway system, such as an auxiliary lane, may reduce demand and/or queuing that would improve intersection operations.

During the AM peak hour, only one intersection would have deficient operations under the build alternatives. The Eureka Road/Sunrise Avenue intersection would have LOS D conditions for Alternatives 1 (Taylor Road Full Access Interchange and 3 (Taylor Road Interchange Eliminated) although the delay value is within two seconds of the LOS C/D threshold. Since the intersection would operate acceptably at LOS C

under the No Build Alternative, the intersection is also an impact. All intersections would operate acceptably under Alternative 2 (Collector-Distributor System Ramps) during the AM peak hour. Adjustments to the signal timing may mitigate this impact.

During the AM peak hour, the average maximum queue lengths for freeway off-ramps at all study intersections are less than the ramp storage length under all build alternatives. Even with an additional left-turn pocket lane, Alternative 3 (Taylor Road Interchange Eliminated) has the longest queue on the eastbound I-80 off-ramp at Eureka Road. However, the queue is less than the ramp length, so the queue would not extend to the freeway mainline.

During the PM peak hour, Alternatives 1 (Taylor Road Full Access Interchange) and 2 would have impacts at the following study intersections.

- Eureka Road/Sunrise Avenue
- Pacific Street/Sunset Boulevard

Under Alternative 5 (No Build), traffic volumes are constrained on eastbound I-80, which restricts the traffic that can reach these intersections. With the build alternatives, the volume served, and also the delay, are higher. At Eureka Road/Sunrise Avenue, the westbound queue from Eureka Road/Taylor Road extends to the intersection causing additional delay. To reduce the delay below the 49 seconds (LOS D) in Alternative 5 would likely require improvements at the Eureka Road/Taylor Road intersections that included with Alternative 3 (a second northbound left-turn lane and a second southbound right-turn lane).

At the Pacific Street/Sunset Boulevard intersection, Alternatives 1 and 2 would have LOS D conditions compared to LOS C for Alternatives 3 and 5. The intersection is planned to be widened as part of the widening of Sunset Boulevard from four to six lanes. This widening project is assumed to be in place by design year conditions. So, the proposed mitigation for this impact is to construct the planned widening of Sunset Boulevard.

Similar to AM peak hour conditions, the average maximum queues at the off-ramps do not exceed the ramp lengths. The longest queue for the build alternatives occurs on the eastbound off-ramp at Eureka Road. Alternative 3 has the longest queue. This alternative has the highest volume on this ramp due to the diversion of traffic with the closure of the eastbound off-ramp to Taylor Road.

Chapter 6. Summary and Conclusions

6.1. **Deficiencies**

The study locations that do not meet the LOS threshold are summarized below by alternative. The LOS thresholds are provided in Section 2.5.

Existing Conditions

- AM Peak Hour
    - Westbound I-80: from the westbound Antelope Road on-ramp to the Elkhorn Boulevard off-ramp
    - Northbound SR 65: westbound I-80 on-ramp
    - Southbound SR 65: from the westbound Blue Oaks Boulevard on-ramp to the eastbound Pleasant Grove Boulevard on-ramp
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps
- PM Peak Hour
    - Eastbound I-80: Eureka Road off-ramp and SR 65 off-ramp
    - Westbound I-80: SR 65 off-ramp
    - Northbound SR 65: from the westbound I-80 on-ramp to the Stanford Ranch Road off-ramp
    - Intersections: Eureka Road/Taylor Road/I-80 Westbound Ramps

Alternative 1 (Taylor Road Full Access Interchange)

- Design Year AM Peak Hour
    - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and Stanford Ranch Road on-ramp
    - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp, westbound Placer Parkway on-ramp, and westbound I-80 connector

  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Atlantic Street/I-80 Westbound Ramps, and Eureka Road/Sunrise Avenue

- Design Year PM Peak Hour
  - Westbound I-80: Eastbound Atlantic Street off-ramp to the eastbound Douglas Boulevard on-ramp
  - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and the Stanford Ranch Road on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/Sunrise Avenue, and Rocklin Road/Granite Drive
- Construction Year AM Peak Hour
  - Westbound I-80: from the Atlantic Street on-ramp to the eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
  - Southbound SR 65: eastbound Sunset Boulevard on-ramp
  - Intersections: Eureka Road/Sunrise Avenue
- Construction Year PM Peak Hour
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Eureka Road/Sunrise Avenue, Pacific Street/Sunset Boulevard, and Rocklin Road/Granite Drive

Alternative 2 (Collector-Distributor System Ramps)

- Design Year AM Peak Hour
  - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
  - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp, Stanford Ranch Road on-ramp, and Stanford Ranch Road to Pleasant Grove Boulevard
  - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp and westbound I-80 connector

  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Eureka Road/Sunrise Avenue, and Douglas Boulevard/I-80 Westbound Ramps

- Design Year PM Peak Hour
  - Westbound I-80: Eastbound Atlantic Street off-ramp to the eastbound Douglas Boulevard on-ramp
  - Northbound SR 65: Eureka Road on-ramp to Stanford Ranch Road on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, and Lincoln Boulevard/SR 65 Southbound on-ramp
- Construction Year AM Peak Hour
  - Westbound I-80: Douglas Boulevard off-ramp to westbound on-ramp section to eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
- Construction Year PM Peak Hour
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Eureka Road/Sunrise Avenue, Douglas Boulevard/Sunrise Avenue, Pacific Street/Sunset Boulevard, and Rocklin Road/Granite Drive

<u>Alternative 3 (Taylor Road Interchange Eliminated)</u>

- Design Year AM Peak Hour
  - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
  - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp, Stanford Ranch Road on-ramp, and Stanford Ranch Road to Pleasant Grove Boulevard
  - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp

- Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Atlantic Street/I-80 Westbound Ramps, Eureka Road/Sunrise Avenue, and Douglas Boulevard/I-80 Westbound Ramps

- Design Year PM Peak Hour
  - Westbound I-80: Eastbound Atlantic Street off-ramp to on-ramp section to the eastbound Douglas Boulevard on-ramp
  - Northbound SR 65: Eureka Road on-ramp to Stanford Ranch Road on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Roseville Parkway/Taylor Road, Atlantic Street/Wills Road, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, and Lincoln Boulevard/SR 65 Southbound On-ramp
- Construction Year AM Peak Hour
  - Westbound I-80: Douglas Boulevard off-ramp to westbound on-ramp section to eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
  - Intersections: Eureka Road/Sunrise Avenue
- Construction Year PM Peak Hour
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Eureka Road/Sunrise Avenue, Rocklin Road/Granite Drive, and Rocklin Road/Aguilar Road

<u>Alternative 5 (No Build)</u>

- Design Year AM Peak Hour
  - Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp
  - Westbound I-80: Eastbound Atlantic Street off-ramp
  - Northbound SR 65: Westbound I-80 on-ramp
  - Southbound SR 65: Twelve Bridges Drive off-ramp to on-ramp, Twelve Bridges Drive on-ramp, and from the Pleasant Grove Boulevard to Galleria Boulevard section to the Galleria Boulevard on-ramp
  - Intersections: Lincoln Boulevard/Sterling Parkway, Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps,

Stanford Ranch Road/Five Star Boulevard, Stanford Ranch Road/SR 65 Northbound Ramps, Roseville Parkway/Taylor Road, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/I-80 Eastbound Ramps, Lincoln Boulevard/SR 65 Northbound Off-ramp, Lincoln Boulevard/SR 65 Southbound On-ramp, and Placer Parkway/SR 65 Northbound Ramps

- Design Year PM Peak Hour
    - Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp
    - Westbound I-80: Rocklin Road on-ramp to SR 65 off-ramp and Taylor Road on-ramp to Douglas Boulevard off-ramp
    - Northbound SR 65: Westbound I-80 on-ramp
    - Intersections: Lincoln Boulevard/Sterling Parkway, Twelve Bridges Drive/SR 65 Northbound Ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Sunrise Avenue, Atlantic Street/Wills Road, Atlantic Street/I-80 Westbound Ramps, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/I-80 Eastbound Ramps, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, Rocklin Road/I-80 Eastbound Ramps, Rocklin Road/Aguilar Road, Lincoln Boulevard/SR 65 Northbound Off-ramp, Lincoln Boulevard/SR 65 Southbound On-ramp, and Whitney Ranch Parkway/SR 65 Northbound Ramps
- Construction Year AM Peak Hour
    - Eastbound I-80: SR 65 off-ramp and Rocklin Road off-ramp
    - Westbound I-80: SR 65 off-ramp, Taylor Road on-ramp to eastbound Douglas Boulevard on-ramp, and from the Elkhorn Boulevard off-ramp to on-ramp section to the eastbound Elkhorn Boulevard on-ramp
    - Northbound SR 65: Westbound I-80 on-ramp and Stanford Ranch Road on-ramp
    - Southbound SR 65: from the Ferrari Ranch Road to Lane Drop section to the eastbound Pleasant Grove Boulevard on-ramp
    - Intersections: Twelve Bridges Drive/SR 65 Southbound Ramps, Twelve Bridges Drive/SR 65 Northbound Ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Pleasant Grove Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/I-80 Eastbound Ramps, Rocklin Road/I-80 Eastbound Ramps, Lincoln Boulevard/SR 65 Southbound On-ramp, and Placer Parkway/SR 65 Southbound Ramps

- Construction Year PM Peak Hour
    - Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp
    - Westbound I-80: Rocklin Road on-ramp to SR 65 off-ramp
    - Northbound SR 65: Westbound I-80 on-ramp, Stanford Ranch Road off-ramp to on-ramp, and Stanford Ranch Road on-ramp
    - Southbound SR 65: from the Placer Parkway to Sunset Boulevard weaving section to the eastbound Pleasant Grove Boulevard on-ramp
    - Intersections: Lincoln Boulevard/Sterling Parkway, Sunset Boulevard/SR 65 Southbound Ramps, Sunset Boulevard/SR 65 Northbound Ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Atlantic Street/I-80 Westbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/I-80 Eastbound Ramps, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, Rocklin Road/I-80 Eastbound Ramps, Rocklin Road/Aguilar Road, and Lincoln Boulevard/SR 65 Northbound Off-ramp, and Lincoln Boulevard/SR 65 Southbound On-ramp

6.2. **Project Impacts**

The project impacts are summarized below by alternative. A project impact occurs where (1) the LOS threshold is exceeded and (2) the conditions are worse than the no build alternative (Alternative 5).

Alternative 1 (Taylor Road Full Access Interchange)

- Design Year AM Peak Hour
    - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and Stanford Ranch Road on-ramp
    - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp, westbound Placer Parkway on-ramp, and westbound I-80 connector
    - Intersections: Atlantic Street/I-80 Westbound Ramps and Eureka Road/Sunrise Avenue

- Design Year PM Peak Hour
    - Westbound I-80: Eastbound Atlantic Street off-ramp, eastbound Atlantic Street off-ramp to on-ramp, Douglas Boulevard off-ramp to westbound on-ramp, westbound Douglas Boulevard on-ramp, and eastbound Douglas Boulevard on-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and the Stanford Ranch Road on-ramp
    - Intersections: Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, and Eureka Road/Taylor Road/I-80 Eastbound Ramps
- Construction Year AM Peak Hour
    - Westbound I-80: Douglas Boulevard off-ramp, eastbound Douglas Boulevard on-ramp, and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
    - Intersections: Eureka Road/Sunrise Avenue
- Construction Year PM Peak Hour
    - Intersections: Eureka Road/Sunrise Avenue and Pacific Street/Sunset Boulevard

Alternative 2 (Collector-Distributor System Ramps)

- Design Year AM Peak Hour
    - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp, Stanford Ranch Road on-ramp, and Stanford Ranch Road to Pleasant Grove Boulevard
    - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp and westbound I-80 connector
    - Intersections: Eureka Road/Sunrise Avenue
- Design Year PM Peak Hour
    - Westbound I-80: Eastbound Atlantic Street off-ramp to on-ramp, Douglas Boulevard off-ramp to westbound on-ramp, westbound Douglas Boulevard on-ramp, and eastbound Douglas Boulevard on-ramp
    - Northbound SR 65: from I-80 to the Stanford Ranch Road on-ramp
    - Intersections: Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, and Eureka Road/Taylor Road/I-80 Eastbound Ramps

- Construction Year AM Peak Hour
    - Westbound I-80: Eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
- Construction Year PM Peak Hour
    - Intersections: Eureka Road/Sunrise Avenue and Pacific Street/Sunset Boulevard

Alternative 3 (Taylor Road Interchange Eliminated)

- Design Year AM Peak Hour
    - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp, Stanford Ranch Road on-ramp, and Stanford Ranch Road to Pleasant Grove Boulevard
    - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp
    - Intersections: Atlantic Street/I-80 Westbound Ramps and Eureka Road/Sunrise Avenue
- Design Year PM Peak Hour
    - Westbound I-80: Douglas Boulevard off-ramp to westbound on-ramp, westbound Douglas Boulevard on-ramp, and eastbound Douglas Boulevard on-ramp
    - Northbound SR 65: from I-80 to the Stanford Ranch Road on-ramp
    - Intersections: Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, Roseville Parkway/Taylor Road, and Eureka Road/Taylor Road/I-80 Eastbound Ramps
- Construction Year AM Peak Hour
    - Westbound I-80: Eastbound Douglas Boulevard on-ramp, from the Truck Scales off-ramp to the westbound Elkhorn Boulevard on-ramp
- Construction Year PM Peak Hour
    - None

6.3. **Potential Mitigation Measures**

The potential mitigation measures for the project impacts identified in the previous section are provided below.

Westbound I-80

- Impacts from SR 65 to Riverside Avenue can be mitigated by providing an additional through lane from the Douglas Boulevard off-ramp to the westbound on-ramp and from the Riverside Avenue off-ramp to the northbound on-ramp. This mitigation may cause a secondary impact downstream at Elkhorn Boulevard.
- Impacts from the truck scales to Elkhorn Boulevard can be mitigated by providing a full auxiliary lane from the truck scales to Elkhorn Boulevard or adding a through lane at Elkhorn Boulevard.
- An alternate mitigation to the above widening options would be to operate the ramp meters on westbound I-80 and southbound SR 65 at a more restrictive rate. With the more restrictive rates, longer ramp queues may cause secondary impacts to local streets.

Northbound SR 65

- Impacts from Stanford Ranch Road to Pleasant Grove Boulevard can be mitigated by providing an additional through lane from the Pleasant Grove Boulevard off-ramp to on-ramp. The additional lane may need to be extended past the Blue Oaks Boulevard interchange to mitigate potential secondary impacts.

Southbound SR 65

- Impacts from Ferrari Ranch Road to Twelve Bridges Drive can be mitigated by providing an auxiliary lane between Twelve Bridge Drive and Placer Parkway. Secondary impacts may occur at downstream sections.
- The impact to the westbound Placer Parkway on-ramp (Alternative 1 only) may be mitigated by extending the planned auxiliary lane between Placer Parkway and Sunset Boulevard to start at the westbound, instead of the eastbound, on-ramp.
- The impact to the southbound to westbound connector at I-80 (Alternatives 1 and 2) would be mitigated by widening westbound I-80 at Douglas Boulevard or adjusting ramp meter rates as discussed above under the westbound I-80 mitigation measures.

Intersections

- Stanford Ranch Road/Five Star Boulevard – The impact would likely be mitigated by providing a second eastbound right-turn lane.
- Roseville Parkway/Creekside Ridge Drive – The impact is caused by queuing from the adjacent intersection at Roseville Parkway/Galleria Boulevard, so signal timing adjustments (to be implemented when warranted based on monitoring) or widening improvements would be needed at the adjacent signal.

- Roseville Parkway/Taylor Road (Alternative 3 only) – The impact may be mitigated by adding a third southbound left-turn lane.
- Atlantic Street/I-80 Westbound Ramps (Alternatives 1 and 3) – Peak hour delay can be reduced by adjusting the ramp meter rate or widening the on-ramp to provide more storage.
- Eureka Road/Taylor Road/I-80 Eastbound Ramps – For Alternatives 1 and 2, second northbound left-turn and southbound right-turn lanes could be added to reduce delays although accommodations may be needed for bicycles and pedestrians. Alternative 3 already includes these modifications, so further improvements, such as grade separation, would be needed to mitigate the impact.
- Eureka Road/Sunrise Avenue – Peak hour delay can be reduced by widening to provide a fourth through lane or a third left-turn lane on some approaches.
- Pacific Street/Sunset Boulevard (Alternatives 1 and 2) – This impact under construction year conditions can be mitigated by constructing the planned widening of Sunset Boulevard from four to six lanes, which is assumed to occur before the design year.

6.4. **Safety Assessment**

The build alternatives will likely provide similar improvements to transportation safety. A key improvement will be provided by congestion reduction on the freeway. Rear-end collisions on the freeway are associated with congested conditions. As noted in the existing conditions section, rear-end collisions in the study area are highest on eastbound I-80 west of SR 65 during the congested PM peak period. Since the build alternatives will reduce congestion compared to Alternative 5 (No Build), the expected number of rear-end end collision would be reduced with the build alternatives.

Freeway ramp junctions are also associated with higher collision rates. Due to the different configurations, the number of ramp junctions on I-80 between Eureka Road/Atlantic Street and SR 65 differs among the build alternatives. Alternative 1 (Taylor Road Interchange Full Access) has the highest number of ramp junctions, 16. Alternative 2 (Collector-Distributor System Ramps) has 15 ramp junctions although some of these are on the collector-distributor roadway, which will have a lower free-flow speed. Alternative 3 (Taylor Road Interchange Eliminated) has the fewest ramp junctions, 12.

Roadway design standards are used to provide consistent expectations for drivers, which helps improve transportation safety by reducing collision risks. When these standards are not met, collision risks may increase. For the build alternatives, the following design exceptions are related to freeway operations.

- Interchange spacing – The existing configuration for the project area does not meet the interchange spacing standard for one mile between local interchanges and two miles between system interchanges and local interchanges. None of the build alternatives would meet these

standards, either. However, Alternative 3 (Taylor Road Interchange Eliminated) would provide the largest distance between the Eureka Road/Atlantic Street and SR 65 interchanges on I-80.

- Lane and shoulder width – The Roseville Parkway overcrossing is a "pinch point" on I-80 in the project area. The right-of-way is restricted initially by the overcrossing itself. However, if the overcrossing were replaced with a wider structure, the standard lane and shoulder widths could not be provided due to right-of-way constraints: a railroad to the north and an electrical tower and commercial properties to the east. As a result, all build alternatives have a similar, narrow cross-section at the Roseville Parkway overcrossing.
- Connector ramp design speed – The design speed for the freeway-to-freeway connector ramps under all build alternatives is less than the standard due to right-of-way constraints on I-80 west of the interchange and the location and design of the existing SR 65 viaduct north of I-80.
- For Alternatives 2 and 3, the westbound on-ramp from Taylor Road would be maintained. Due to the added lanes on I-80 and the Roseville Parkway overcrossing pinch point described above, the merge area would be shorter than standard length.

Finally, the freeway analysis has been conducted assuming that traffic using the I-80/SR 65 interchange HOV direct connector ramps do not enter or exit the freeway network at the Eureka Road/Atlantic Street or Stanford Ranch Road/Galleria Boulevard interchanges. On northbound SR 65, this movement will be prevented under all alternatives using a physical barrier (median) between I-80 and Stanford Ranch Road. Alternatives 2 and 3 will prevent this movement through the use of a collector-distributor roadway on eastbound I-80 between Eureka Road and SR 65. For eastbound I-80 under Alternative 1 and westbound I-80 and southbound SR 65 under all three build alternatives, the weaving movement into and out of the HOV lane will be prohibited by signs, pavement markings, and (likely) a "soft" barrier of plastic vertical delineators. Because the lane will not be physically separate, vehicles traveling in the HOV lane will have additional exposure to errant vehicles.

6.5. **Comparison of Project Alternatives**

In general, the three build alternatives perform similarly under design year conditions. Table 33 compares the build alternatives across a range of performance measures based on the project objectives. Listed in Section 1.3, the project objectives can be summarized as reducing congestion, balancing local access and safety, and accommodating multiple modes of travel.

In the comparison summary table, two performances measures for the overall network performance are provided: the sum of the AM and PM peak period volume served (throughput) and vehicle hours of delay. The three build alternatives have similar performance, with less than 2 percent difference among the alternatives. Alternative 1 (Taylor Road Full Access Interchange) has the best performance since the full Taylor Road interchange provides alternate paths to spread traffic demand across the network.

Alternative 3 (Taylor Road Interchange Eliminated) would serve about the same volume as Alternative 1, but Alternative 2 (Collector-Distributor System Ramps) would have less delay than Alternative 3.

The comparison table lists the total number of design year AM and PM peak hour impacts for study freeway sections and intersections. Alternative 3 (Taylor Road Access Eliminated) has the fewest freeway impacts but the most intersection impacts. Conversely, Alternative 1 (Taylor Road Full Access Interchange) has the most freeway impacts but the fewest intersection impacts. Alternative 2 (Collector-Distributor System Ramps) has the fewest total impacts (freeway and intersection impacts combined).

TABLE 33: ALTERNATIVE COMPARISON SUMMARY

Category	Alternative 1	Alternative 2	Alternative 3
Network Throughput (Design Year AM & PM)[1]	1st	3rd (-0.17%)	2nd (-0.04%)
Network Delay (Design Year AM & PM)[1]	1st	2nd (-1.1%)	3rd (-1.4%)
Freeway Impacts (Design Year AM & PM)	31	30	28
Intersection Impacts (Design Year AM & PM)	5	3	6
Ramp Junctions on I-80 in the Project Area	16	15	12
Ramps on I-80 in the Project Area	16	14	12

Note: 1. The percent difference from the first place value is shown in parentheses.
Source: Fehr & Peers, 2014

As noted in the safety assessment (Section 6.3), collisions tend to be located near ramp junctions, so the number of ramp junctions is used here as a proxy for vehicle safety. Alternative 1 has the most ramp junctions, while Alternative 3 has the fewest. Freeway ramps provide access to and from the local street network, so they are important for local network circulation. Alternative 1 provides the most points for local access, while Alternative 3 has the fewest. Ramps and ramp junctions for an alternative can differ depending on how the ramps connect to the freeway, the collector-distributor roadway (in Alternatives 2 and 3), and the local streets.

The third project objective relating the accommodation of multiple modes is equally addressed by all three build alternatives. The alternatives provide mainline freeway connections for the HOV lane network including the direct connectors at the I-80/SR 65 interchange and HOV preferential lanes at ramp meters. The local street improvements planned for Taylor Road under all alternatives will provide pedestrian (sidewalks, crosswalks, etc.) and bicycle (Class II lane) facilities according to local design standards and planning documents.

In summary, all three build alternatives would meet the project need and purpose. Alternative 1 would provide better network conditions and a higher level of local access. In contrast, Alternative 3 would have

fewer impacts to the freeway system and a lower level of risk for freeway safety. Alternative 2 would provide a balance of the competing objectives of local access and freeway safety risk.

Chapter 7. References

This chapter contains the references cited in the Transportation Analysis Report.

California Department of Transportation, District 3. May 2009. *Interstate 80 and Capital City Freeway Corridor System Management Plan*.

California Department of Transportation, District 3. May 2009. *State Route 65 Corridor Systems Management Plan*.

California Department of Transportation. 2002. *Guidelines for Applying Traffic Microsimulation Modeling Software*.

California Department of Transportation. Traffic Accident Surveillance and Analysis System. April 1, 2009 – March 31, 2012.

California Department of Transportation. *Highway Design Manual, 6th Edition*. March 2014.

California Transportation Commission. 2010. *2010 California Regional Transportation Guidelines*.

Cervero, R. August 2002. *Induced Travel Demand: Research Design, Empirical Evidence, and Normative Policies*.

City of Lincoln. March 2008. *City of Lincoln General Plan*.

City of Rocklin. April 1991. *City of Rocklin General Plan*.

City of Roseville. May 2010. *City of Roseville General Plan*.

Federal Highway Administration, 2004. *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software*.

Sacramento Area Council of Governments. 2011. *2035 Metropolitan Transportation Plan/Sustainable Communities Strategy*.

Transportation Research Board. 2011. *Highway Capacity Manual*.

I-80/SR 65 Interchange Improvements

Transportation Analysis Report

Technical Appendix – Part 1

Placer County, CA

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

August 2014

Caltrans

PLACER COUNTY
TRANSPORTATION
PLANNING AGENCY

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Vissim Model Results – Design Year Alternative 2 (Collector-Distributor Roadway System Ramps)

Vissim Model Results – Design Year Alternative 3 (Taylor Road Interchange Eliminated)

Vissim Model Results – Design Year Alternative 5 (No Build)

Vissim Model Results – Construction Year Alternative 1 (Taylor Road Full Access Interchange)

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Traffic Counts

Travel Demand Forecasts Memorandum, June 2012

Existing Conditions Operations Model Calibration and Validation Memorandum, July 2012

Draft I-80/SR 65 Interchange Improvements Traffic Analysis Report, February 2013

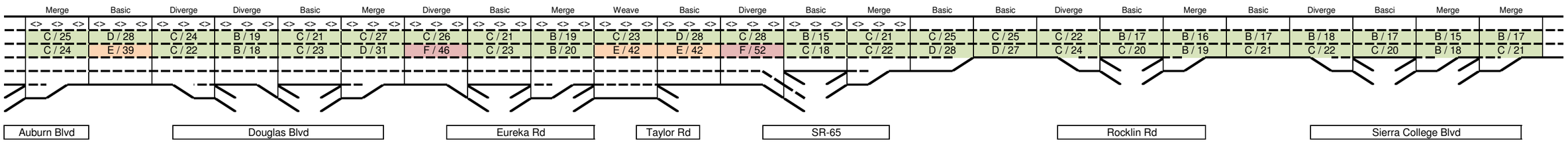
Traffic Focus Meeting Minutes

I-80/SR 65 Interchange Improvements

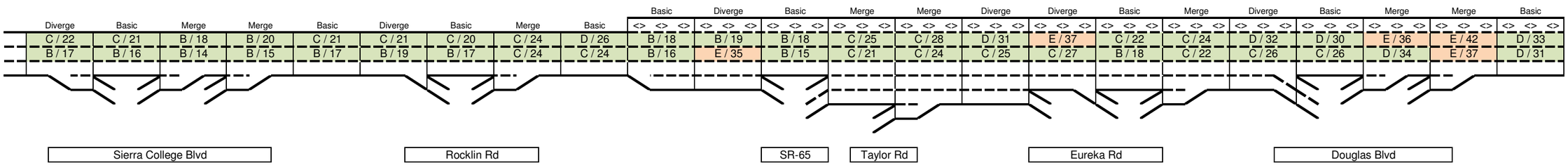
Analysis Results Summary Tables and Figures

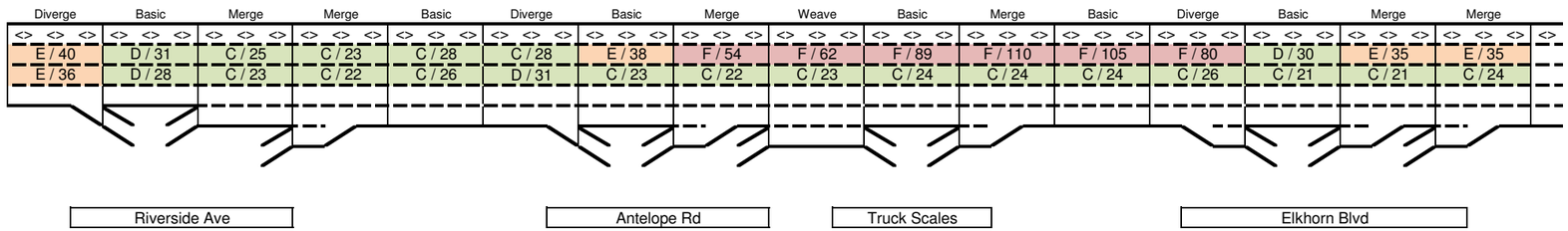
I-80/SR-65 Interchange
Existing Conditions

Eastbound I-80



Westbound I-80



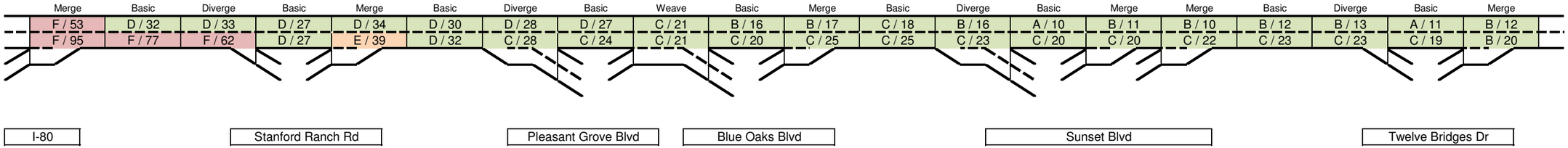


Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)

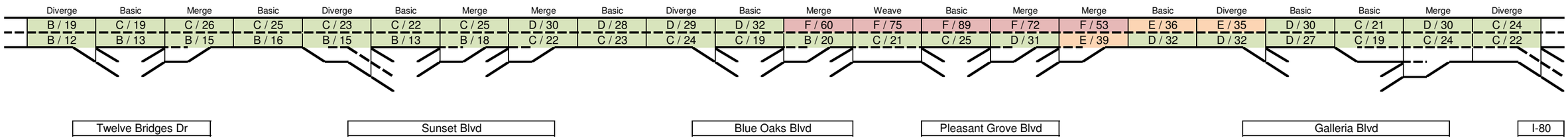
AM Peak Hour LOS / Density
PM Peak Hour LOS / Density

I-80/SR-65 Interchange
Existing Conditions

Northbound SR-65



Southbound SR-65



Legend:

LOS A - D
LOS E
LOS F

Interchange
<> HOV Lane
Facility Type (Basic, Merge, Diverge, or Weave)

AM Peak Hour LOS / Density
PM Peak Hour LOS / Density

TABLE 8: INTERSECTION OPERATIONS RESULTS – EXISTING (2012) CONDITIONS			
Intersection	**Threshold**	**AM Peak Hour**	**PM Peak Hour**
1. SR 65 / Sterling Pkwy	C	B / 19	B / 18
2. Twelve Bridges Dr / SR 65 SB Ramps	C	A / 4	A / 5
3. Twelve Bridges Dr / SR 65 NB Ramps	C	A / 3	A / 3
4. Sunset Blvd / SR 65 SB Ramps	C	A / 7	A / 6
5. Sunset Blvd / SR 65 NB Ramps	C	A / 10	A / 9
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	**D / 43**	C / 33
7. Blue Oaks Blvd / SR 65 NB Ramps	C	C / 24	C / 23
8. Pleasant Grove Blvd / SR 65 NB Ramps	C	A / 9	A / 8
9. Pleasant Grove Blvd / SR 65 SB Ramps	C	B / 10	B / 14
10. Stanford Ranch Rd / Five Star Blvd	C	B / 19	C / 32
11. Stanford Ranch Rd / SR 65 NB Ramps	D	A / 9	B / 15
12. Galleria Blvd / SR 65 SB Ramps	D	B / 13	B / 19
13. Galleria Blvd / Antelope Creek Dr	C	B / 10	C / 24
14. Galleria Blvd / Roseville Pkwy	E	C / 30	D / 36
15. Roseville Pkwy / Creekside Ridge Dr	C	A / 6	B / 17
16. Roseville Pkwy / Taylor Rd	D	C / 30	C / 28
17. Roseville Pkwy / Sunrise Ave	E	D / 37	D / 37
18. Atlantic St / Wills Rd	C	B / 10	B / 12
19. Atlantic St / I-80 WB Ramps	C	A / 7	B / 11
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E	C / 26	**E / 61**
21. Eureka Rd / Sunrise Ave	C	C / 24	C / 30
22. Harding Blvd / Wills Rd	C	B / 12	B / 13
23. Douglas Blvd / Harding Blvd	E	B / 19	C / 28
24. Douglas Blvd / I-80 WB Ramps	C	B / 14	B / 17
25. Douglas Blvd / I-80 EB Ramps	C	A / 6	A / 6
26. Douglas Blvd / Sunrise Ave	D	C / 26	D / 35
27. Pacific St / Woodside Dr	C	A / 7	A / 6
28. Pacific St / Sunset Blvd	C	B / 18	C / 29
29. Rocklin Rd / Granite Dr	D	B / 15	D / 37
30. Rocklin Rd / I-80 WB Ramps	D	C / 21	B / 17
31. Rocklin Rd / I-80 EB Ramps	D	B / 17	B / 20
32. Rocklin Rd / Aguilar Rd	D	A / 8	B / 13

Notes: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported. The outlined area is shown in the main body of the report.

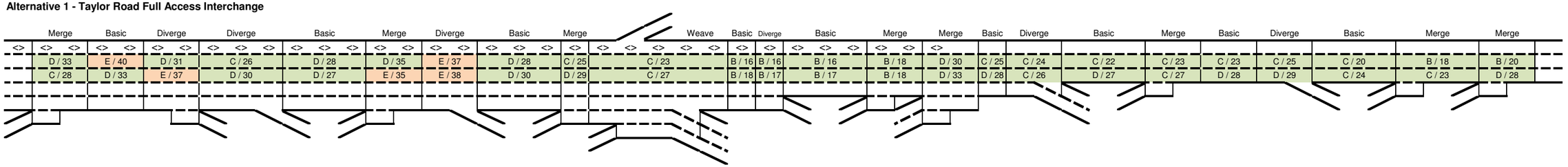
Source: Fehr & Peers, 2014

I-80/SR 65 Interchange
Design Year
Freeway Operations Results

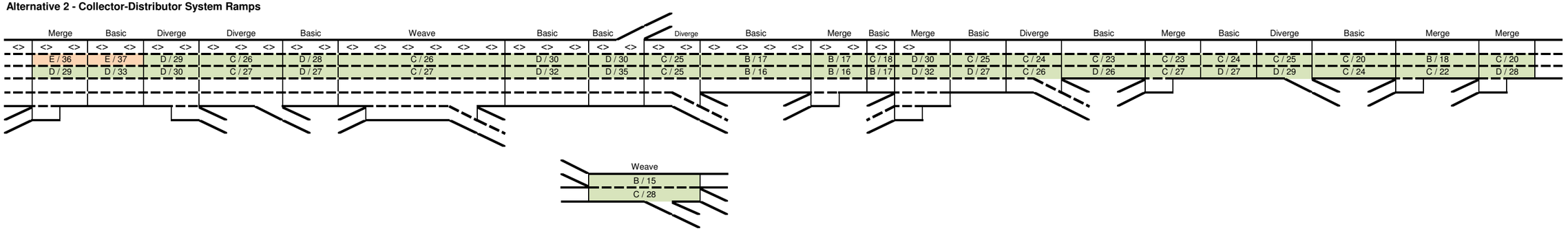
Eastbound I-80

Auburn Blvd | Douglas Blvd | Eureka Rd | SR 65 / Taylor Rd | Rocklin Rd | Sierra College Blvd

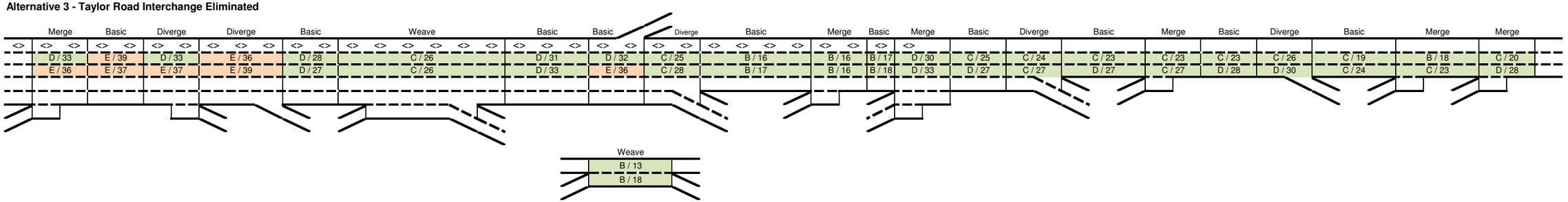
Alternative 1 - Taylor Road Full Access Interchange



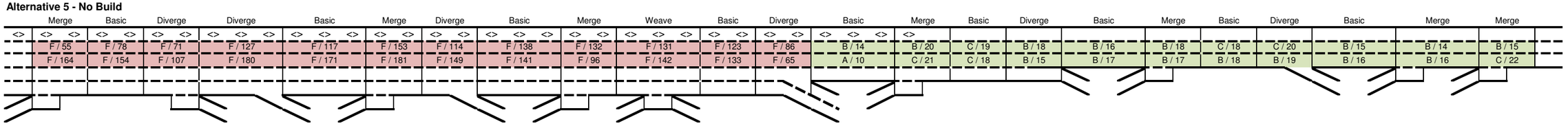
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



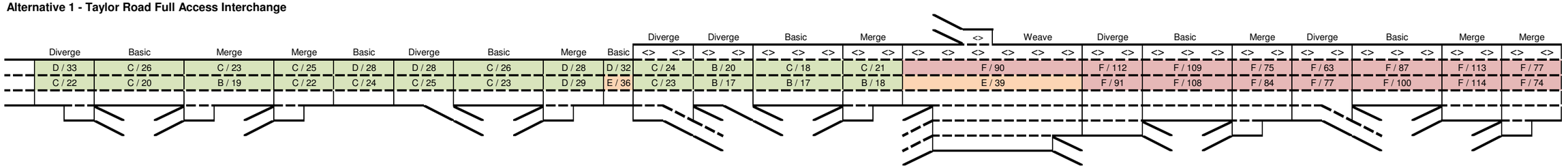
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Design Year
Freeway Operations Results

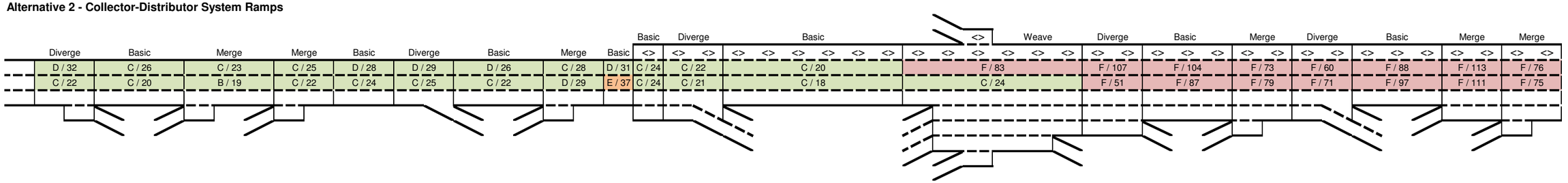
Westbound I-80

Sierra College Blvd | Rocklin Rd | SR 65 / Taylor Rd | Atlantic St | Douglas Blvd

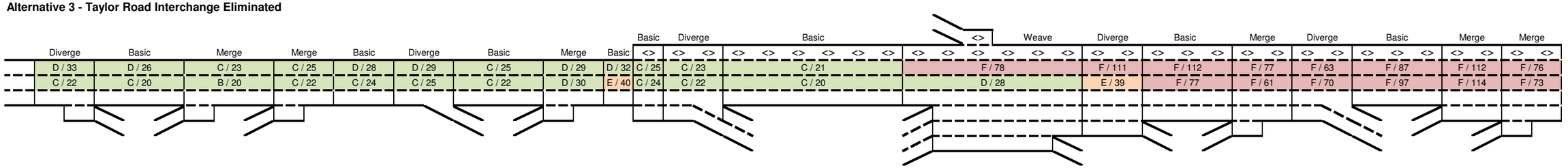
Alternative 1 - Taylor Road Full Access Interchange



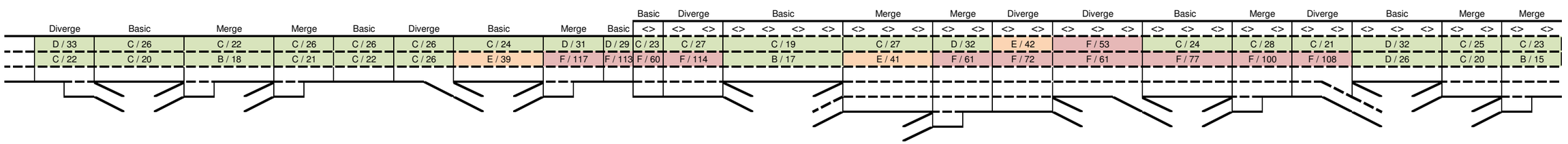
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



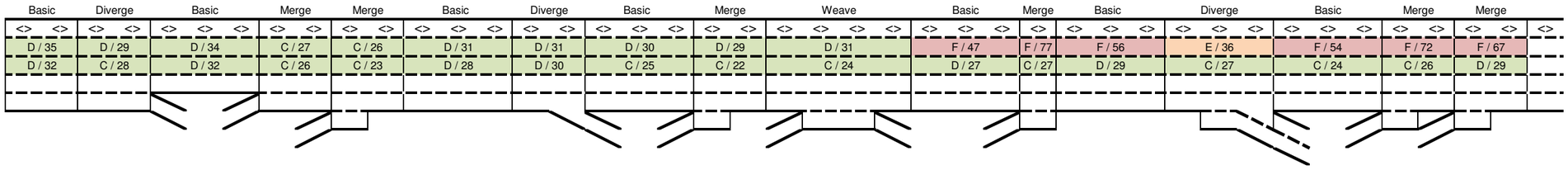
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Design Year
Freeway Operations Results

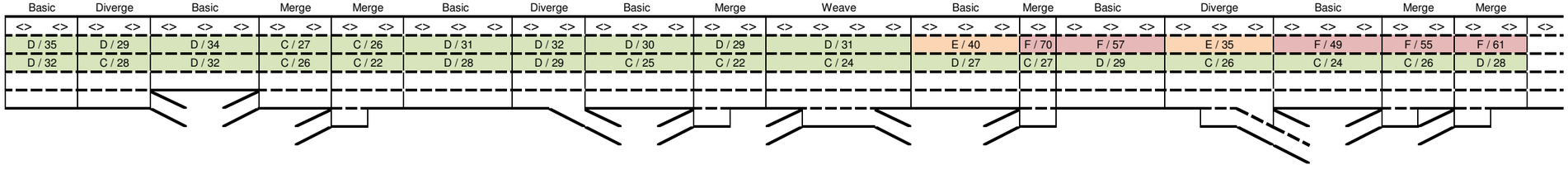
Westbound I-80

Riverside Ave | Antelope Road | Truck Scales | Elkhorn Blvd

Alternative 1 - Taylor Road Full Access Interchange



Alternative 2 - Collector-Distributor System Ramps



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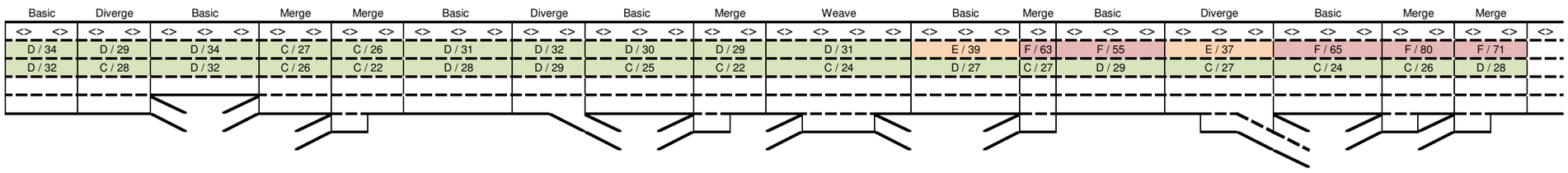
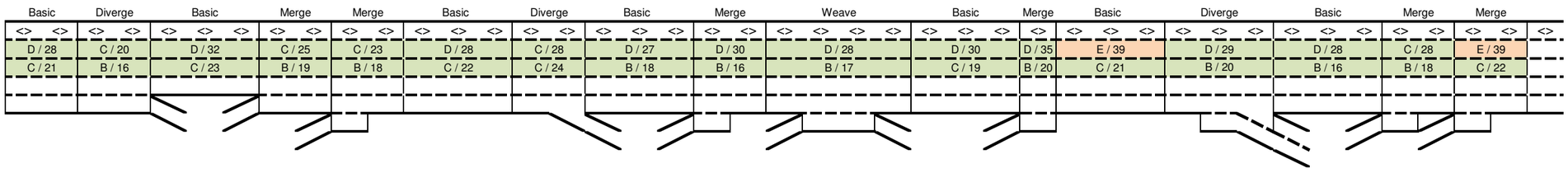


Alternative 5 - No Build



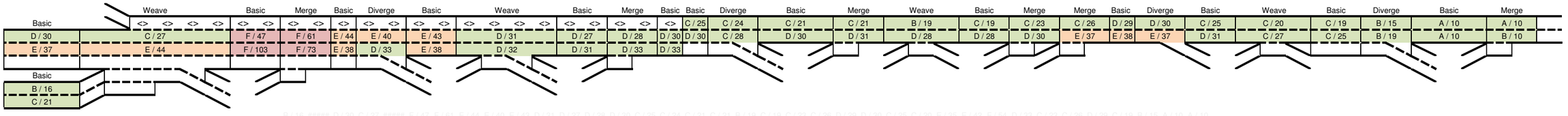
Legend:
LOS A - D
LOS E
LOS F
Interchange
<> HOV Lane
Facility Type (Basic, Merge, Diverge, or Weave)
AM Peak Hour LOS / Density
PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Design Year
Freeway Operations Results

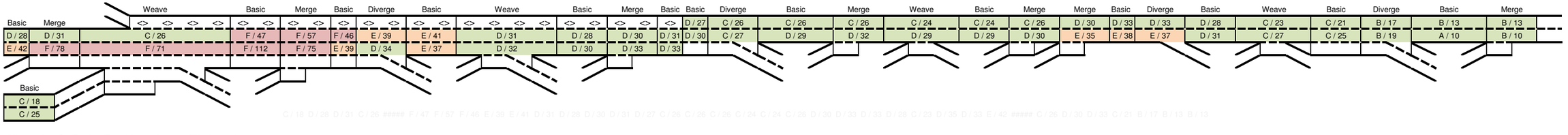
Northbound SR 65

I-80 | Stanford Ranch Rd | Pleasant Grove Blvd | Blue Oaks Blvd | Sunset Blvd | Whitney Ranch Pkwy | Twelve Bridges Dr | Lincoln Blvd | Ferrari Ranch Rd

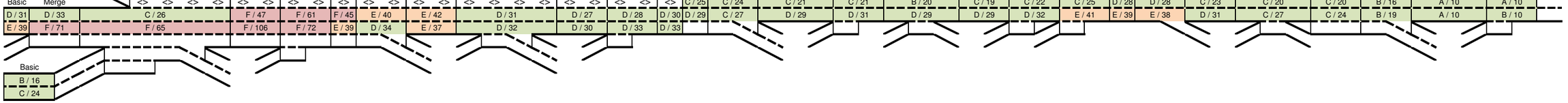
Alternative 1 - Taylor Road Full Access Interchange



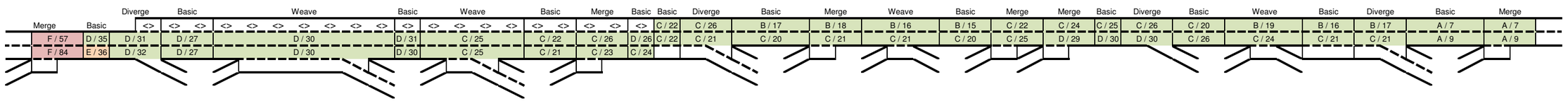
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



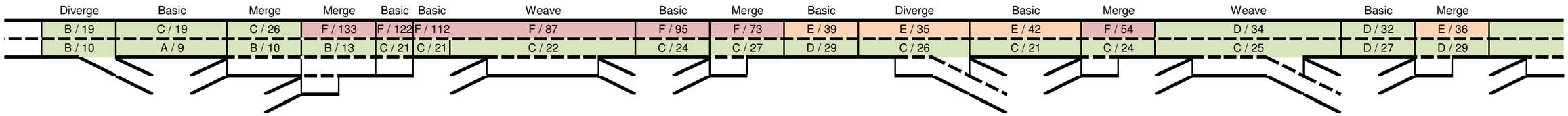
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Design Year
Freeway Operations Results

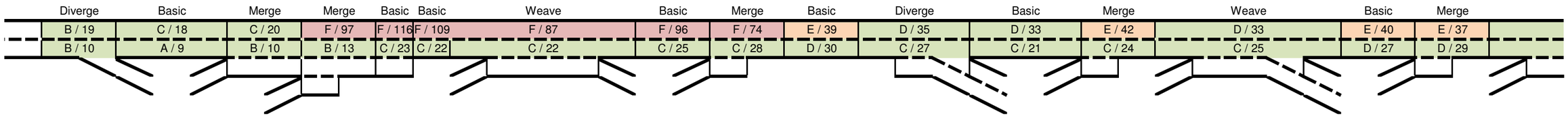
Southbound SR 65

Ferrari Ranch Rd | Lincoln Blvd | Twelve Bridges Dr | Placer Pkwy | Sunset Blvd

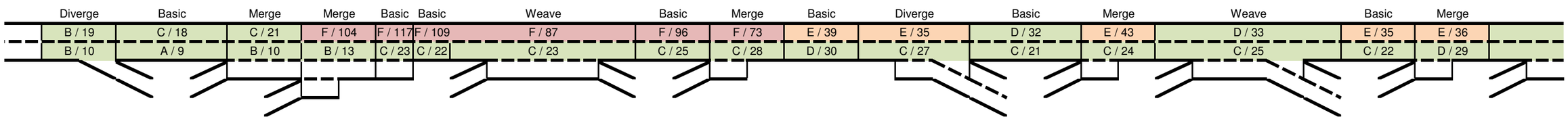
Alternative 1 - Taylor Road Full Access Interchange



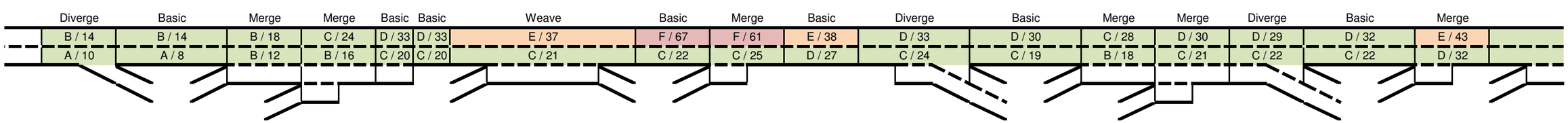
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



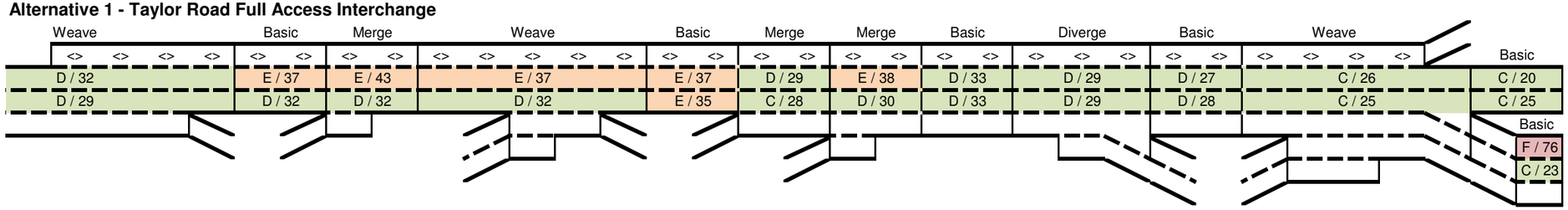
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Design Year
Freeway Operations Results

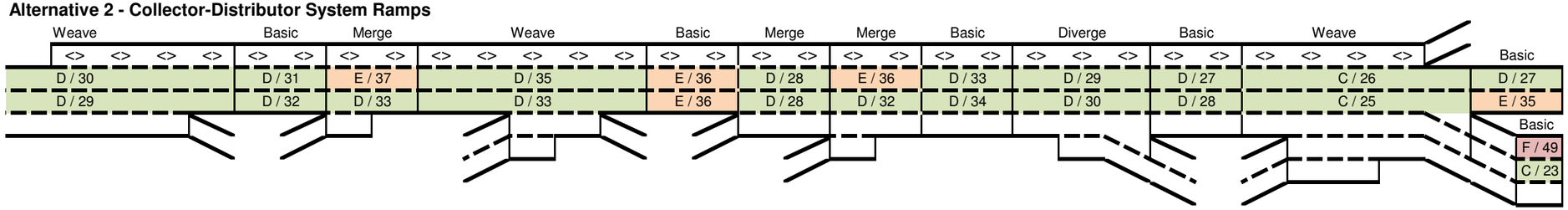
Southbound SR 65

Blue Oaks Blvd | Pleasant Grove Blvd | Galleria Blvd | I-80

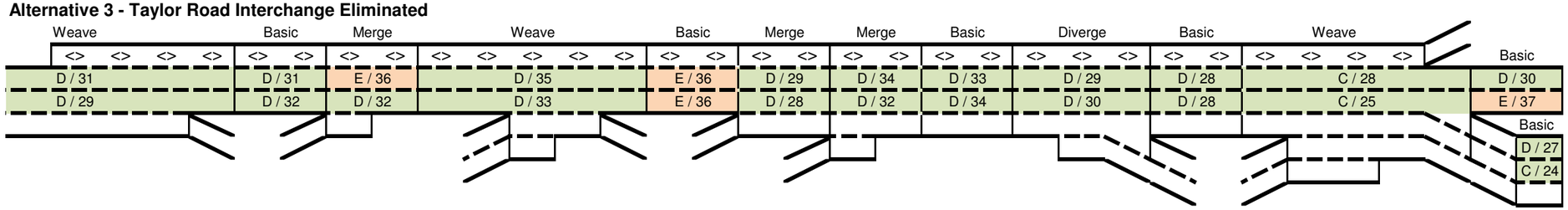
Alternative 1 - Taylor Road Full Access Interchange



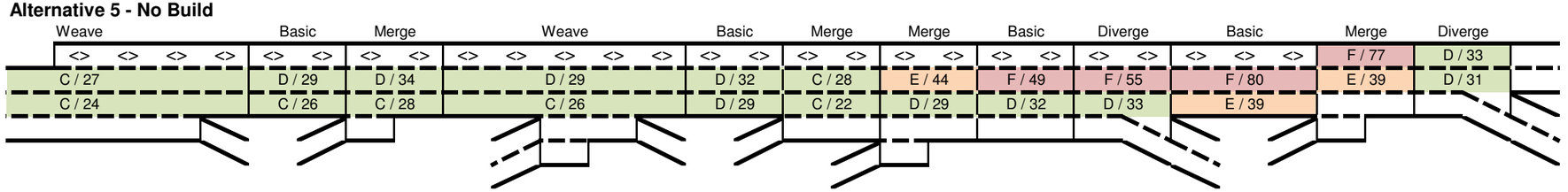
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

TABLE 21A: INTERSECTION OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS				
Intersection	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
1. Lincoln Blvd / Sterling Pkwy	B / 16	B / 16	B / 16	**F / 88**
2. Twelve Bridges Dr / SR 65 SB Ramps	B / 17	B / 16	B / 16	E / 57
3. Twelve Bridges Dr / SR 65 NB Ramps	C / 32	C / 24	C / 27	D / 51
4. Sunset Blvd / SR 65 SB Ramps	B / 13	B / 17	B / 15	C / 29
5. Sunset Blvd / SR 65 NB Ramps	B / 12	B / 11	B / 12	E / 56
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	**D / 45**	**D / 49**	**D / 50**	**F / 136**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 10	B / 11	B / 12	**F / 116**
8. Pleasant Grove Blvd / SR 65 SB Ramps	B / 17	A / 7	A / 7	B / 12
9. Pleasant Grove Blvd / SR 65 NB Ramps	B / 14	B / 15	B / 15	C / 30
10. Stanford Ranch Rd / Five Star Blvd	C / 28	C / 26	C / 28	**F / 151**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 16	C / 25	B / 19	**F / 127**
12. Galleria Blvd / SR 65 SB Ramps	C / 24	C / 34	C / 25	D / 38
13. Galleria Blvd / Antelope Creek Dr	A / 10	A / 8	A / 9	B / 11
14. Galleria Blvd / Roseville Pkwy	D / 45	D / 45	D / 46	D / 39
15. Roseville Pkwy / Creekside Ridge Dr	A / 7	A / 7	A / 7	B / 10
16. Roseville Pkwy / Taylor Rd	**E / 61**	**E / 62**	**F / 95**	**F / 98**
17. Roseville Pkwy / Sunrise Ave	D / 37	C / 31	C / 32	C / 30
18. Atlantic St / Wills Rd	C / 25	B / 16	C / 23	C / 20
19. Atlantic St / I-80 WB Ramps	**D / 43**	C / 25	**D / 38**	B / 12
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 32	C / 29	D / 42	E / 55
21. Eureka Rd / Sunrise Ave	**D / 38**	**D / 37**	**D / 39**	C / 29
22. Harding Blvd / Wills Rd	B / 16	B / 15	B / 15	B / 18
23. Douglas Blvd / Harding Blvd	C / 28	C / 29	C / 30	C / 25
24. Douglas Blvd / I-80 WB Ramps	C / 32	**D / 37**	**D / 40**	**D / 50**
25. Douglas Blvd / I-80 EB Ramps	B / 15	C / 21	C / 26	**D / 35**
26. Douglas Blvd / Sunrise Ave	D / 37	D / 40	D / 47	C / 35
27. Pacific St / Woodside Dr	A / 7	A / 8	A / 7	B / 12
28. Pacific St / Sunset Blvd	C / 27	C / 29	C / 22	C / 32
29. Rocklin Rd / Granite Dr	C / 27	C / 25	D / 42	D / 29
30. Rocklin Rd / I-80 WB Ramps	C / 23	C / 21	D / 46	B / 13
31. Rocklin Rd / I-80 EB Ramps	C / 25	C / 24	C / 23	A / 6
32. Rocklin Rd / Aguilar Rd	A / 10	B / 11	A / 10	A / 5
33. Lincoln Blvd / SR 65 NB Off-ramp	B / 12	B / 12	B / 12	**F / 98**

TABLE 21A: INTERSECTION OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS				
Intersection	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
34. Lincoln Blvd / SR 65 SB On-ramp	C / 22	C / 23	C / 23	**F / 93**
35. Placer Pkwy / SR 65 SB Ramps	B / 17	B / 19	B / 17	**D / 35**
36. Whitney Ranch Pkwy / SR 65 NB Ramps	B / 14	B / 14	B / 14	B / 17
37. Taylor Rd / I-80 Ramps	C / 21	-	-	-

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported. The outlined area is shown in the main body of the report.

Source: Fehr & Peers, 2014

TABLE 22A: MAXIMUM QUEUE LENGTH RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eastbound Douglas Blvd	1,400	175	25	25
Eastbound I-80 at Westbound Douglas Blvd	1,250	400	650	800
Eastbound I-80 at Eureka Rd	1,700	600	650	900
Eastbound I-80 at Taylor Rd	>1,000	325	25	-
Eastbound I-80 at Rocklin Rd	1,080	275	275	275
Westbound I-80 at Rocklin Rd	1,230	200	175	200
Westbound I-80 at Taylor Rd	>1,000	325	-	-
Westbound I-80 at Westbound Atlantic St	1,430	0	25	0
Westbound I-80 at Eastbound Atlantic St	1,150	0	0	25
Westbound I-80 at Douglas Blvd	1,530	375	375	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	150	200	150
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	75	75	75
Northbound SR 65 at Pleasant Grove Blvd	1,420	200	175	200
Northbound SR 65 at Blue Oaks Blvd	1,100	250	225	250
Northbound SR 65 at Sunset Blvd	1,400	250	225	225
Northbound SR 65 at Whitney Ranch Pkwy	1,620	325	350	325
Northbound SR 65 at Twelve Bridges Dr	1,500	150	125	100
Northbound SR 65 at Lincoln Blvd	1,940	325	275	325
Southbound SR 65 at Twelve Bridges Dr	1,500	325	250	275
Southbound SR 65 at Placer Pkwy	1,650	325	350	300
Southbound SR 65 at Sunset Blvd	1,330	250	225	250
Southbound SR 65 at Blue Oaks Blvd	2,260	500	475	500
Southbound SR 65 at Pleasant Grove Blvd	1,130	150	150	175
Southbound SR 65 at Southbound Galleria Blvd	1,130	275	300	300
Southbound SR 65 at Northbound Galleria Blvd	1,780	50	75	75

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

TABLE 23A: INTERSECTION OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS				
Intersection	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
1. Lincoln Blvd / Sterling Pkwy	C / 21	C / 25	C / 24	**F / 94**
2. Twelve Bridges Dr / SR 65 SB Ramps	B / 15	B / 16	B / 15	C / 26
3. Twelve Bridges Dr / SR 65 NB Ramps	B / 19	B / 18	B / 18	**E / 77**
4. Sunset Blvd / SR 65 SB Ramps	B / 10	B / 20	A / 9	C / 23
5. Sunset Blvd / SR 65 NB Ramps	B / 12	C / 27	C / 20	C / 23
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	**F / 165**	**F / 164**	**F / 175**	**F / >240**
7. Blue Oaks Blvd / SR 65 NB Ramps	**F / 85**	**E / 69**	**E / 80**	**F / 115**
8. Pleasant Grove Blvd / SR 65 SB Ramps	A / 9	A / 9	A / 9	A / 9
9. Pleasant Grove Blvd / SR 65 NB Ramps	A / 10	B / 12	B / 12	B / 10
10. Stanford Ranch Rd / Five Star Blvd	**E / 56**	**E / 55**	**E / 59**	**D / 36**
11. Stanford Ranch Rd / SR 65 NB Ramps	C / 26	C / 22	C / 22	D / 36
12. Galleria Blvd / SR 65 SB Ramps	C / 24	C / 23	C / 25	C / 29
13. Galleria Blvd / Antelope Creek Dr	C / 23	C / 24	C / 24	C / 24
14. Galleria Blvd / Roseville Pkwy	**F / 91**	**F / 131**	**F / 102**	**F / 213**
15. Roseville Pkwy / Creekside Ridge Dr	**E / 77**	**E / 72**	**D / 40**	C / 24
16. Roseville Pkwy / Taylor Rd	D / 54	D / 53	**E / 71**	D / 48
17. Roseville Pkwy / Sunrise Ave	D / 46	D / 47	E / 78	**F / >240**
18. Atlantic St / Wills Rd	C / 26	C / 29	**D / 40**	**D / 49**
19. Atlantic St / I-80 WB Ramps	B / 15	B / 18	C / 34	**D / 51**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	**F / 104**	**F / 103**	**F / 104**	**F / 92**
21. Eureka Rd / Sunrise Ave	**F / 99**	**F / 132**	**F / 113**	**F / 184**
22. Harding Blvd / Wills Rd	B / 19	B / 17	C / 22	C / 27
23. Douglas Blvd / Harding Blvd	**F / 81**	E / 80	**F / 111**	**F / >240**
24. Douglas Blvd / I-80 WB Ramps	C / 25	C / 21	**D / 40**	**F / 237**
25. Douglas Blvd / I-80 EB Ramps	C / 30	B / 12	C / 30	**F / 124**
26. Douglas Blvd / Sunrise Ave	**F / 158**	**F / 240**	**F / 166**	**F / >240**
27. Pacific St / Woodside Dr	A / 8	A / 9	A / 8	B / 17
28. Pacific St / Sunset Blvd	C / 32	C / 34	C / 29	C / 35
29. Rocklin Rd / Granite Dr	**F / 83**	**F / 97**	**F / 105**	**F / >240**
30. Rocklin Rd / I-80 WB Ramps	C / 26	C / 26	C / 32	**F / 99**
31. Rocklin Rd / I-80 EB Ramps	C / 23	C / 23	C / 21	**E / 36**
32. Rocklin Rd / Aguilar Rd	C / 21	C / 21	B / 19	**F / 123**
33. Lincoln Blvd / SR 65 NB Off-ramp	B / 10	B / 13	B / 14	**F / 98**

TABLE 23A: INTERSECTION OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS				
Intersection	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
34. Lincoln Blvd / SR 65 SB On-ramp	C / 30	**D / 48**	**D / 41**	**F / 101**
35. Placer Pkwy / SR 65 SB Ramps	C / 24	C / 27	C / 25	C / 28
36. Whitney Ranch Pkwy / SR 65 NB Ramps	C / 22	C / 22	C / 22	**E / 75**
37. Taylor Rd / I-80 Ramps	C / 25	-	-	-

Note: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported. The outlined area is shown in the main body of the report.

Source: Fehr & Peers, 2014

TABLE 24A: MAXIMUM QUEUE LENGTH RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eastbound Douglas Blvd	1,400	1,000	450	25
Eastbound I-80 at Westbound Douglas Blvd	1,250	375	150	675
Eastbound I-80 at Eureka Rd	1,700	725	450	1,000
Eastbound I-80 at Taylor Rd	>1,000	300	75	-
Eastbound I-80 at Rocklin Rd	1,080	275	275	275
Westbound I-80 at Rocklin Rd	1,230	375	400	450
Westbound I-80 at Taylor Rd	>1,000	300	-	-
Westbound I-80 at Westbound Atlantic St	1,430	0	50	0
Westbound I-80 at Eastbound Atlantic St	1,150	0	175	25
Westbound I-80 at Douglas Blvd	1,530	425	425	450
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	425	375	400
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	100	125	125
Northbound SR 65 at Pleasant Grove Blvd	1,420	175	175	200
Northbound SR 65 at Blue Oaks Blvd	1,100	225	200	200
Northbound SR 65 at Sunset Blvd	1,400	250	250	250
Northbound SR 65 at Whitney Ranch Pkwy	1,620	525	475	500
Northbound SR 65 at Twelve Bridges Dr	1,500	150	150	125
Northbound SR 65 at Lincoln Blvd	1,940	400	350	400
Southbound SR 65 at Twelve Bridges Dr	1,500	325	350	300
Southbound SR 65 at Placer Pkwy	1,650	400	400	400
Southbound SR 65 at Sunset Blvd	1,330	225	225	225
Southbound SR 65 at Blue Oaks Blvd	2,260	900	775	975
Southbound SR 65 at Pleasant Grove Blvd	1,130	125	150	150
Southbound SR 65 at Southbound Galleria Blvd	1,130	325	325	350
Southbound SR 65 at Northbound Galleria Blvd	1,780	125	100	125

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

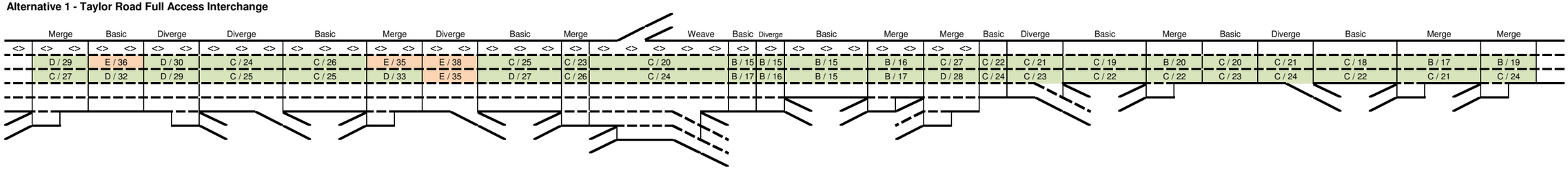
Source: Fehr & Peers, 2014

I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

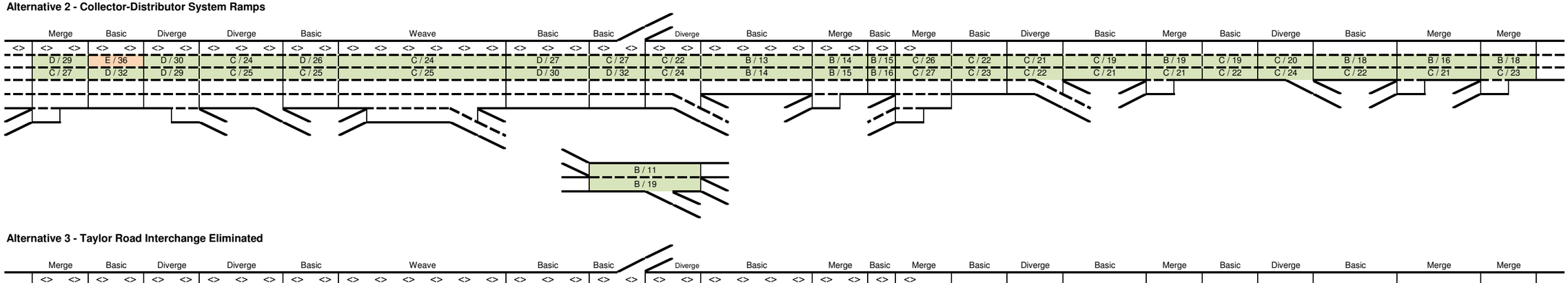
Eastbound I-80

Auburn Blvd | Douglas Blvd | Eureka Rd | SR 65 / Taylor Rd | Rocklin Road | Sierra College Blvd

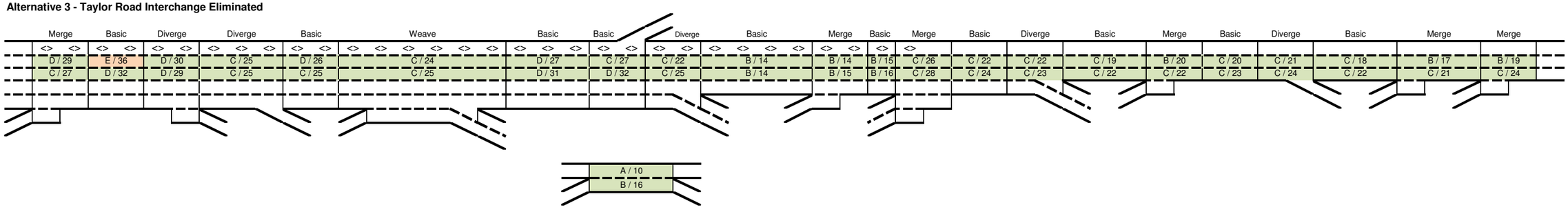
Alternative 1 - Taylor Road Full Access Interchange



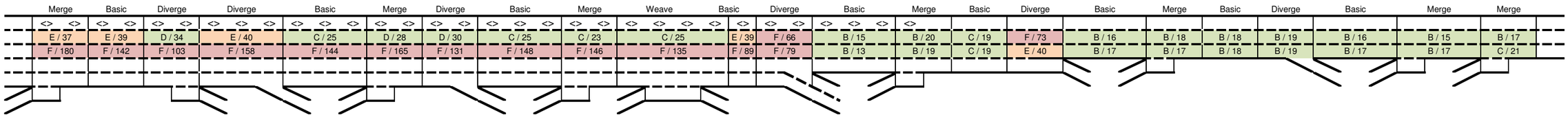
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



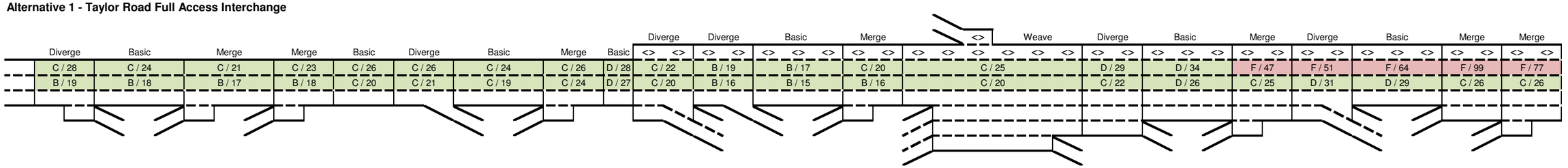
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

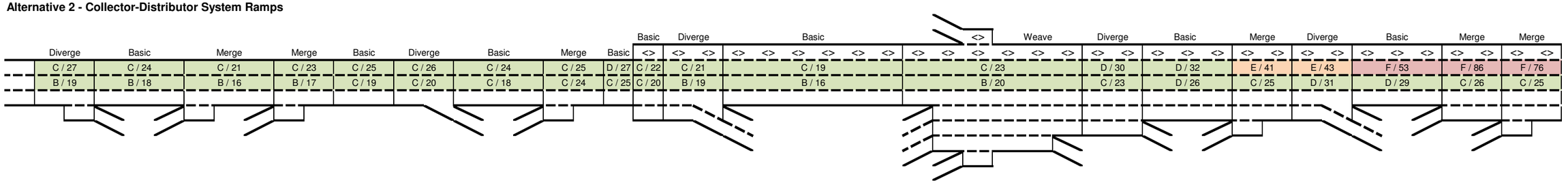
Westbound I-80

Sierra College Boulevard | Rocklin Road | SR 65 / Taylor Rd | Atlantic St | Douglas Blvd

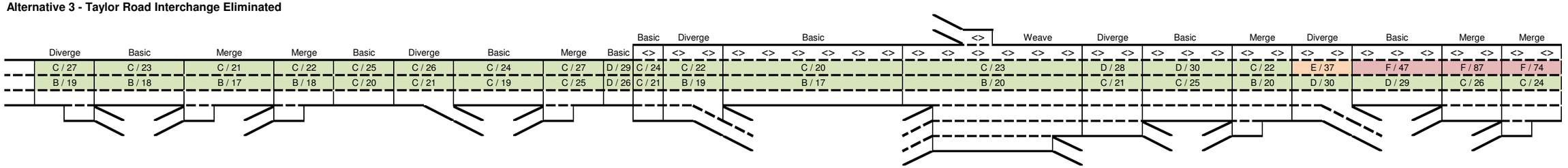
Alternative 1 - Taylor Road Full Access Interchange



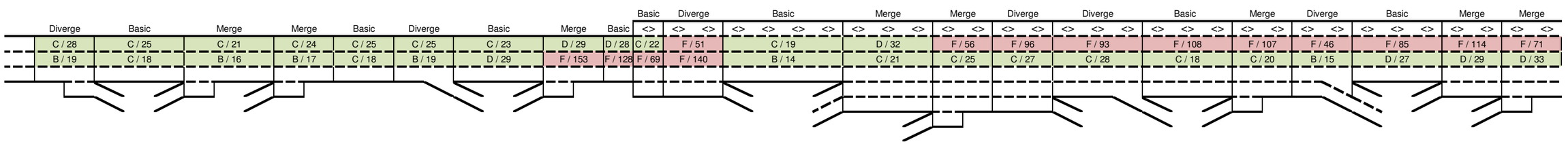
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



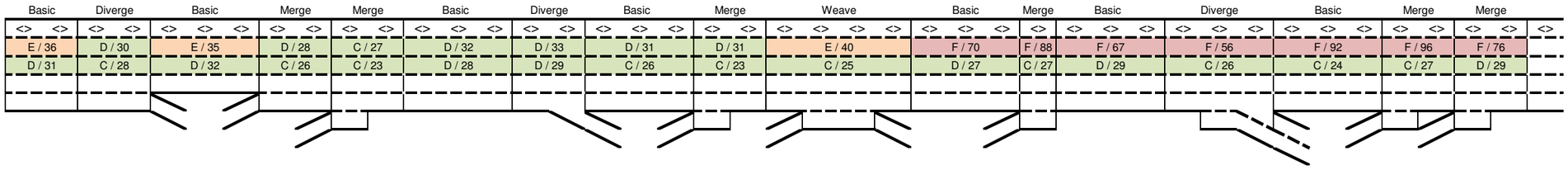
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

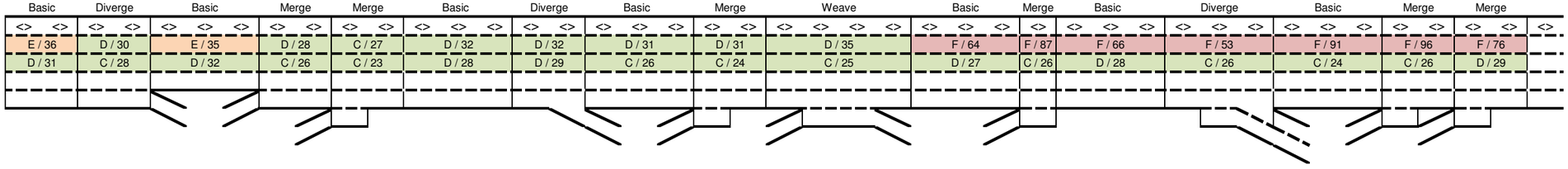
Westbound I-80

Riverside Ave | Antelope Road | Truck Scales | Elkhorn Blvd

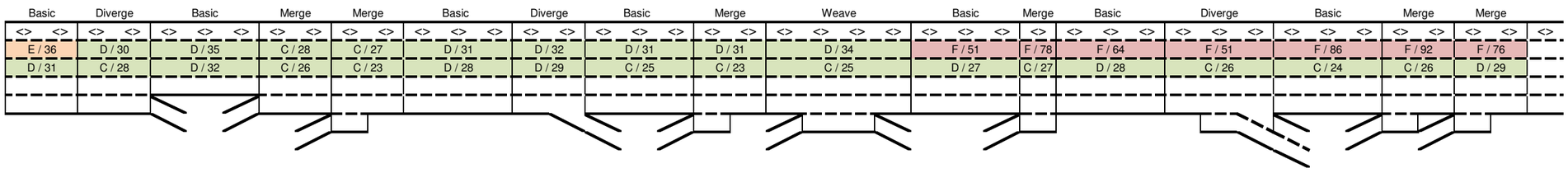
Alternative 1 - Taylor Road Full Access Interchange



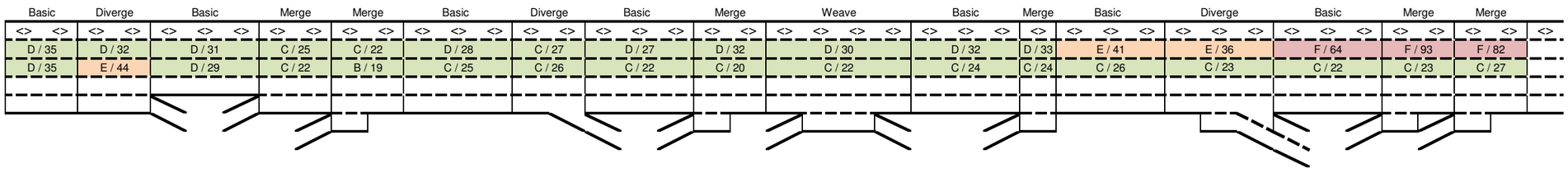
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



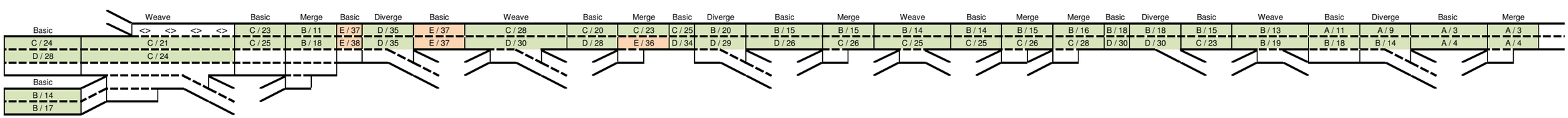
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

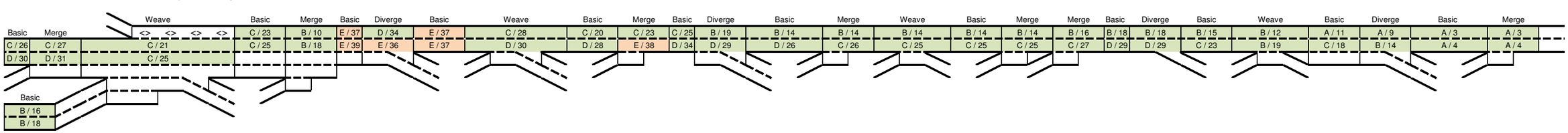
Northbound SR 65

I-80 | Stanford Ranch Rd | Pleasant Grove Blvd | Blue Oaks Blvd | Sunset Blvd | Whitney Ranch Pkwy | Twelve Bridges Dr | Lincoln Blvd | Ferrari Ranch Rd

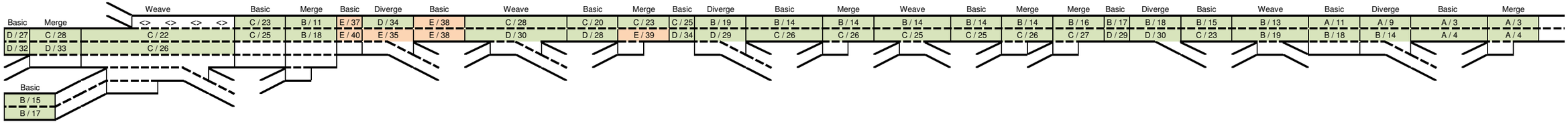
Alternative 1 - Taylor Road Full Access Interchange



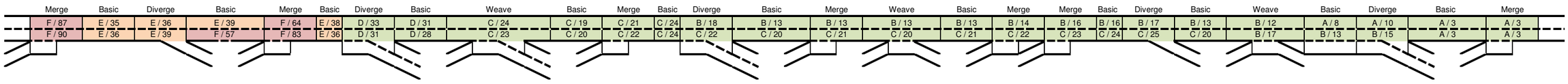
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



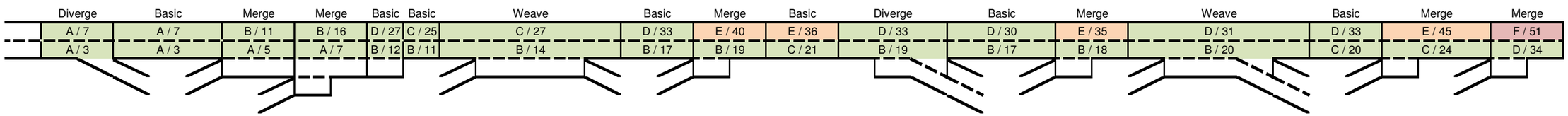
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

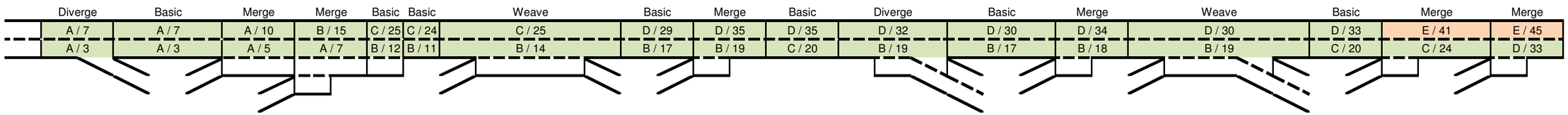
Southbound SR 65

Ferrari Ranch Rd	Lincoln Blvd	Twelve Bridges Dr	Placer Pkwy	Sunset Blvd

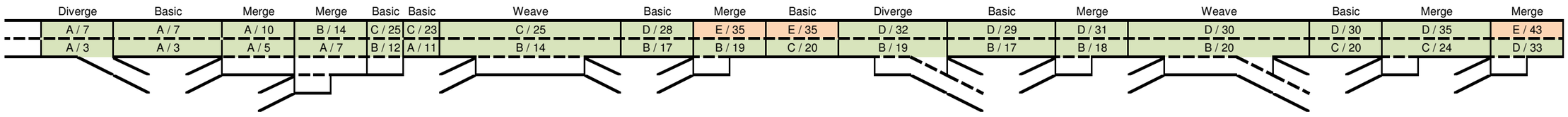
Alternative 1 - Taylor Road Full Access Interchange



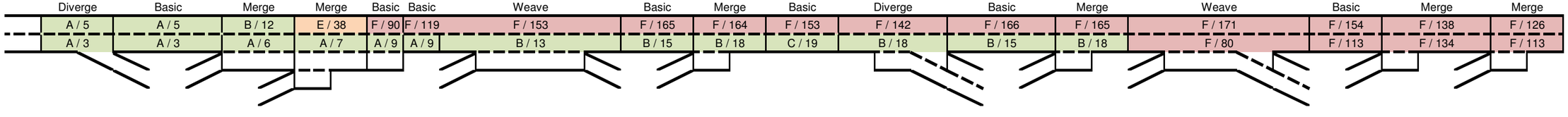
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



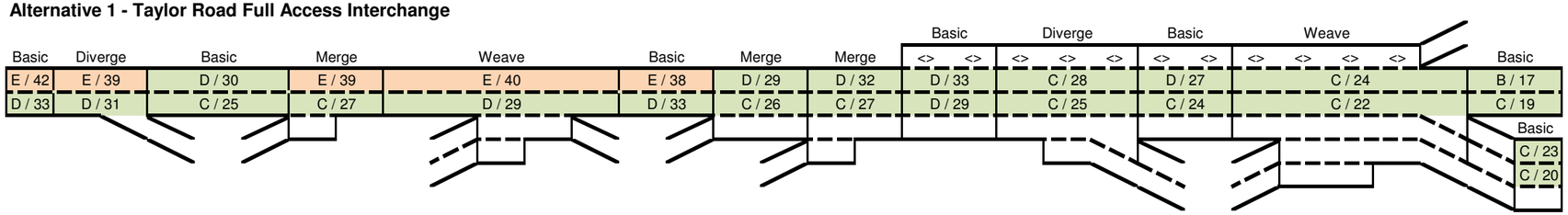
Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

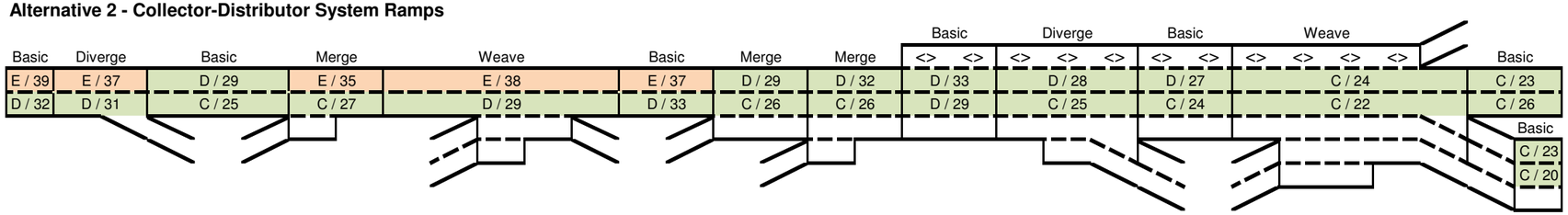
Southbound SR 65

Blue Oaks Blvd | Pleasant Grove Blvd | Galleria Blvd | I-80

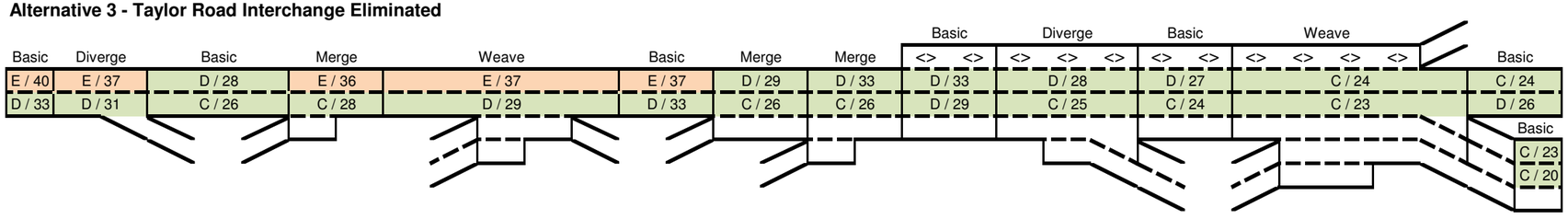
Alternative 1 - Taylor Road Full Access Interchange



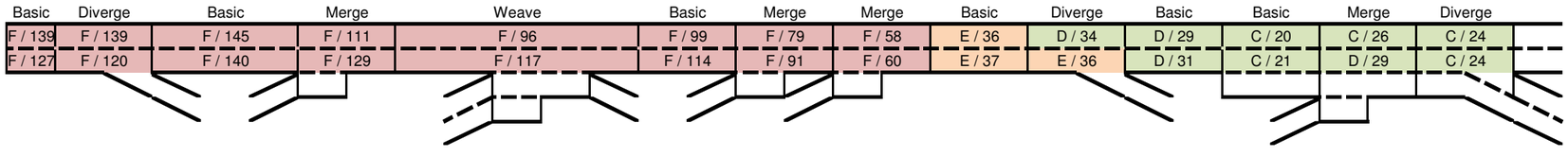
Alternative 2 - Collector-Distributor System Ramps



Alternative 3 - Taylor Road Interchange Eliminated



Alternative 5 - No Build



Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

TABLE 30A: INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS				
Intersection	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
1. Lincoln Blvd / Sterling Pkwy	B / 11	B / 11	B / 11	C / 32
2. Twelve Bridges Dr / SR 65 SB Ramps	B / 12	B / 10	A / 10	**F / 136**
3. Twelve Bridges Dr / SR 65 NB Ramps	B / 10	A / 10	A / 10	**F / 89**
4. Sunset Blvd / SR 65 SB Ramps	B / 11	B / 12	B / 11	B / 19
5. Sunset Blvd / SR 65 NB Ramps	B / 14	B / 13	B / 12	B / 14
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C / 33	C / 33	C / 33	**F / 187**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 12	B / 11	B / 11	B / 12
8. Pleasant Grove Blvd / SR 65 SB Ramps	B / 11	A / 7	A / 7	**D / 41**
9. Pleasant Grove Blvd / SR 65 NB Ramps	B / 14	B / 14	B / 14	B / 10
10. Stanford Ranch Rd / Five Star Blvd	C / 24	C / 25	C / 24	C / 29
11. Stanford Ranch Rd / SR 65 NB Ramps	A / 7	A / 7	A / 8	C / 27
12. Galleria Blvd / SR 65 SB Ramps	B / 20	B / 19	B / 19	C / 23
13. Galleria Blvd / Antelope Creek Dr	A / 9	B / 11	A / 10	B / 13
14. Galleria Blvd / Roseville Pkwy	C / 31	D / 36	C / 33	D / 36
15. Roseville Pkwy / Creekside Ridge Dr	A / 6	A / 5	A / 6	A / 9
16. Roseville Pkwy / Taylor Rd	D / 47	D / 46	D / 49	**F / 130**
17. Roseville Pkwy / Sunrise Ave	C / 28	C / 29	C / 30	C / 24
18. Atlantic St / Wills Rd	B / 19	B / 16	B / 19	B / 16
19. Atlantic St / I-80 WB Ramps	C / 29	B / 12	C / 26	B / 16
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 26	C / 28	C / 31	C / 22
21. Eureka Rd / Sunrise Ave	**D / 36**	C / 34	**D / 35**	C / 25
22. Harding Blvd / Wills Rd	B / 16	B / 13	B / 14	B / 14
23. Douglas Blvd / Harding Blvd	C / 22	C / 25	C / 23	C / 22
24. Douglas Blvd / I-80 WB Ramps	B / 12	B / 12	B / 12	**E / 59**
25. Douglas Blvd / I-80 EB Ramps	A / 9	A / 8	A / 9	**D / 47**
26. Douglas Blvd / Sunrise Ave	D / 35	D / 37	D / 37	C / 30
27. Pacific St / Woodside Dr	A / 7	A / 8	A / 7	A / 9
28. Pacific St / Sunset Blvd	C / 22	C / 22	B / 17	C / 28
29. Rocklin Rd / Granite Dr	B / 18	B / 19	B / 19	C / 21
30. Rocklin Rd / I-80 WB Ramps	C / 29	C / 25	D / 40	D / 37
31. Rocklin Rd / I-80 EB Ramps	D / 39	C / 26	D / 35	**E / 70**
32. Rocklin Rd / Aguilar Rd	B / 20	B / 11	B / 19	A / 9
33. Lincoln Blvd / SR 65 NB Off-ramp	A / 9	A / 9	A / 9	B / 10

TABLE 30A: INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS				
Intersection	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
34. Lincoln Blvd / SR 65 SB On-ramp	C / 26	C / 26	C / 26	**F / 97**
35. Placer Pkwy / SR 65 SB Ramps	B / 12	B / 12	B / 12	**F / 229**
36. Whitney Ranch Pkwy / SR 65 NB Ramps	A / 9	A / 8	A / 8	A / 6
37. Taylor Rd / I-80 Ramps	C / 21	-	-	A / 8

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported. The outlined area is shown in the main body of the report.

Source: Fehr & Peers, 2014

TABLE 31A: MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eastbound Douglas Blvd	1,400	50	125	25
Eastbound I-80 at Westbound Douglas Blvd	1,250	125	125	125
Eastbound I-80 at Eureka Rd	1,700	525	700	825
Eastbound I-80 at Taylor Rd	>1,000	400	25	-
Eastbound I-80 at Rocklin Rd	1,080	275	250	275
Westbound I-80 at Rocklin Rd	1,230	225	200	250
Westbound I-80 at Taylor Rd	>1,000	400	-	-
Westbound I-80 at Westbound Atlantic St	1,430	0	25	0
Westbound I-80 at Eastbound Atlantic St	1,150	0	0	0
Westbound I-80 at Douglas Blvd	1,530	350	400	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	0	0	0
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	50	75	100
Northbound SR 65 at Pleasant Grove Blvd	1,420	175	150	175
Northbound SR 65 at Blue Oaks Blvd	1,100	125	225	200
Northbound SR 65 at Sunset Blvd	1,400	300	275	300
Northbound SR 65 at Whitney Ranch Pkwy	1,620	175	150	175
Northbound SR 65 at Twelve Bridges Dr	1,500	75	75	75
Northbound SR 65 at Lincoln Blvd	1,940	175	175	175
Southbound SR 65 at Twelve Bridges Dr	1,500	175	175	150
Southbound SR 65 at Placer Pkwy	1,650	225	225	225
Southbound SR 65 at Sunset Blvd	1,330	175	175	175
Southbound SR 65 at Blue Oaks Blvd	2,260	275	275	275
Southbound SR 65 at Pleasant Grove Blvd	1,130	150	150	150
Southbound SR 65 at Southbound Galleria Blvd	1,130	225	250	225
Southbound SR 65 at Northbound Galleria Blvd	1,780	50	25	50

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

TABLE 32A: INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS				
Intersection	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
1. Lincoln Blvd / Sterling Pkwy	B / 12	B / 15	B / 14	**F / 120**
2. Twelve Bridges Dr / SR 65 SB Ramps	B / 11	B / 11	B / 11	A / 7
3. Twelve Bridges Dr / SR 65 NB Ramps	B / 12	B / 12	B / 12	A / 8
4. Sunset Blvd / SR 65 SB Ramps	A / 7	A / 6	A / 6	**E / 59**
5. Sunset Blvd / SR 65 NB Ramps	B / 12	B / 14	B / 14	**F / 113**
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	**D / 39**	**D / 43**	**D / 40**	**F / 188**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 11	B / 12	B / 12	C / 26
8. Pleasant Grove Blvd / SR 65 SB Ramps	A / 6	A / 7	A / 8	A / 7
9. Pleasant Grove Blvd / SR 65 NB Ramps	B / 12	B / 13	B / 13	B / 11
10. Stanford Ranch Rd / Five Star Blvd	**D / 43**	**D / 37**	**D / 37**	**F / 107**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 11	A / 10	B / 10	D / 45
12. Galleria Blvd / SR 65 SB Ramps	B / 17	B / 16	B / 17	D / 43
13. Galleria Blvd / Antelope Creek Dr	C / 21	C / 20	B / 20	C / 28
14. Galleria Blvd / Roseville Pkwy	E / 61	E / 56	E / 58	**F / 227**
15. Roseville Pkwy / Creekside Ridge Dr	B / 18	B / 18	B / 17	**E / 61**
16. Roseville Pkwy / Taylor Rd	D / 48	D / 42	D / 53	D / 37
17. Roseville Pkwy / Sunrise Ave	D / 38	D / 37	D / 37	C / 32
18. Atlantic St / Wills Rd	C / 23	C / 21	C / 29	C / 27
19. Atlantic St / I-80 WB Ramps	B / 17	B / 12	C / 29	**D / 36**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E / 63	E / 77	E / 78	D / 42
21. Eureka Rd / Sunrise Ave	**D / 52**	**E / 63**	**D / 48**	**D / 49**
22. Harding Blvd / Wills Rd	B / 16	B / 14	B / 16	B / 16
23. Douglas Blvd / Harding Blvd	D / 42	D / 39	D / 49	**F / 123**
24. Douglas Blvd / I-80 WB Ramps	B / 16	B / 17	B / 18	**D / 42**
25. Douglas Blvd / I-80 EB Ramps	B / 16	B / 16	B / 10	**E / 64**
26. Douglas Blvd / Sunrise Ave	D / 50	**E / 56**	D / 47	**F / 203**
27. Pacific St / Woodside Dr	A / 8	A / 8	A / 8	A / 10
28. Pacific St / Sunset Blvd	**D / 39**	**D / 43**	C / 24	C / 30
29. Rocklin Rd / Granite Dr	**F / 101**	**F / 91**	**F / 110**	**F / 170**
30. Rocklin Rd / I-80 WB Ramps	D / 40	D / 38	D / 47	**F / 82**
31. Rocklin Rd / I-80 EB Ramps	D / 38	C / 27	D / 48	**F / 115**
32. Rocklin Rd / Aguilar Rd	B / 17	B / 18	**E / 64**	**F / 229**
33. Lincoln Blvd / SR 65 NB Off-ramp	A / 9	A / 9	A / 9	**F / 134**

TABLE 32A: INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS				
Intersection	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
34. Lincoln Blvd / SR 65 SB On-ramp	C / 30	C / 27	C / 27	**F / 138**
35. Placer Pkwy / SR 65 SB Ramps	B / 14	B / 15	B / 15	A / 6
36. Whitney Ranch Pkwy / SR 65 NB Ramps	B / 13	B / 14	B / 14	A / 9
37. Taylor Rd / I-80 Ramps	C / 22	-	-	-

Note: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported. The outlined area is shown in the main body of the report.

Source: Fehr & Peers, 2014

TABLE 33A: MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eastbound Douglas Blvd	1,400	0	0	0
Eastbound I-80 at Westbound Douglas Blvd	1,250	225	275	275
Eastbound I-80 at Eureka Rd	1,700	900	525	1,325
Eastbound I-80 at Taylor Rd	>1,000	225	125	-
Eastbound I-80 at Rocklin Rd	1,080	400	275	350
Westbound I-80 at Rocklin Rd	1,230	225	250	300
Westbound I-80 at Taylor Rd	>1,000	225	-	-
Westbound I-80 at Westbound Atlantic St	1,430	0	25	0
Westbound I-80 at Eastbound Atlantic St	1,150	0	0	0
Westbound I-80 at Douglas Blvd	1,530	375	350	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	25	125	0
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	175	200	150
Northbound SR 65 at Pleasant Grove Blvd	1,420	175	175	175
Northbound SR 65 at Blue Oaks Blvd	1,100	200	250	200
Northbound SR 65 at Sunset Blvd	1,400	200	225	225
Northbound SR 65 at Whitney Ranch Pkwy	1,620	250	275	275
Northbound SR 65 at Twelve Bridges Dr	1,500	100	100	125
Northbound SR 65 at Lincoln Blvd	1,940	275	250	250
Southbound SR 65 at Twelve Bridges Dr	1,500	150	150	175
Southbound SR 65 at Placer Pkwy	1,650	200	175	175
Southbound SR 65 at Sunset Blvd	1,330	125	125	125
Southbound SR 65 at Blue Oaks Blvd	2,260	275	250	250
Southbound SR 65 at Pleasant Grove Blvd	1,130	125	125	150
Southbound SR 65 at Southbound Galleria Blvd	1,130	250	225	225
Southbound SR 65 at Northbound Galleria Blvd	1,780	100	125	125

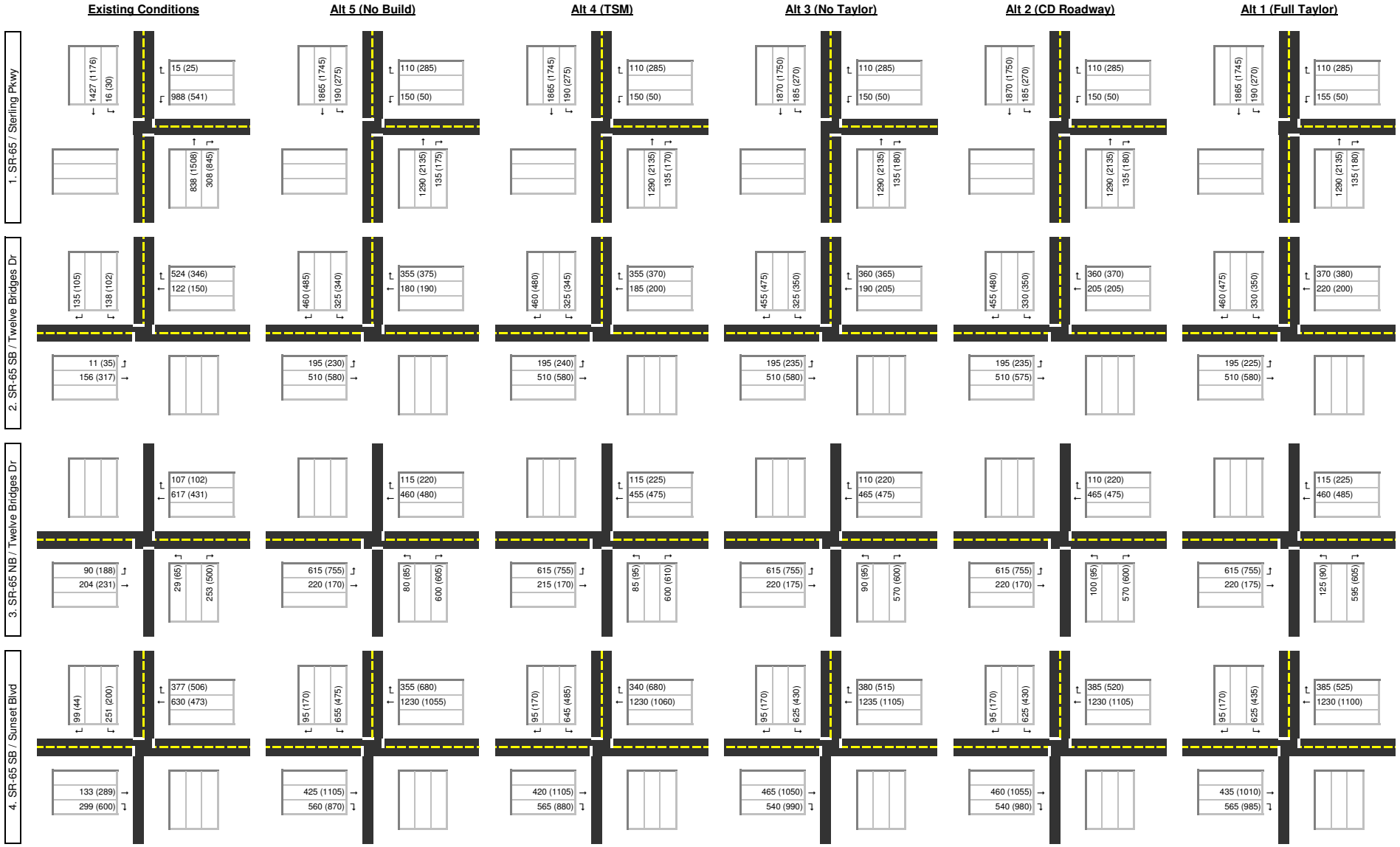
Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

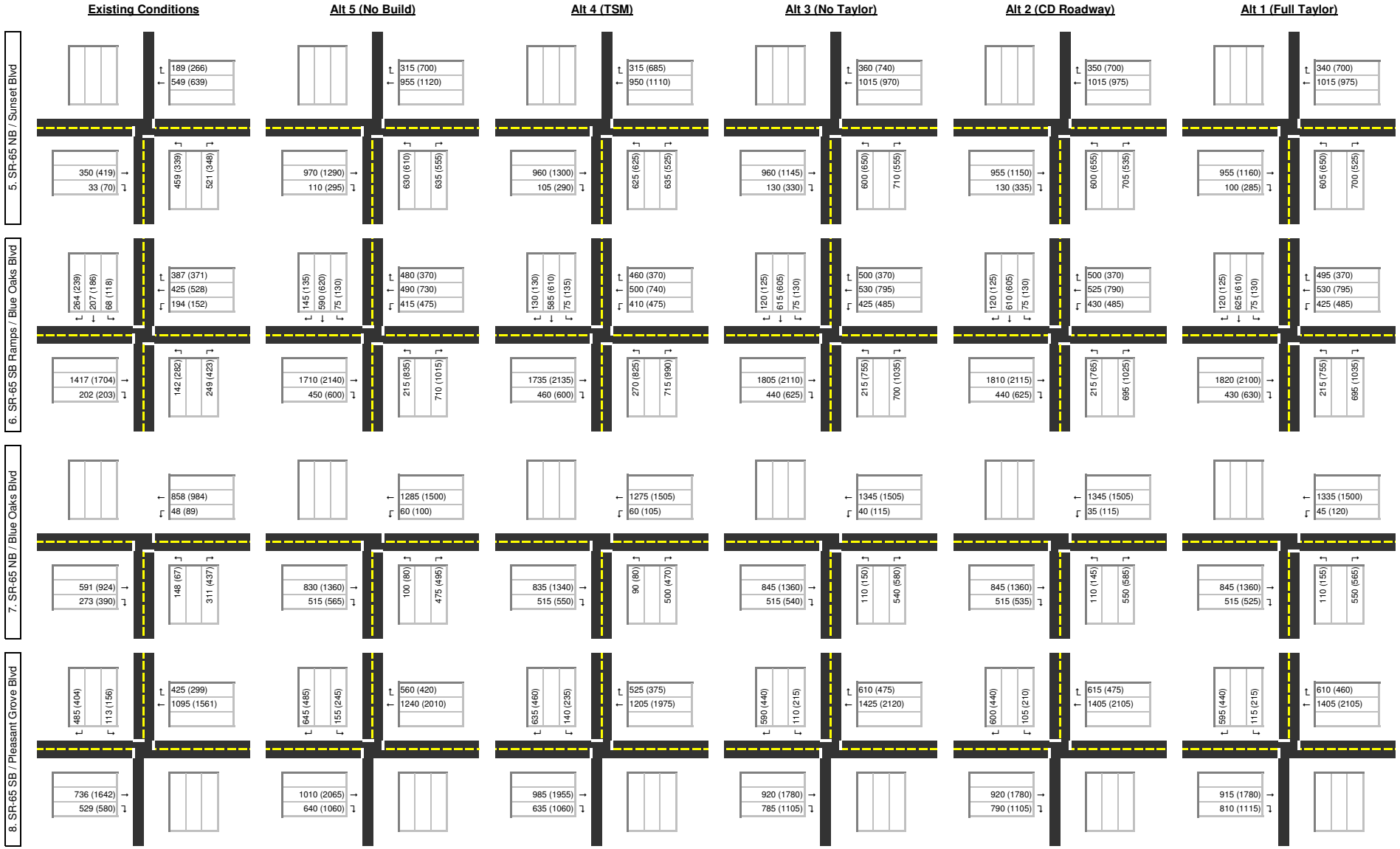
I-80/SR 65 Interchange Improvements

Intersection Volumes – Design Year

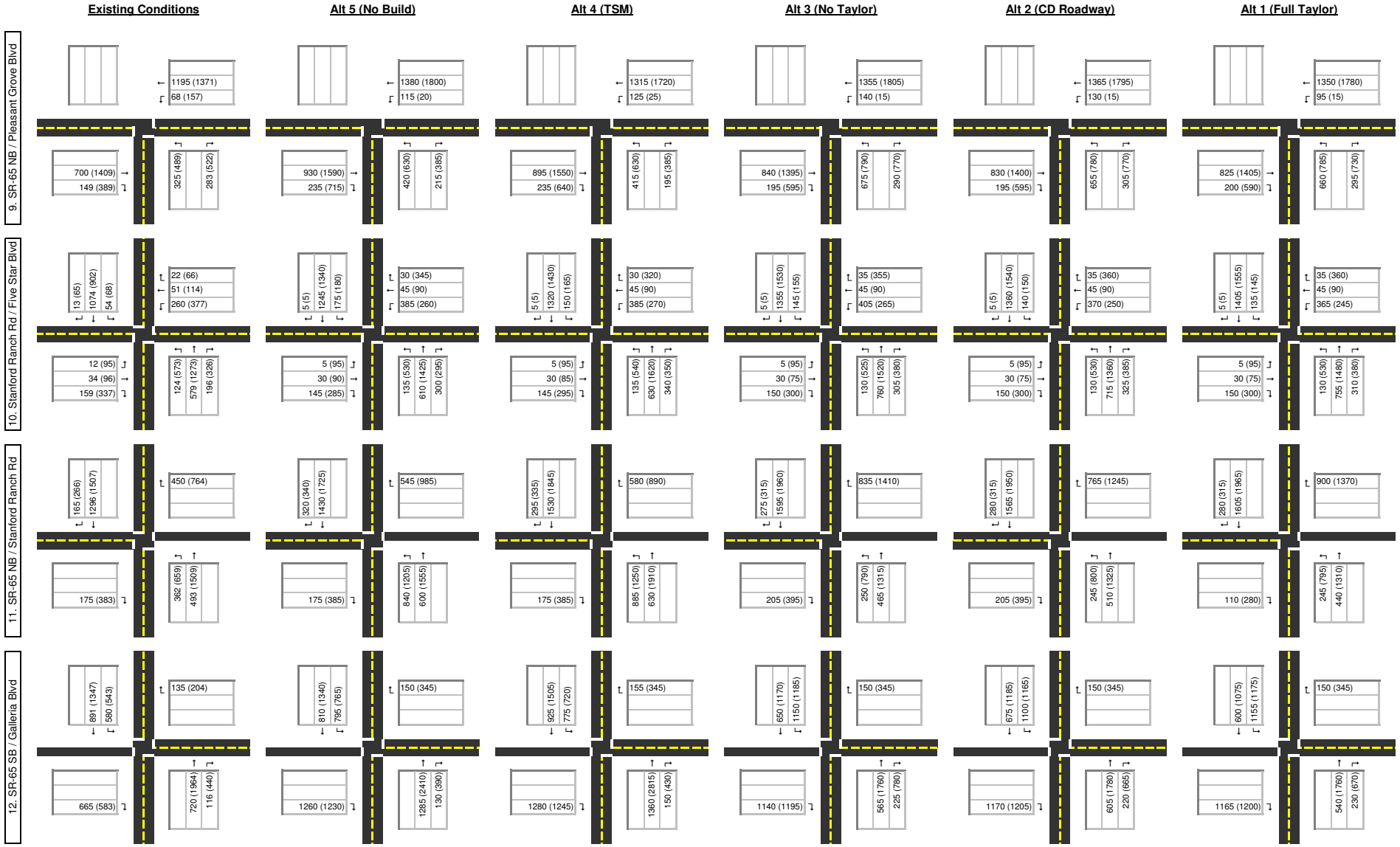
I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes



I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes



I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes



I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes

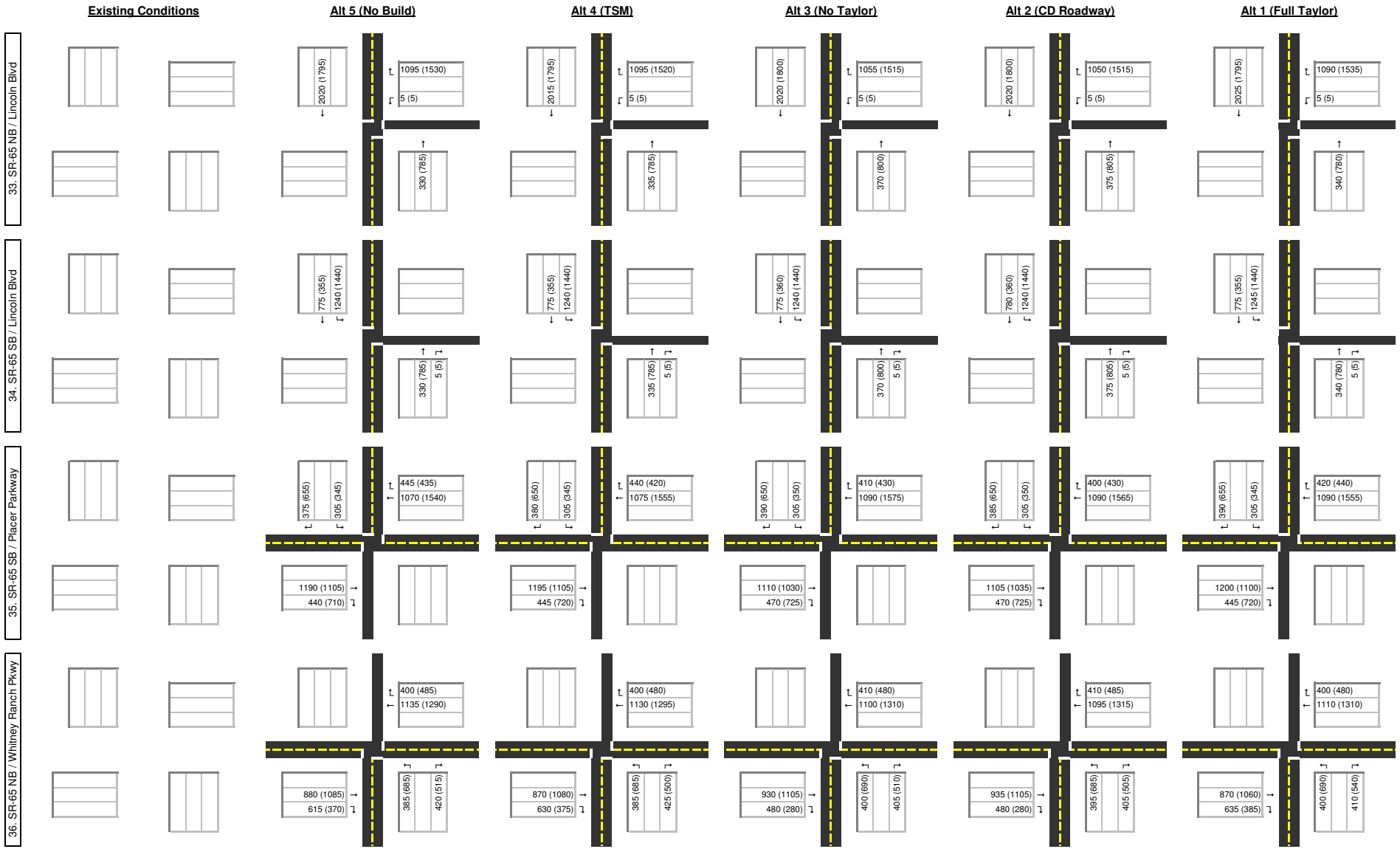
I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes

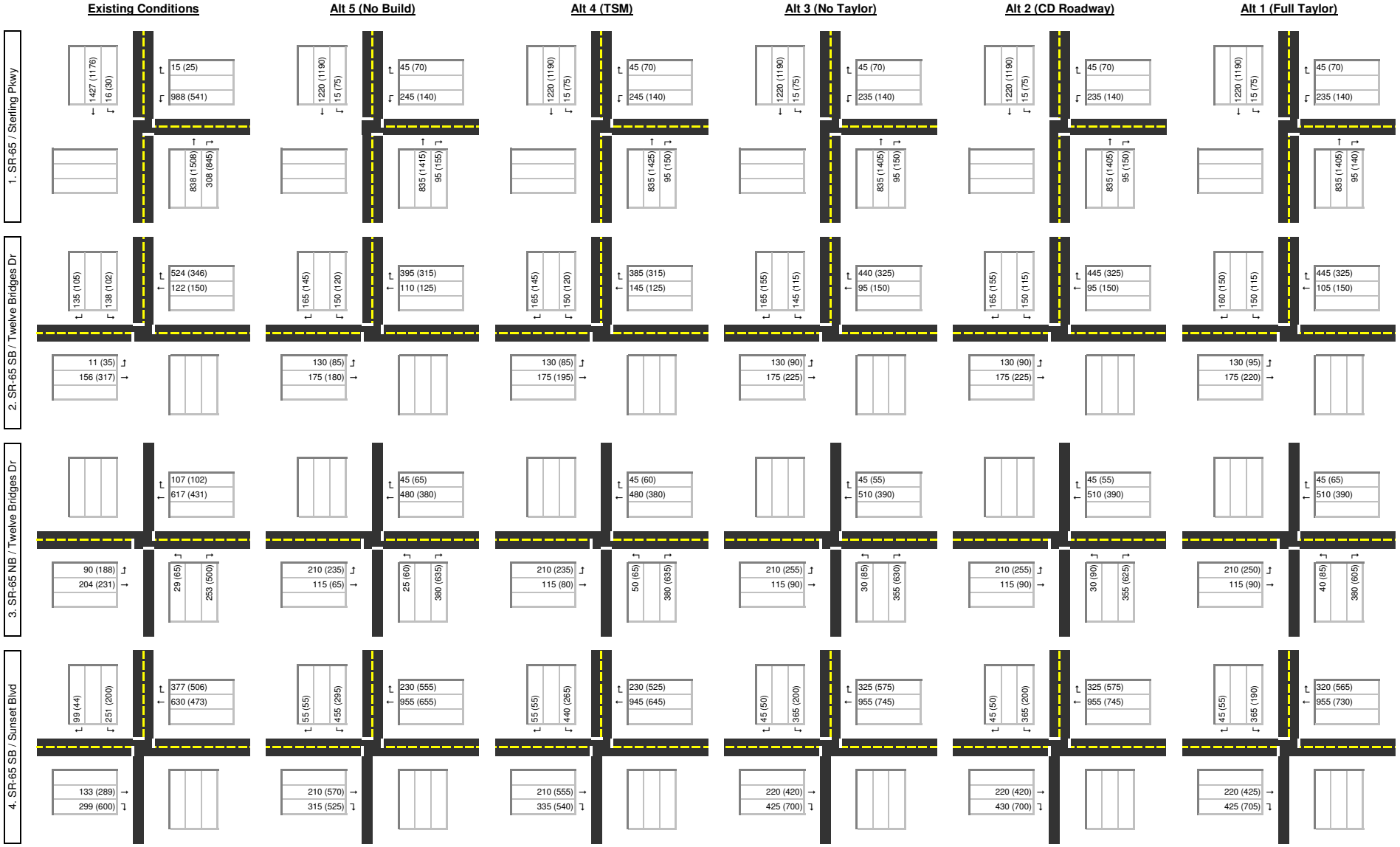
I-80 / SR-65 Interchange
Design Year Forecasts
AM (PM) Peak Hour Volumes



I-80/SR 65 Interchange Improvements

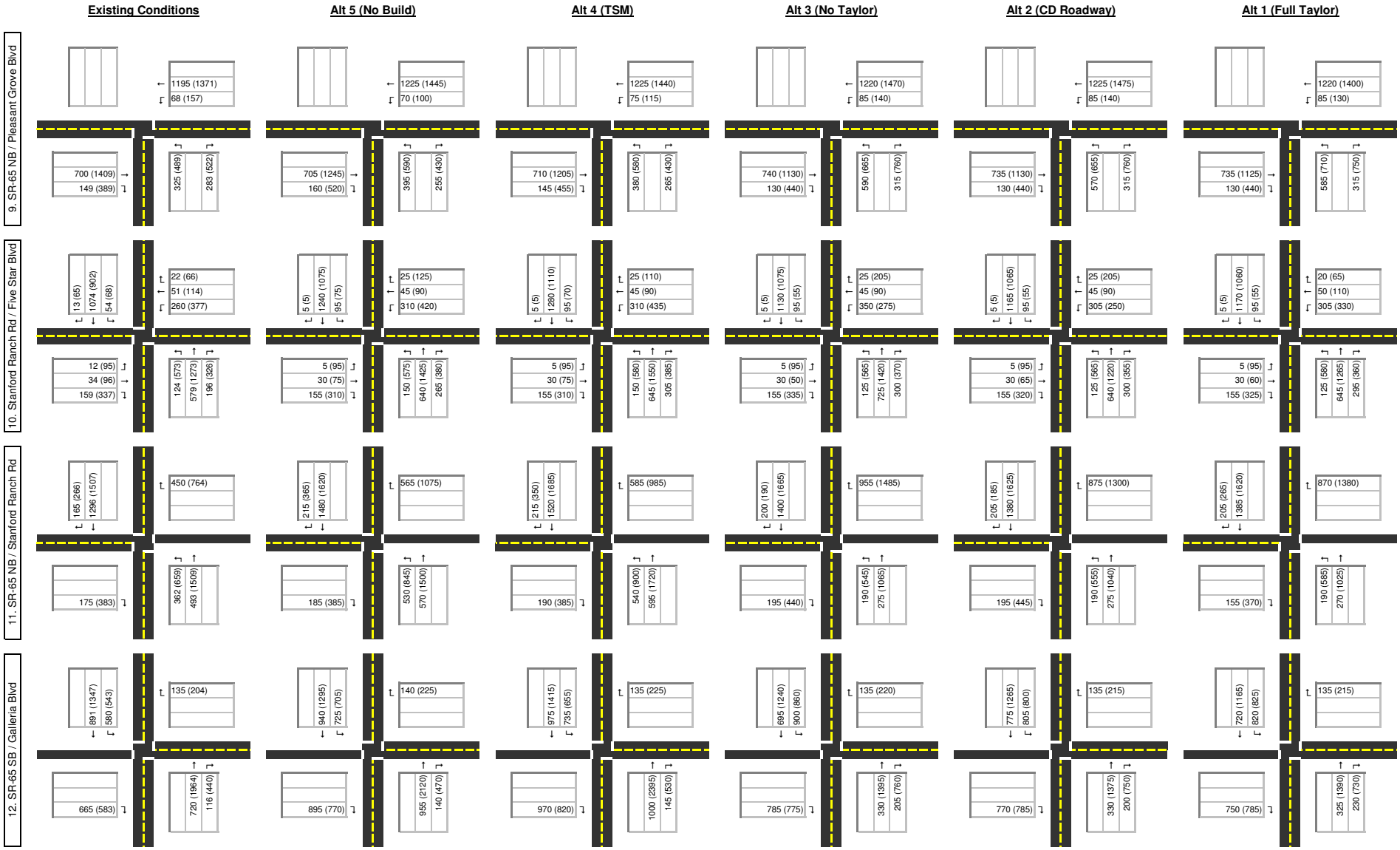
Intersection Volumes – Construction Year

I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes



I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes



I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

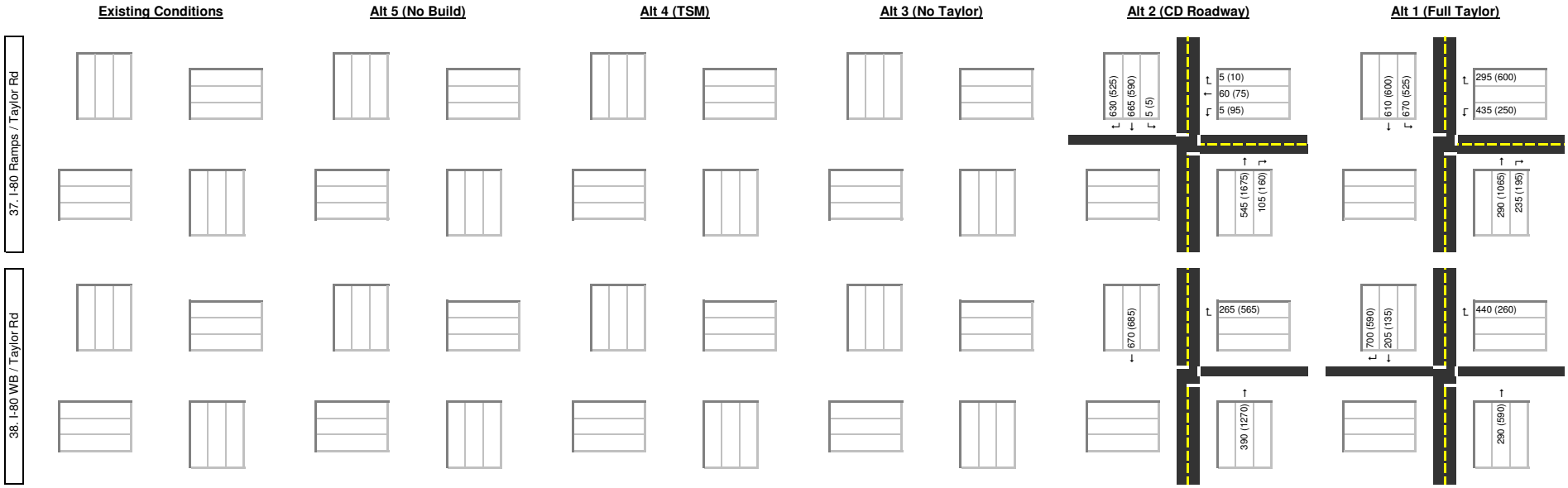
I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

I-80 / SR-65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes



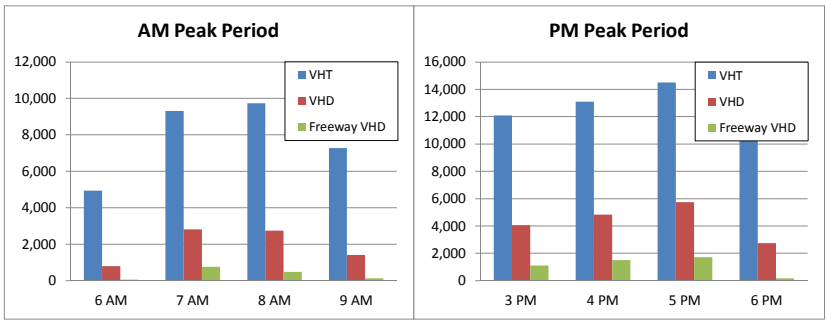
I-80/SR 65 Interchange Improvements

VMT by Speed Bin

I-80/SR-65 Interchange
Existing Conditions

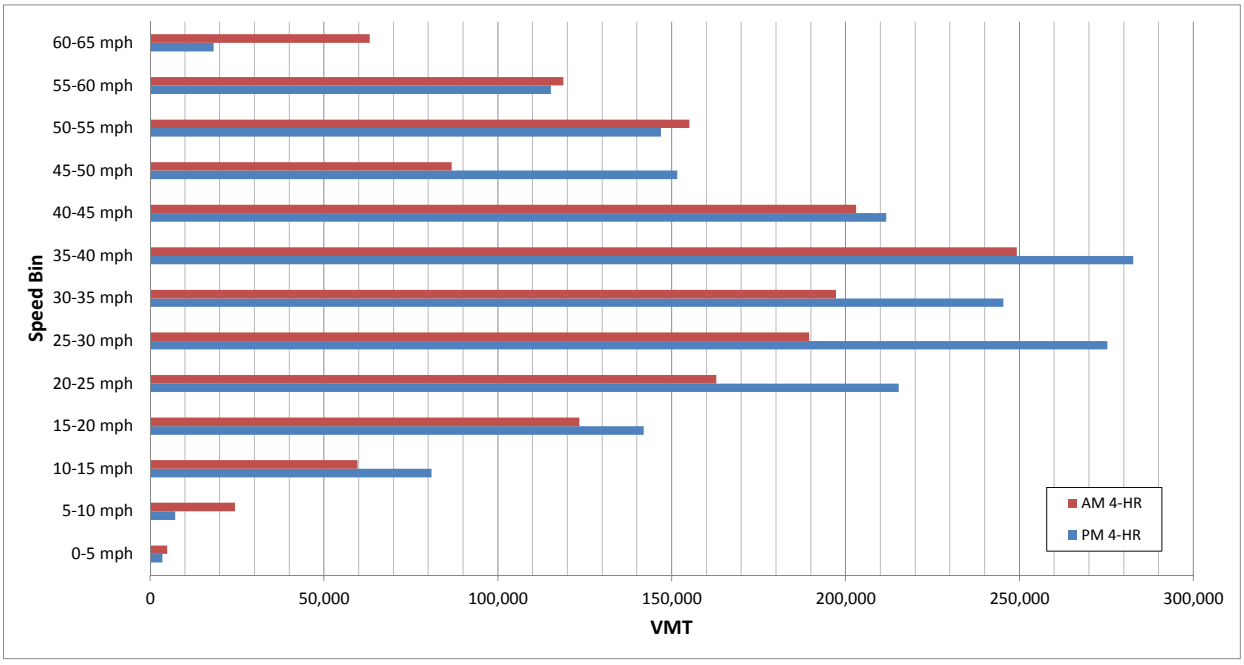
Time	VHT	VHD	Freeway VHD	VMT
6 AM	4,955	815	71	222,524
7 AM	9,325	2,820	768	326,342
8 AM	9,752	2,750	487	342,530
9 AM	7,281	1,422	133	290,677
AM 4-HR	31,314	7,807	1,459	1,182,073
3 PM	12,101	4,072	1,118	388,230
4 PM	13,111	4,838	1,510	399,194
5 PM	14,507	5,760	1,740	418,208
6 PM	10,249	2,753	195	357,162
PM 4-HR	49,967	17,423	4,564	1,562,794
AM & PM	81,281	25,230	6,023	2,744,867

Freeway VHD is delay when speed is less than 35 mph on freeway links



VMT by Speed Bin

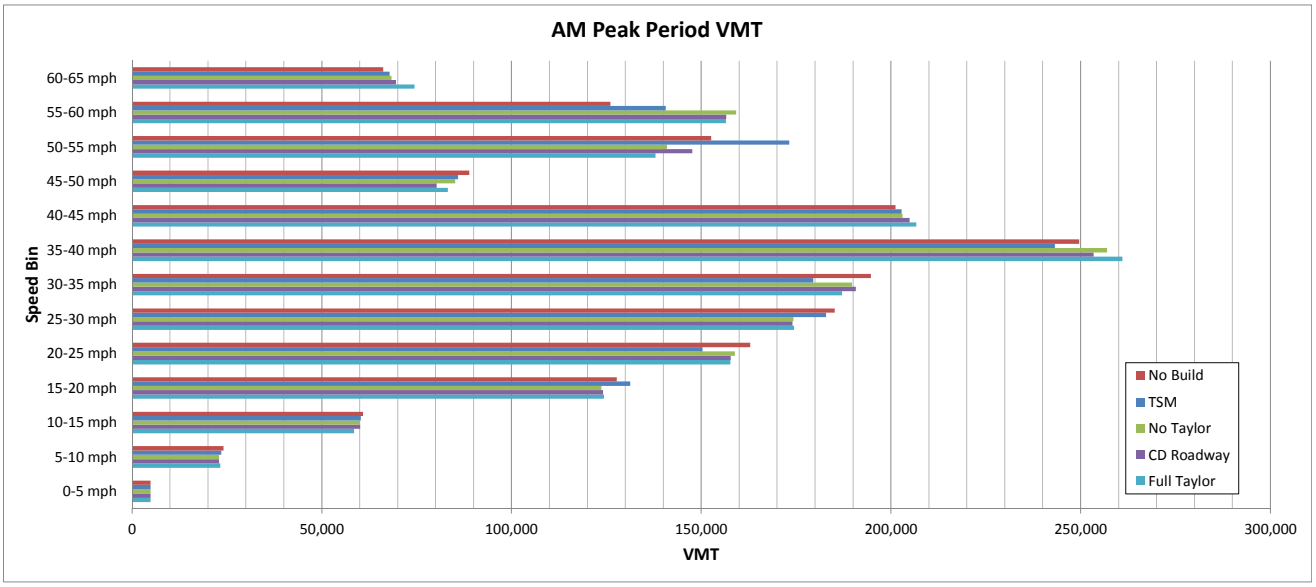
Time	0-5 mph	5-10 mph	10-15 mph	15-20 mph	20-25 mph	25-30 mph	30-35 mph	35-40 mph	40-45 mph	45-50 mph	50-55 mph	55-60 mph	60-65 mph
6 AM	0	20	137	645	19,035	9,907	30,264	43,004	49,530	10,970	19,087	44,052	33,441
7 AM	898	1,734	6,784	46,117	62,160	58,011	67,869	76,657	51,912	24,558	38,864	18,977	5,002
8 AM	2,759	18,713	36,875	47,933	42,238	77,382	52,406	66,414	55,494	35,443	35,724	18,724	10,493
9 AM	1,200	3,910	15,849	28,721	39,373	44,156	46,698	63,137	46,069	15,678	61,416	37,048	14,161
AM 4-HR	4,856	24,377	59,646	123,416	162,806	189,457	197,237	249,212	203,006	86,650	155,092	118,801	63,097
3 PM	986	1,718	10,411	37,741	60,415	71,338	61,776	72,526	58,693	42,953	39,499	23,065	3,348
4 PM	923	2,580	32,375	39,279	61,525	67,866	62,203	82,481	51,583	42,338	34,833	19,799	2,422
5 PM	920	2,593	32,268	32,268	56,983	71,846	70,372	66,839	59,471	41,140	36,252	19,949	2,403
6 PM	652	258	5,883	32,596	36,277	64,218	51,007	60,898	41,940	25,173	36,280	52,444	10,076
PM 4-HR	3,480	7,149	80,936	141,884	215,201	275,268	245,359	282,745	211,688	151,605	146,864	115,257	18,248
AM & PM	8,337	31,526	140,582	265,300	378,006	464,725	442,596	531,956	414,693	238,254	301,955	234,059	81,345



I-80/SR-65 Interchange
Alternative Comparison
Construction Year

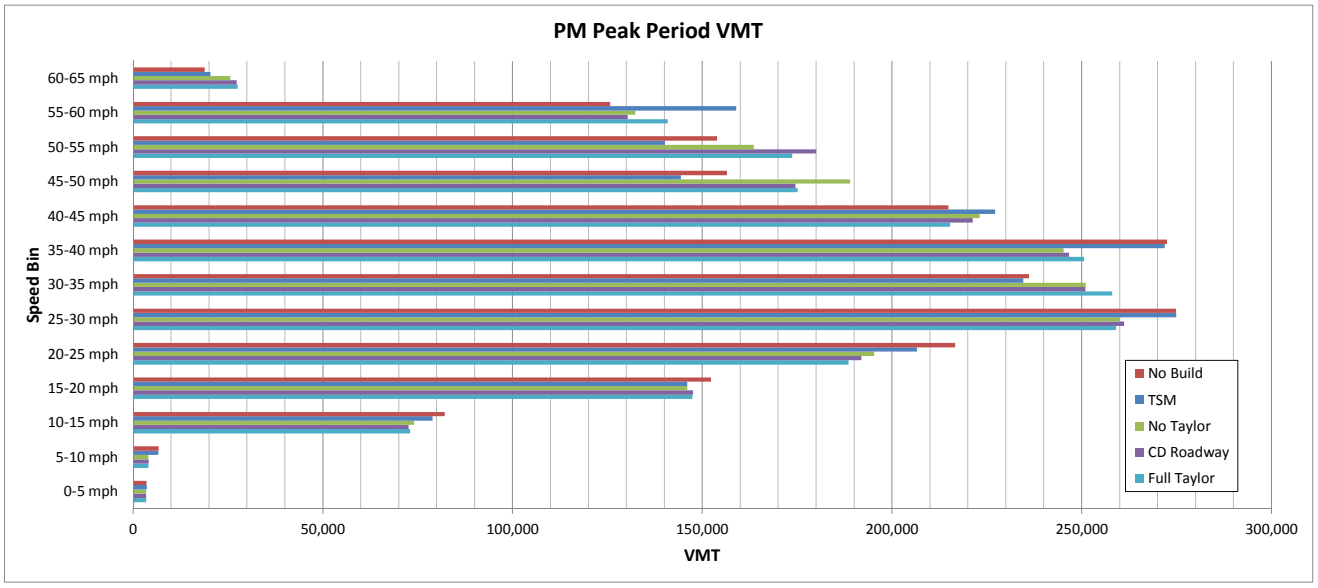
AM Peak Period

	VMT by Speed Bin											
Alt	**0-5 mph**	**5-10 mph**	**10-15 mph**	**15-20 mph**	**20-25 mph**	**25-30 mph**	**30-35 mph**	**35-40 mph**	**40-45 mph**	**45-50 mph**	**50-55 mph**	**55-60 mph**	**60-65 mph**
No Build	4,841	24,038	60,805	127,677	162,862	185,144	194,696	249,582	201,130	88,817	152,614	125,998	66,170
TSM	4,878	23,438	60,230	131,262	150,318	182,839	179,490	243,147	202,798	85,868	173,197	140,581	67,859
No Taylor	4,860	22,865	59,994	123,686	158,830	174,243	189,737	256,887	202,985	85,137	140,917	159,138	68,360
CD Roadway	4,856	22,870	60,044	124,076	157,707	174,050	190,738	253,409	204,906	80,247	147,575	156,561	69,486
Full Taylor	4,858	23,236	58,508	124,376	157,691	174,429	187,073	260,970	206,664	83,186	137,901	156,430	74,455



PM Peak Period

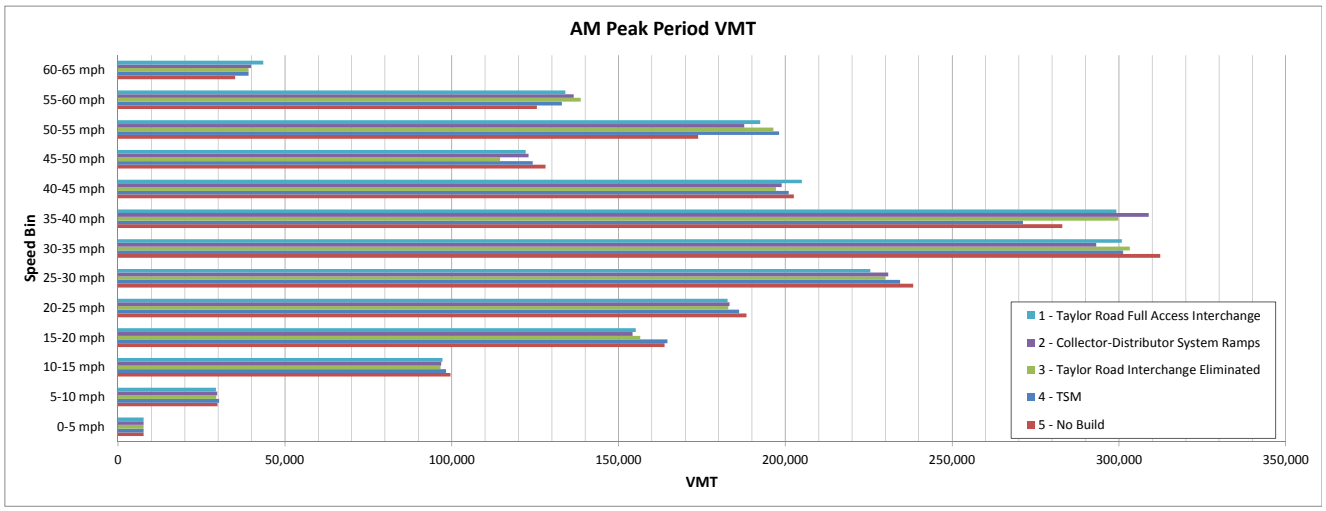
	VMT by Speed Bin											
Alt	**0-5 mph**	**5-10 mph**	**10-15 mph**	**15-20 mph**	**20-25 mph**	**25-30 mph**	**30-35 mph**	**35-40 mph**	**40-45 mph**	**45-50 mph**	**50-55 mph**	**55-60 mph**	**60-65 mph**
No Build	3,482	6,710	82,122	152,253	216,642	274,749	236,071	272,409	214,814	156,477	153,849	125,648	18,803
TSM	3,546	6,613	78,923	146,014	206,569	274,865	234,568	271,808	227,103	144,324	140,143	158,930	20,366
No Taylor	3,401	3,991	74,021	146,003	195,231	259,997	250,998	245,230	223,102	188,914	163,594	132,347	25,589
CD Roadway	3,402	4,091	72,575	147,555	191,854	261,160	250,896	246,663	221,206	174,501	179,986	130,336	27,294
Full Taylor	3,400	3,968	72,960	147,371	188,528	259,036	258,016	250,623	215,265	175,122	173,671	140,834	27,532



I-80/SR-65 Interchange
Alternative Comparison
Design Year

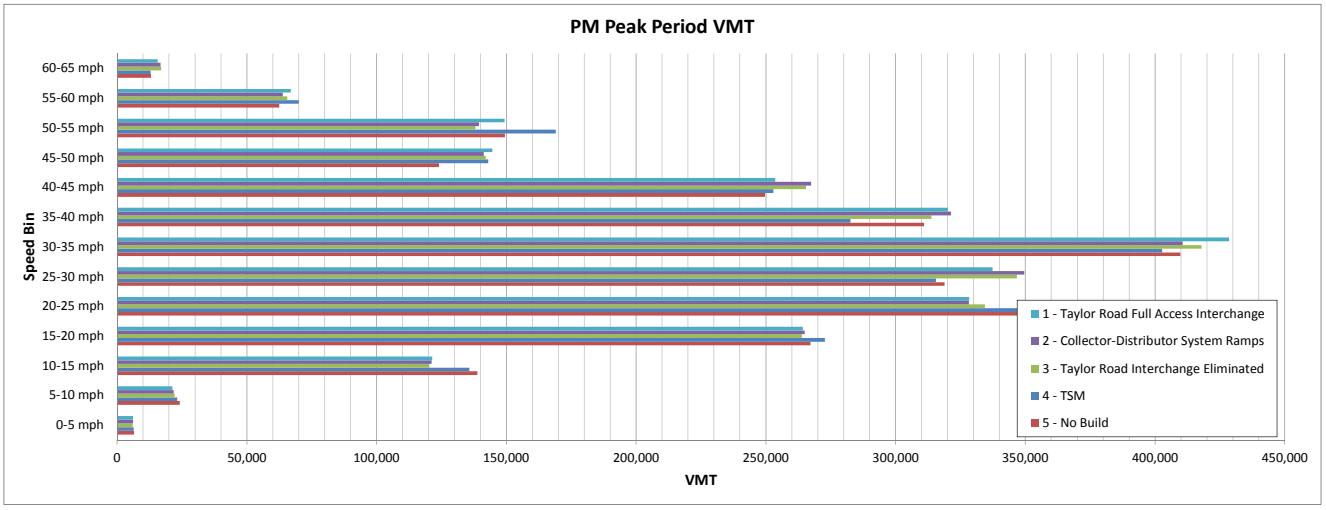
AM Peak Period

	VMT by Speed Bin												
Alternative	**0-5 mph**	**5-10 mph**	**10-15 mph**	**15-20 mph**	**20-25 mph**	**25-30 mph**	**30-35 mph**	**35-40 mph**	**40-45 mph**	**45-50 mph**	**50-55 mph**	**55-60 mph**	**60-65 mph**
1 - Taylor Road Full Access Interchange	7,647	29,351	97,214	155,117	182,666	225,491	300,842	299,215	204,900	122,169	192,441	134,065	43,514
2 - Collector-Distributor System Ramps	7,646	29,664	96,858	154,223	183,311	230,868	293,179	308,924	198,862	123,032	187,694	136,534	39,849
3 - Taylor Road Interchange Eliminated	7,648	29,406	96,640	156,534	182,891	229,849	303,256	299,788	197,207	114,511	196,443	138,670	39,070
4 - TSM	7,652	30,269	98,305	164,671	186,191	234,440	301,253	271,212	201,015	124,267	198,164	132,962	39,146
5 - No Build	7,658	29,844	99,621	163,772	188,337	238,372	312,358	283,011	202,538	128,147	173,869	125,532	35,049



PM Peak Period

	VMT by Speed Bin												
Alternative	**0-5 mph**	**5-10 mph**	**10-15 mph**	**15-20 mph**	**20-25 mph**	**25-30 mph**	**30-35 mph**	**35-40 mph**	**40-45 mph**	**45-50 mph**	**50-55 mph**	**55-60 mph**	**60-65 mph**
1 - Taylor Road Full Access Interchange	6,069	21,318	121,469	264,240	328,346	337,386	428,523	320,152	253,612	144,590	149,340	66,871	15,648
2 - Collector-Distributor System Ramps	6,116	21,810	121,160	264,995	328,233	349,576	410,613	321,360	267,412	141,234	139,423	63,855	16,686
3 - Taylor Road Interchange Eliminated	6,002	22,220	120,270	263,891	334,407	346,694	417,930	313,827	265,490	142,070	138,045	65,510	16,978
4 - TSM	6,436	23,086	135,689	272,795	371,521	315,536	402,741	282,660	252,941	142,964	169,001	70,069	12,961
5 - No Build	6,439	24,119	138,866	267,170	384,065	318,886	409,726	310,929	249,654	123,975	149,400	62,470	13,027



I-80/SR 65 Interchange Improvements

Sensitivity Tests

David Stanek

From: David Stanek
Sent: Thursday, September 05, 2013 9:19 AM
To: 'Leo.Heuston@CH2M.com'; jim.calkins@dot.ca.gov; christine_zdunkiewicz@dot.ca.gov; scott_w_mann@dot.ca.gov; william_mack@dot.ca.gov; samuel.jordan@dot.ca.gov; D Michael Smith (d_michael_smith@dot.ca.gov); Ronald Milam; lmcneel-caird@pctpa.net; D Michael Smith (d.michael.smith@dot.ca.gov)
Cc: Chris.Benson@CH2M.com; Lauren.Proctor@ch2m.com; Katie Jackson; Mann, Scott W@DOT
Subject: Material for Sep 11 Traffic Focus Meeting
Attachments: July-August 80-65 Traffic Correspondence.docx; Sensitivity Test 1.pdf; Sensitivity Test 2.pdf; I-80EB_ContourMaps Sens Test 3.pdf

Please review the attached material for the September 11 meeting on the I-80/SR-65 Interchange traffic analysis.

- The memo summarizes the comments and responses among the project team during July and August.
- The pdf files show the sensitivity test results.

The three sensitivity test results are discussed below. We will discuss these results during the meeting next week.

Sensitivity Test 1
This test investigates closing the westbound slip off-ramp to Atlantic Street. With a combined two-lane loop off-ramp, the weaving segment between SR 65 and Atlantic St operates with LOS C during the AM peak hour under design year conditions with the No Taylor Alternative. The Synchro results for the reconfigured westbound I-80 ramp terminal intersection at Atlantic Street show acceptable LOS B conditions. The 95th percentile queue for the off-ramp is about 150 ft for the left turns. The existing free movement for the right turns is assumed to remain.

Sensitivity Test 2
The table shows the Leisch Method analysis results for I-80 weaving segments under the design year for the No Taylor Alternative. For each segment, the LOS is listed along with two failure (LOS F) conditions. The first shows the amount of overall traffic growth needed until LOS F occurs. The second shows the change in the proportion of on-ramp traffic destined for the freeway (as opposed to the downstream on-ramp).

The first segment – Douglas Blvd to Eureka Rd – has LOS F conditions, even with the auxiliary lane and 2-lane off-ramp. In the simulation, this segment is not LOS F due to an upstream constraint at the Douglas Blvd slip off-ramp. A decrease in overall volume by 2% would yield LOS E conditions. Similarly, a change from 91% to 88% of the ramp to mainline proportion would result in LOS E.

The segment of greatest concern – Eureka Rd to SR 65 – has LOS D conditions. The volume would need to grow by 25% to have LOS F according to the Leisch Method. The ramp to mainline percentage would have to increase from 27% (as previously mentioned, 73% of the Eureka Rd on-ramp goes to SR-65) to 63%.

The other segments have LOS E or better conditions. The SR 65 to Atlantic St segment would need significant growth to show LOS F conditions. Given the higher volume on the adjacent loop off-ramp, this segment was calculated two different ways: the second one includes the loop off as part of the "off-ramp" volume.

Sensitivity Test 3
As previously reported, increasing the distance at which vehicles in the model become aware of the SR-65 off-ramp creates more congestion upstream. Drivers that anticipate the off-ramp overload the rightmost lane between the Eureka Rd off-ramp and loop on-ramp. The attached contour map shows the additional congestion, which would only occur around the Eureka Rd interchange.

Decreasing the awareness distance generates more vehicles “diving over” at the last minute to take the SR-65 off-ramp. This test showed similar results in the speed contour map as the original settings. No additional congestion would result.

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Leisch Method for Weaving Analysis

Data Input

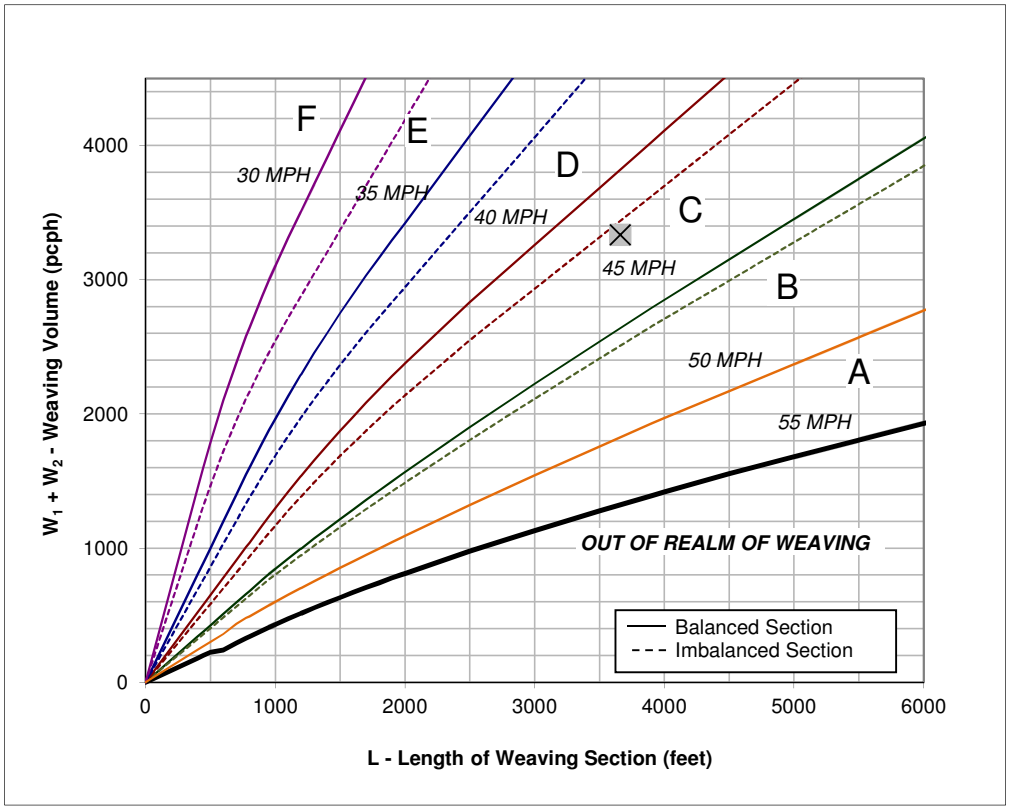
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	3,660

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,550	Volume (vph)*	2,660	Volume (vph)*	560
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,779	Volume (pcph)	2,753	Volume (pcph)	580

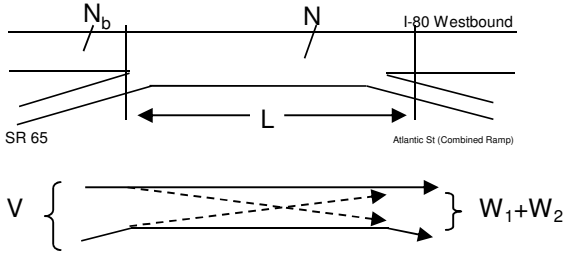
Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 Westbound
On-ramp	SR 65
Off-ramp	Atlantic St (Combined Ramp)

	Entering Volume	Growth
Mainline	2,830	100%
On-ramp	3,720	Ramp Split
Off-ramp	1,620	72%



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **42.1**
4. Weaving Intensity Factor (k) **3.10**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,333**
6. Level of Service (LOS) **C**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

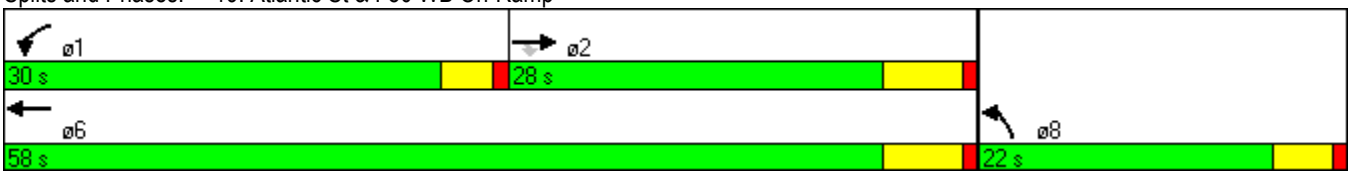
* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	874	268	637	536	385	1186
Turn Type		Perm	Prot			Free
Protected Phases	2		1	6	8	
Permitted Phases		2				Free
Detector Phase	2	2	1	6	8	
Switch Phase						
Minimum Initial (s)	8.0	8.0	3.0	8.0	4.0	
Minimum Split (s)	19.7	19.7	7.0	13.7	8.5	
Total Split (s)	28.0	28.0	30.0	58.0	22.0	0.0
Total Split (%)	35.0%	35.0%	37.5%	72.5%	27.5%	0.0%
Yellow Time (s)	4.7	4.7	3.0	4.7	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	2.0	0.0	0.0
Total Lost Time (s)	3.7	3.7	2.0	7.7	4.5	4.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Max	Max	C-Max	None	None	
Act Effct Green (s)	24.3	24.3	31.1	53.4	14.4	80.0
Actuated g/C Ratio	0.30	0.30	0.39	0.67	0.18	1.00
v/c Ratio	0.60	0.42	0.50	0.24	0.66	0.80
Control Delay	26.9	8.4	21.5	7.9	35.5	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	8.4	21.5	7.9	35.5	4.4
LOS	C	A	C	A	D	A
Approach Delay	22.6			15.3	12.0	
Approach LOS	C			B	B	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 57 (71%), Referenced to phase 1:WBL, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 19: Atlantic St & I-80 WB On-Ramp



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	920	282	671	564	405	1248
v/c Ratio	0.60	0.42	0.50	0.24	0.66	0.80
Control Delay	26.9	8.4	21.5	7.9	35.5	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	8.4	21.5	7.9	35.5	4.4
Queue Length 50th (ft)	162	14	168	86	97	0
Queue Length 95th (ft)	301	208	m179	m90	136	0
Internal Link Dist (ft)	1051			1192	393	
Turn Bay Length (ft)		255				
Base Capacity (vph)	1545	667	1335	2362	751	1562
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.42	0.50	0.24	0.54	0.80

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	874	268	637	536	385	1186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.7	3.7	2.0	7.7	4.5	4.0
Lane Util. Factor	0.91	1.00	0.97	0.95	0.97	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5085	1551	3433	3539	3433	1562
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	5085	1551	3433	3539	3433	1562
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	920	282	671	564	405	1248
RTOR Reduction (vph)	0	196	0	0	0	0
Lane Group Flow (vph)	920	86	671	564	405	1248
Confl. Peds. (#/hr)		5				5
Turn Type		Perm	Prot			Free
Protected Phases	2		1	6	8	
Permitted Phases		2				Free
Actuated Green, G (s)	22.3	22.3	29.1	55.4	14.4	80.0
Effective Green, g (s)	24.3	24.3	31.1	53.4	14.4	80.0
Actuated g/C Ratio	0.30	0.30	0.39	0.67	0.18	1.00
Clearance Time (s)	5.7	5.7	4.0	5.7	4.5	
Vehicle Extension (s)	3.4	3.4	2.0	3.0	3.0	
Lane Grp Cap (vph)	1545	471	1335	2362	618	1562
v/s Ratio Prot	0.18		0.20	0.16	0.12	
v/s Ratio Perm		0.06				c0.80
v/c Ratio	0.60	0.18	0.50	0.24	0.66	0.80
Uniform Delay, d1	23.7	20.5	18.6	5.3	30.5	0.0
Progression Factor	1.07	3.09	1.09	1.41	1.00	1.00
Incremental Delay, d2	1.6	0.8	0.6	0.0	2.5	4.4
Delay (s)	26.8	64.1	20.9	7.5	33.0	4.4
Level of Service	C	E	C	A	C	A
Approach Delay (s)	35.6			14.8	11.4	
Approach LOS	D			B	B	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Weaving Segment Sensitivity Tests

2040 No Taylor Alternative

Freeway	From	To	Peak Hour	LOS	Growth for LOS E	Growth for LOS F	On to ML Percent Modeled	On to ML Percent For LOS F
EB 80	Douglas Blvd	Eureka Rd	PM	F	-2%	0%[1]	91%	88%
EB 80	Eureka Rd	SR 65	PM	D	11%	25%	27%	63%
WB 80	SR 65	Atlantic St WB	AM	C	23%	36%	97%	[2]
WB 80	SR 65	Atlantic St WB & EB*	AM	D	9%	29%	79%	[2]
WB 80	Douglas Blvd WB & EB*	Riverside Ave	PM	E	0%[3]	2%	96%	100%

Notes

* Ramps are combined, but the weaving length does not include distance between ramps

1. Douglas to Eureka segment is at LOS F. A decrease of 2% in volumes would result in LOS E. Changing from 91 to 88% on-ramp to mainline percentage would result in LOS E.

2. Increasing the on-ramp to mainline percentage to 100% does not result in LOS F.

3. Douglas to Riverside segment is at LOS E.

Leisch Method for Weaving Analysis

Data Input

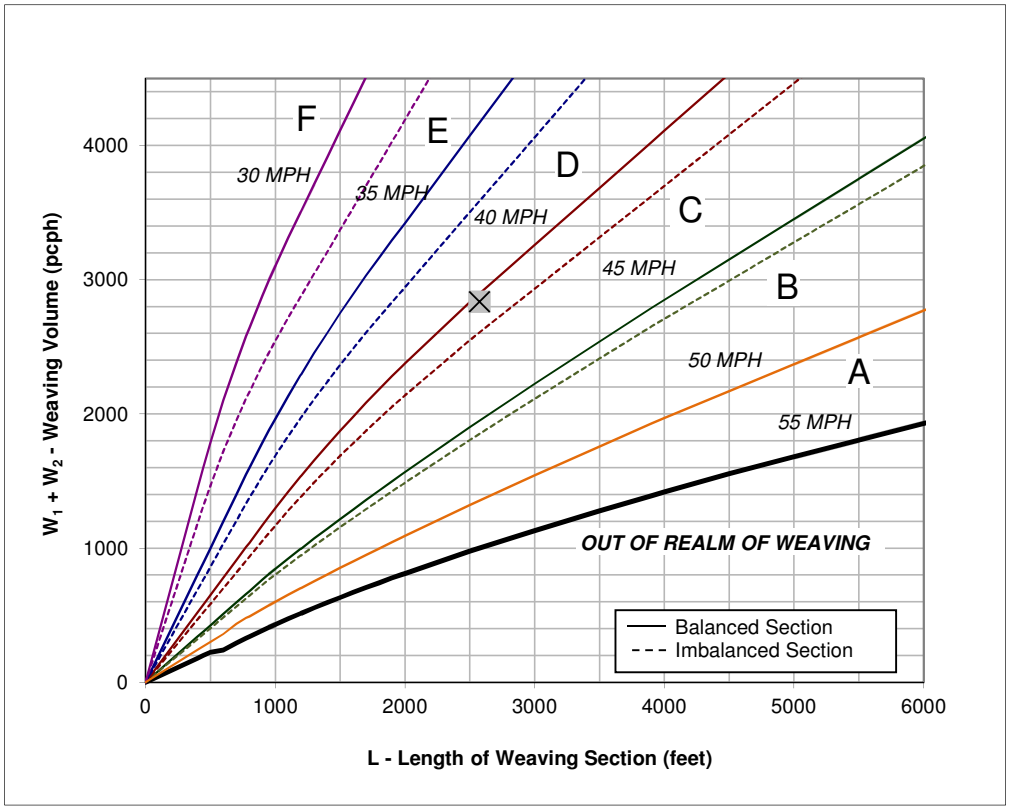
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,575

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,675	1,640	1,100
Truck Percentage	7%	7%	7%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,944	1,697	1,139

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 EB
On-ramp	Douglas Blvd
Off-ramp	Eureka Rd

	Entering Volume	Growth
Mainline	5,690	100%
On-ramp	1,800	Ramp Split
Off-ramp	1,260	91%
HOV	1,450	13%



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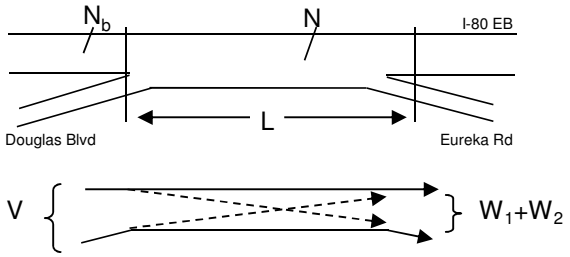


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **40.3**
4. Weaving Intensity Factor (k) **2.51**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,933**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

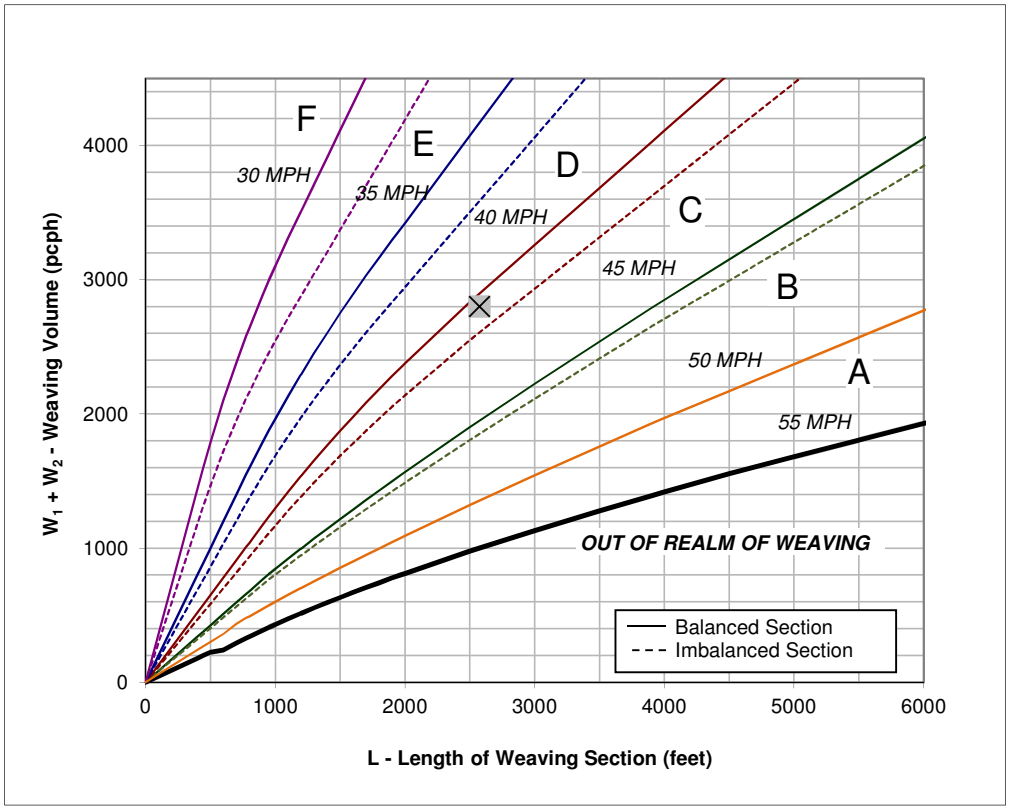
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,575

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,520	1,605	1,100
Truck Percentage	7%	7%	7%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	7,783	1,661	1,139

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 EB
On-ramp	Douglas Blvd
Off-ramp	Eureka Rd

	Entering Volume	Growth
Mainline	5,575	98%
On-ramp	1,765	Ramp Split
Off-ramp	1,260	91%
HOV	1,420	13%



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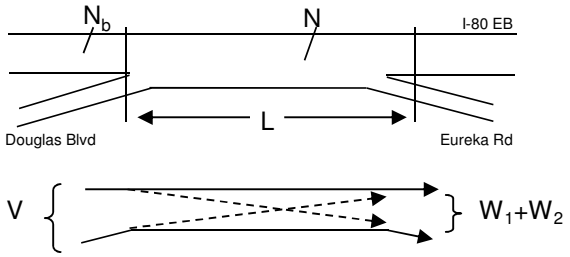


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **40.5**
4. Weaving Intensity Factor (k) **2.49**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,896**
6. Level of Service (LOS) **E**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

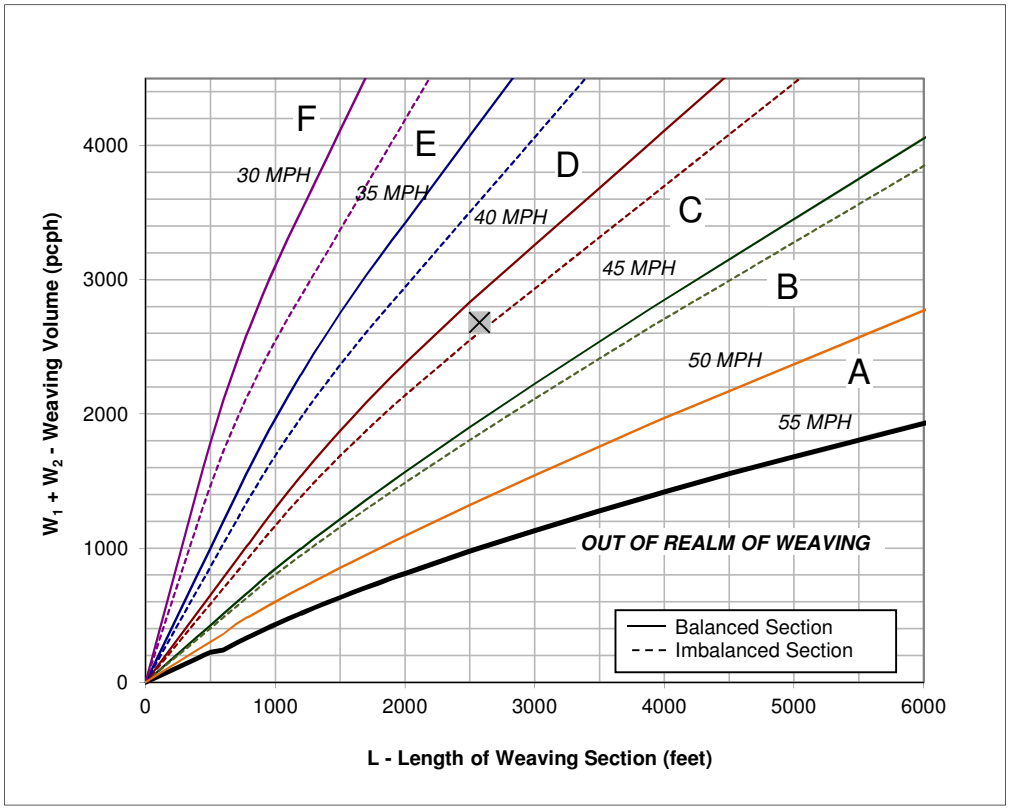
Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,575

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,675	Volume (vph)*	1,565	Volume (vph)*	1,025
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,944	Volume (pcph)	1,620	Volume (pcph)	1,061

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 EB
On-ramp	Douglas Blvd
Off-ramp	Eureka Rd

	Entering Volume	Growth
Mainline	5,690	100%
On-ramp	1,800	Ramp Split
Off-ramp	1,260	87%
HOV	1,450	13%



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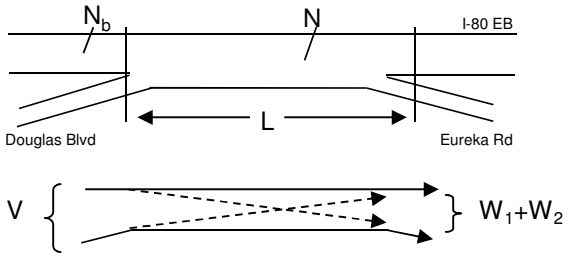


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **41.1**
4. Weaving Intensity Factor (k) **2.43**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,892**
6. Level of Service (LOS) **E**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

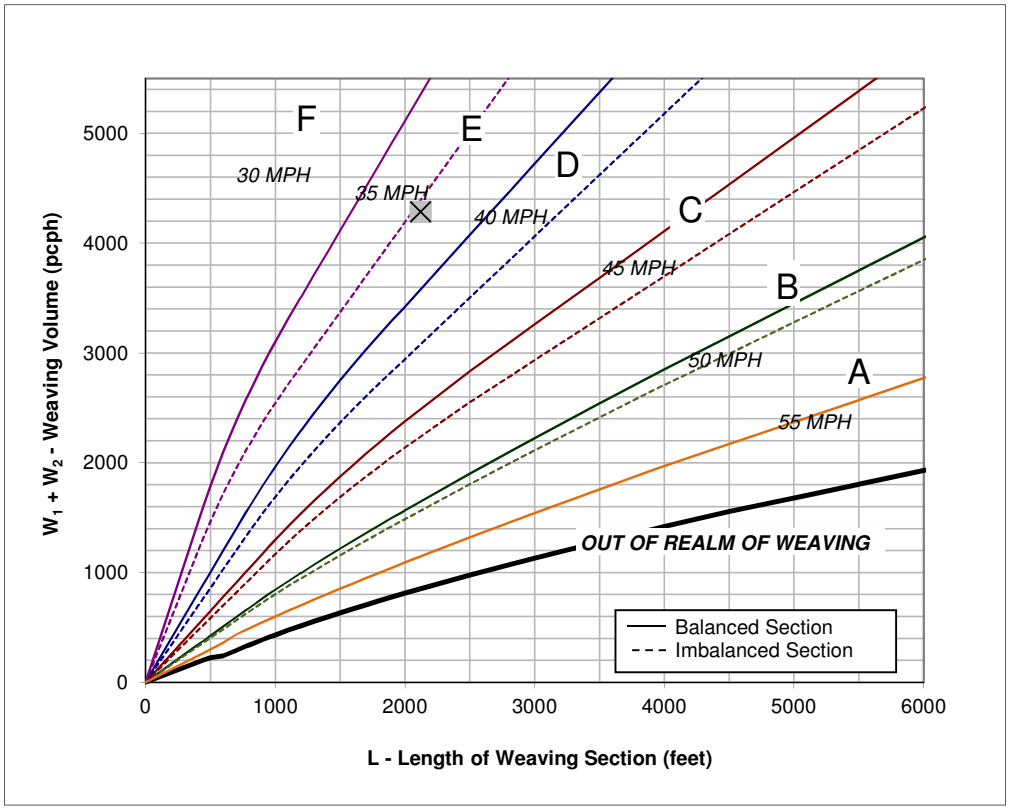
Number of Entering Mainline Lanes	N_b	5
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,120

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,900	385	3,755
Truck Percentage	7%	7%	7%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	8,177	398	3,886

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 EB
On-ramp	Eureka Rd WB
Off-ramp	SR 65

	Entering Volume	Growth
Mainline	6,480	100%
On-ramp	1,420	Ramp Split
Off-ramp	4,790	27%



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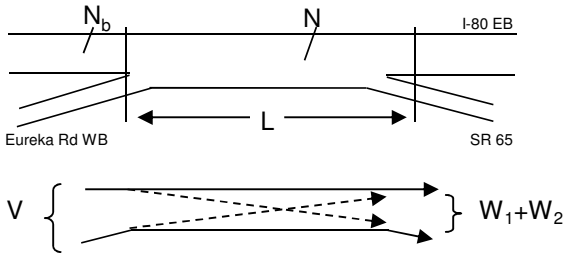


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **35 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **33.0**
4. Weaving Intensity Factor (k) **3.00**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,496**
6. Level of Service (LOS) **D**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

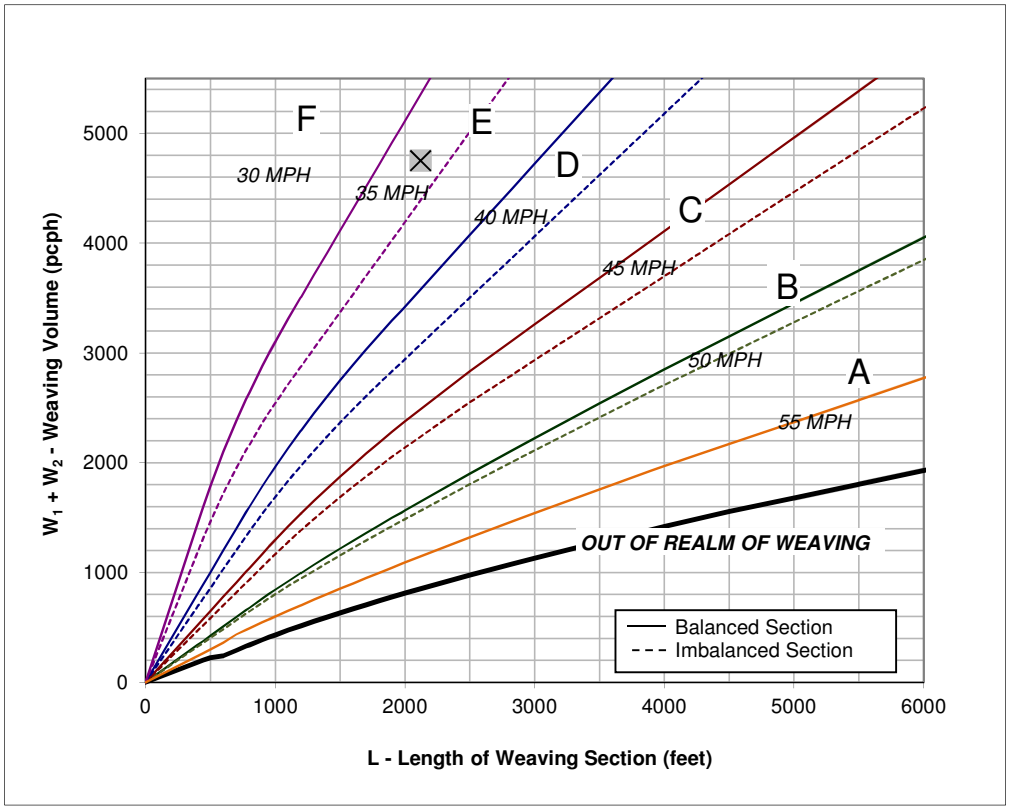
Number of Entering Mainline Lanes	N_b	5
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,120

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	8,770	425	4,165
Truck Percentage	7%	7%	7%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	9,077	440	4,311

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 EB
On-ramp	Eureka Rd WB
Off-ramp	SR 65

	Entering Volume	Growth
Mainline	7,195	111%
On-ramp	1,575	Ramp Split
Off-ramp	5,315	27%



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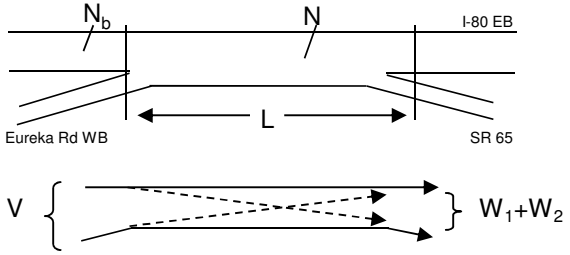


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **35 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **31.7**
4. Weaving Intensity Factor (k) **3.00**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,659**
6. Level of Service (LOS) **E**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

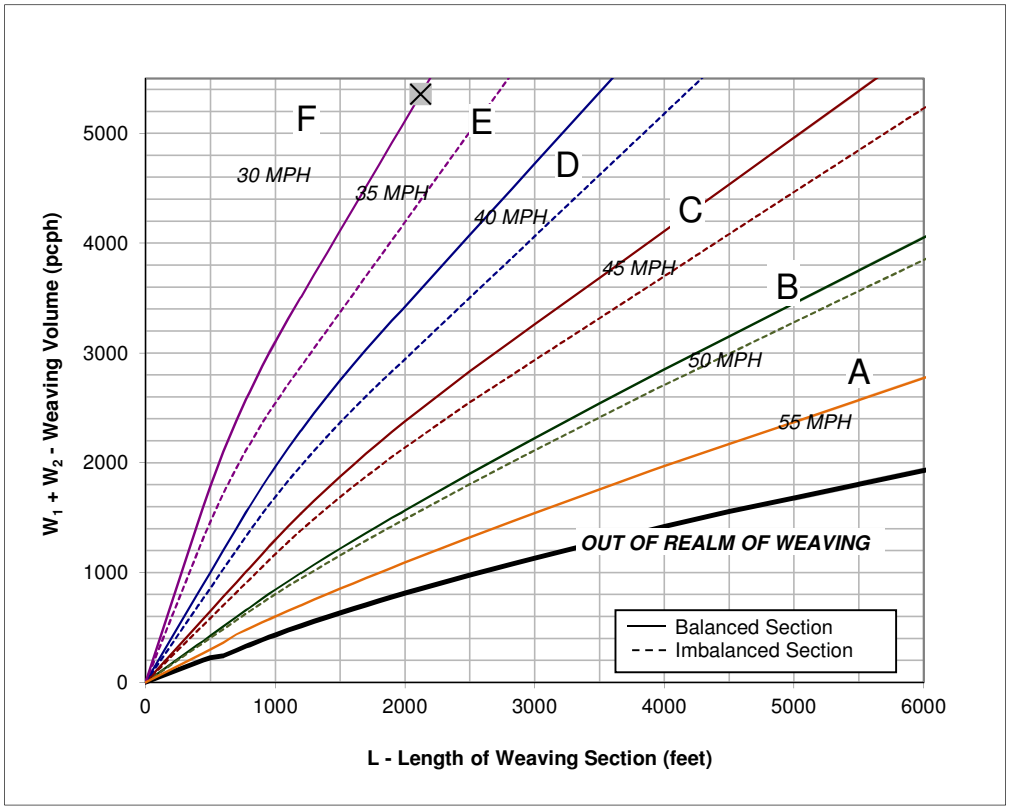
Number of Entering Mainline Lanes	N_b	5
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,120

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	9,875	480	4,695
Truck Percentage	7%	7%	7%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	10,221	497	4,859

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 EB
On-ramp	Eureka Rd WB
Off-ramp	SR 65

	Entering Volume	Growth
Mainline	8,100	125%
On-ramp	1,775	Ramp Split
Off-ramp	5,990	27%



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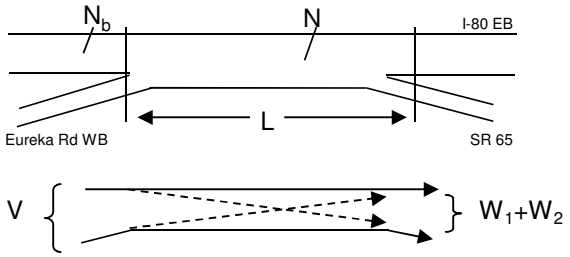


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **30 MPH** -
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) -
4. Weaving Intensity Factor (k) -
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ -
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

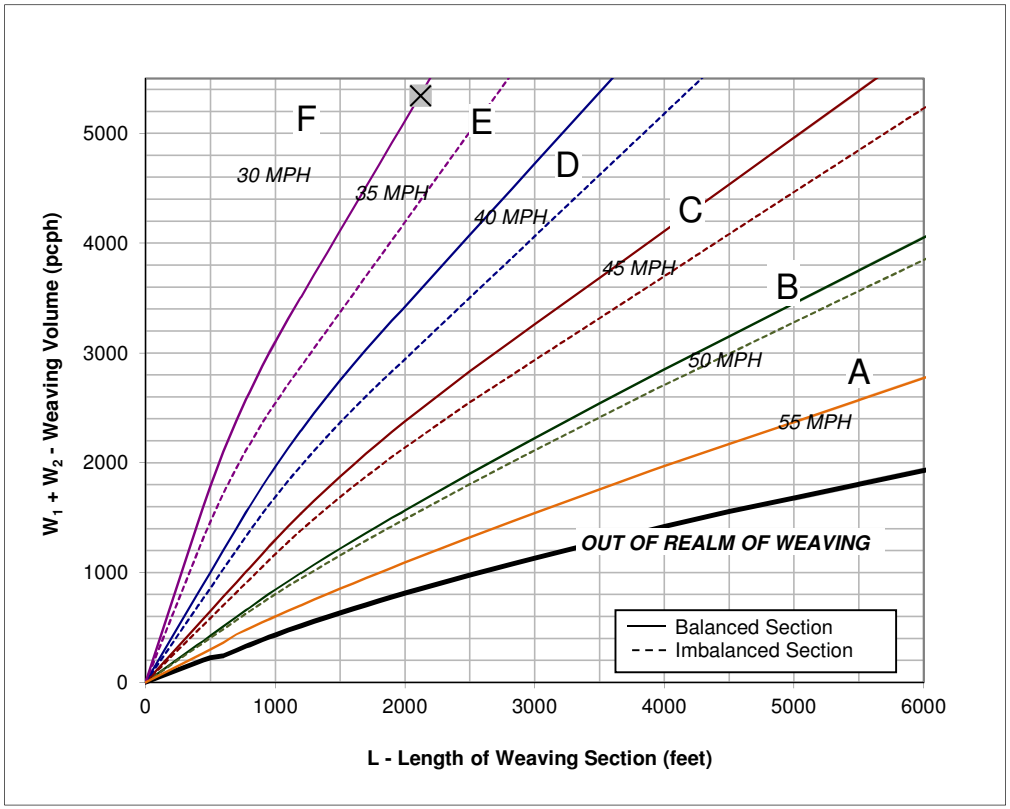
Number of Entering Mainline Lanes	N_b	5
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,120

	Total Weaving Section (V)	On-ramp to Mainline (W_1)	Mainline to Off-ramp (W_2)
Volume (vph)*	7,900	895	4,265
Truck Percentage	7%	7%	7%
PCE for Trucks	1.5	1.5	1.5
Volume (pcph)	8,177	926	4,414

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 EB
On-ramp	Eureka Rd WB
Off-ramp	SR 65

	Entering Volume	Growth
Mainline	6,480	100%
On-ramp	1,420	Ramp Split
Off-ramp	4,790	63%



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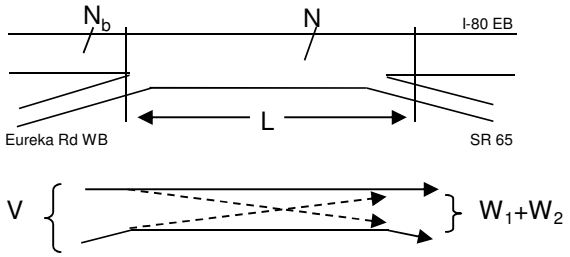


Capacity Analysis

1. Is the weaving section balanced (Y / N)? [If optional exit lane, then "Y". Otherwise "N".]	Y
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?	**30 MPH** and **30 MPH** -
If below the 55 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F.	
3. Interpolated Weaving Speed (S_w, mph)	-
4. Weaving Intensity Factor (k)	-
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	-
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

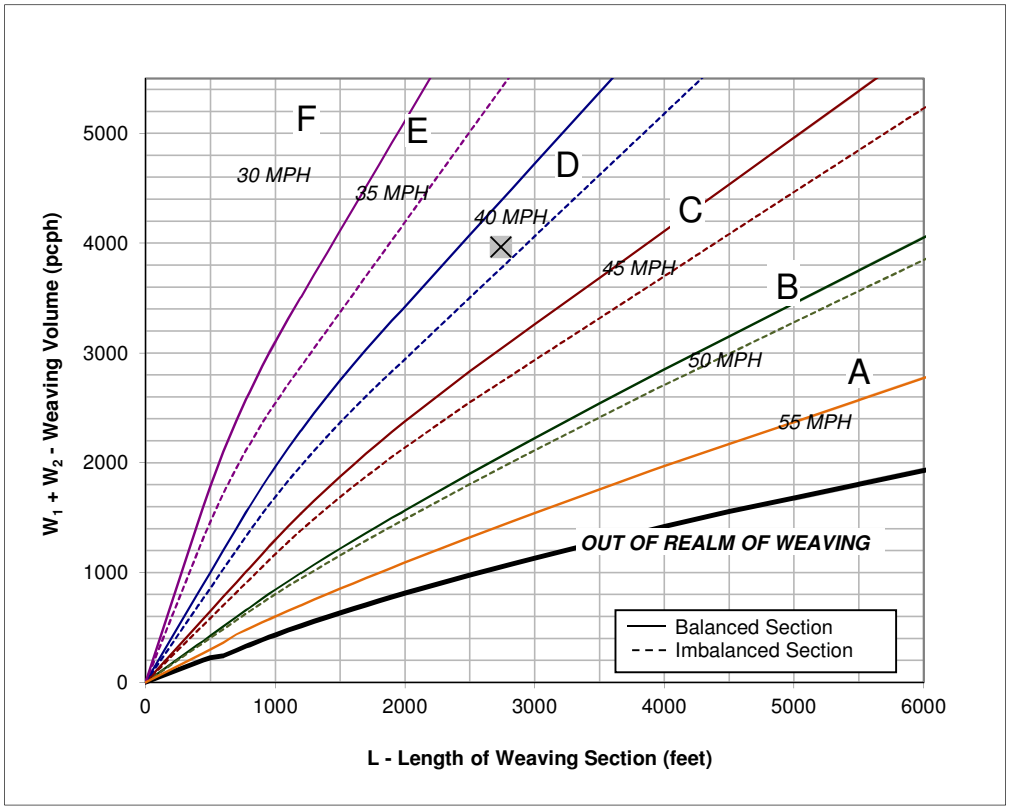
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,740

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,990	Volume (vph)*	3,550	Volume (vph)*	280
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,235	Volume (pcph)	3,674	Volume (pcph)	290

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor AM
Freeway	I-80 Westbound
On-ramp	SR 65
Off-ramp	Atlantic St WB

	Entering Volume	Growth
Mainline	3,330	100%
On-ramp	3,660	Ramp Split
Off-ramp	390	97%



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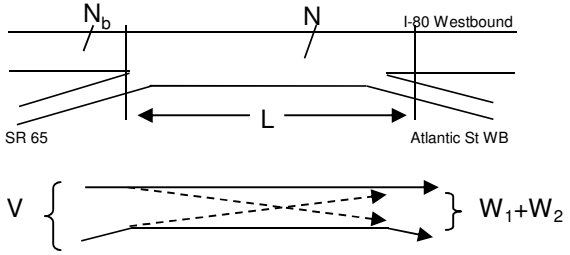


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **35 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **34.4**
4. Weaving Intensity Factor (k) **3.00**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,302**
6. Level of Service (LOS) **C**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

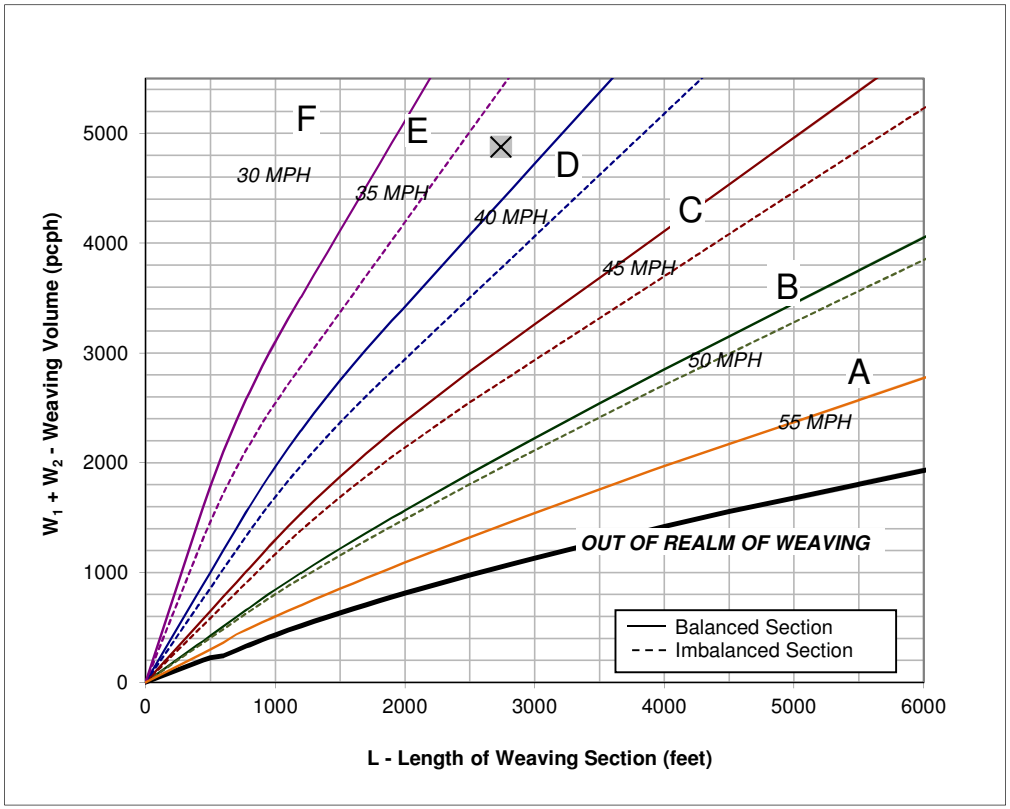
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,740

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,595	Volume (vph)*	4,365	Volume (vph)*	345
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,896	Volume (pcph)	4,518	Volume (pcph)	357

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor AM
Freeway	I-80 Westbound
On-ramp	SR 65
Off-ramp	Atlantic St WB

	Entering Volume	Growth
Mainline	4,095	123%
On-ramp	4,500	Ramp Split
Off-ramp	480	97%



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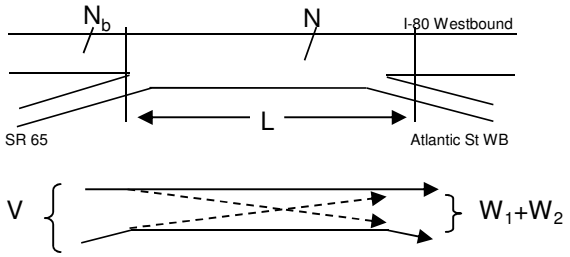


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **35 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **31.6**
4. Weaving Intensity Factor (k) **3.00**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,602**
6. Level of Service (LOS) **E**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

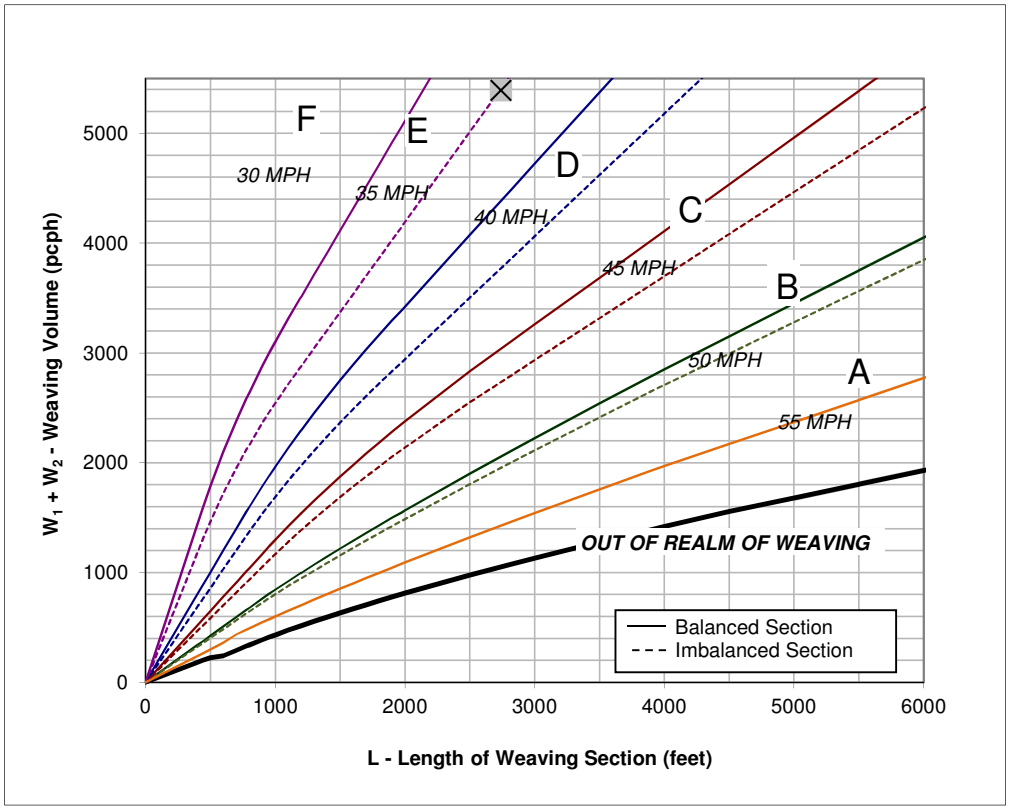
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,740

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,510	Volume (vph)*	4,830	Volume (vph)*	380
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,843	Volume (pcph)	4,999	Volume (pcph)	393

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor AM
Freeway	I-80 Westbound
On-ramp	SR 65
Off-ramp	Atlantic St WB

	Entering Volume	Growth
Mainline	4,530	136%
On-ramp	4,980	Ramp Split
Off-ramp	530	97%



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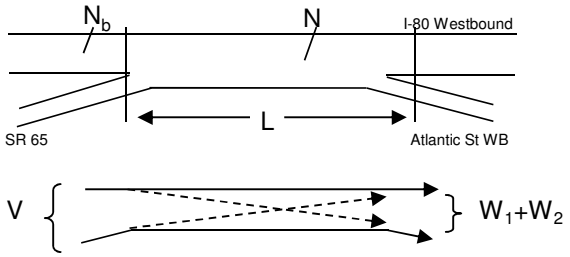


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **30 MPH** -
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) -
4. Weaving Intensity Factor (k) -
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ -
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

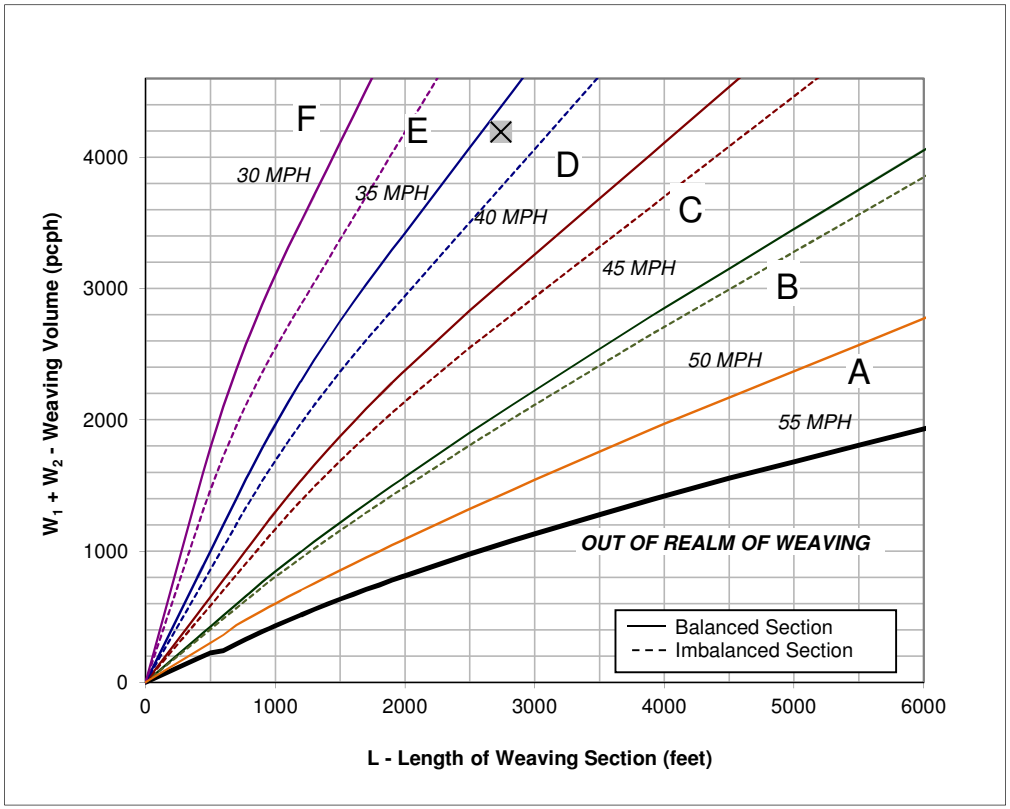
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,740

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,990	Volume (vph)*	3,660	Volume (vph)*	390
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,235	Volume (pcph)	3,788	Volume (pcph)	404

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor AM
Freeway	I-80 Westbound
On-ramp	SR 65
Off-ramp	Atlantic St WB

	Entering Volume	Growth
Mainline	3,330	100%
On-ramp	3,660	Ramp Split
Off-ramp	390	100%



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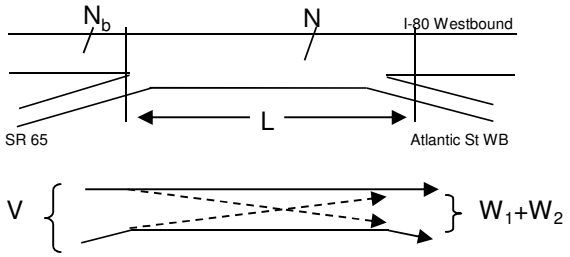


Capacity Analysis

1. Is the weaving section balanced (Y / N)? [If optional exit lane, then "Y". Otherwise "N".]	N
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?	**30 MPH** and **35 MPH**
If below the 55 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F.	
3. Interpolated Weaving Speed (S_w, mph)	33.7
4. Weaving Intensity Factor (k)	3.00
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	1,340
6. Level of Service (LOS)	C

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,740

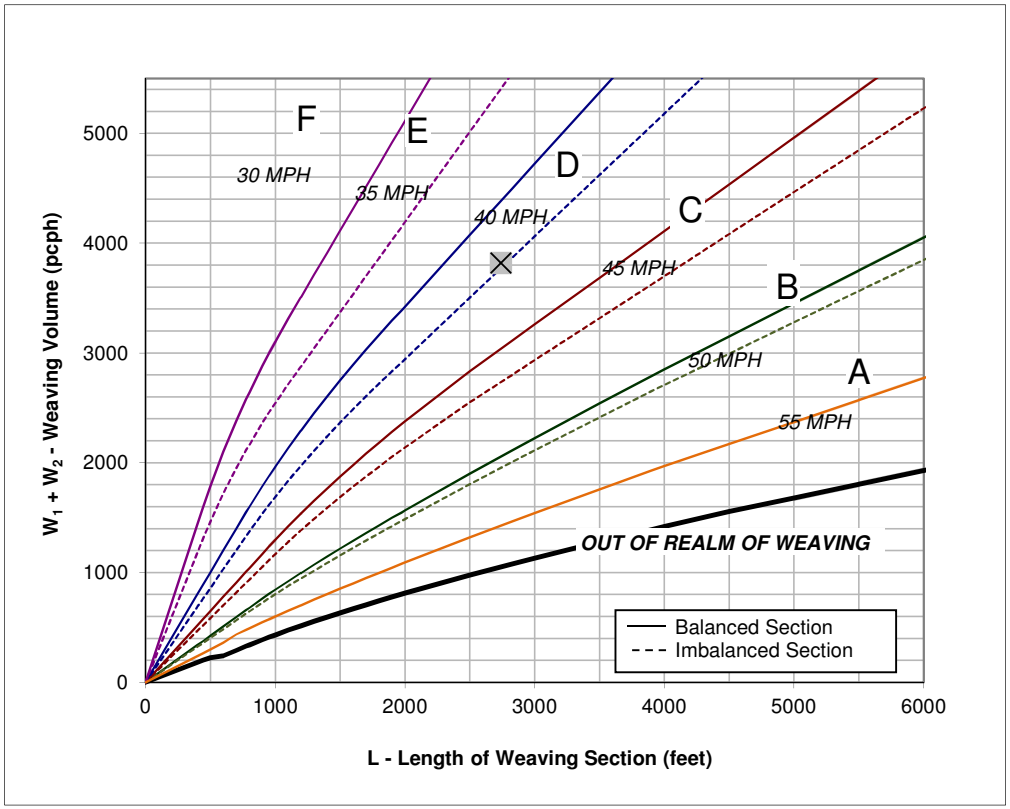
*does not count slip to loop off distance

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,990	Volume (vph)*	2,890	Volume (vph)*	800
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,235	Volume (pcph)	2,991	Volume (pcph)	828

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor AM
Freeway	I-80 Westbound
On-ramp	SR 65
Off-ramp	Atlantic St WB & EB

	Entering Volume	Growth
Mainline	3,330	100%
On-ramp	3,660	Ramp Split
Off-ramp	1,570	79%



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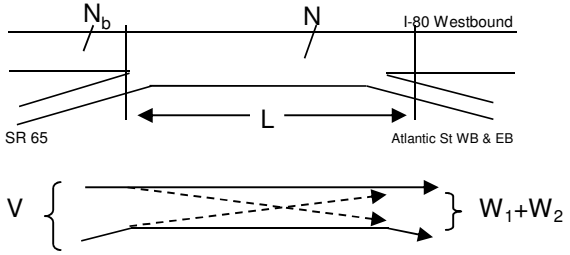


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **37.1**
4. Weaving Intensity Factor (k) **2.85**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,461**
6. Level of Service (LOS) **D**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,740

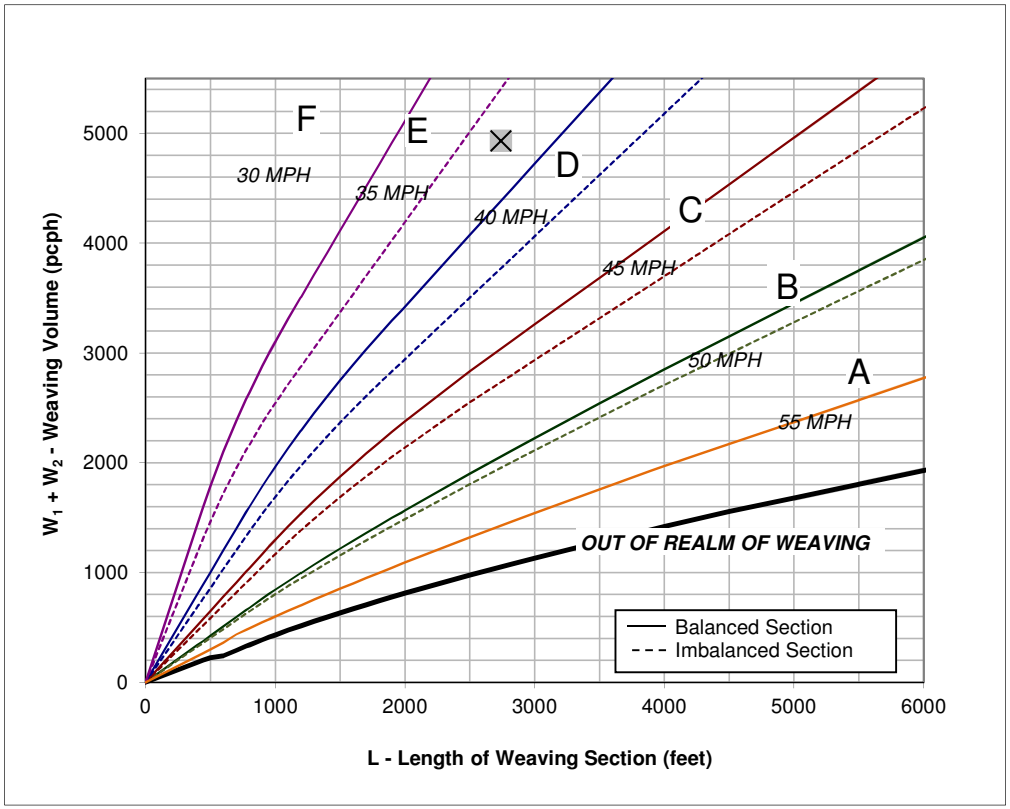
*does not count slip to loop off distance

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,015	Volume (vph)*	3,730	Volume (vph)*	1,035
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,331	Volume (pcph)	3,861	Volume (pcph)	1,071

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor AM
Freeway	I-80 Westbound
On-ramp	SR 65
Off-ramp	Atlantic St WB & EB

	Entering Volume	Growth
Mainline	4,295	129%
On-ramp	4,720	Ramp Split
Off-ramp	2,025	79%



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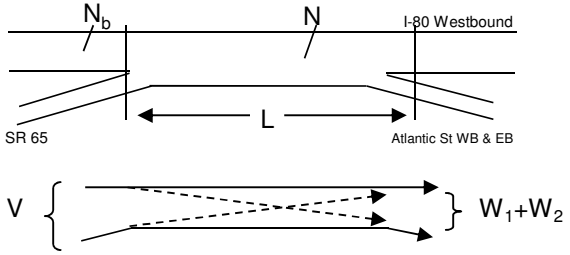


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **35 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **33.8**
4. Weaving Intensity Factor (k) **2.97**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,906**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

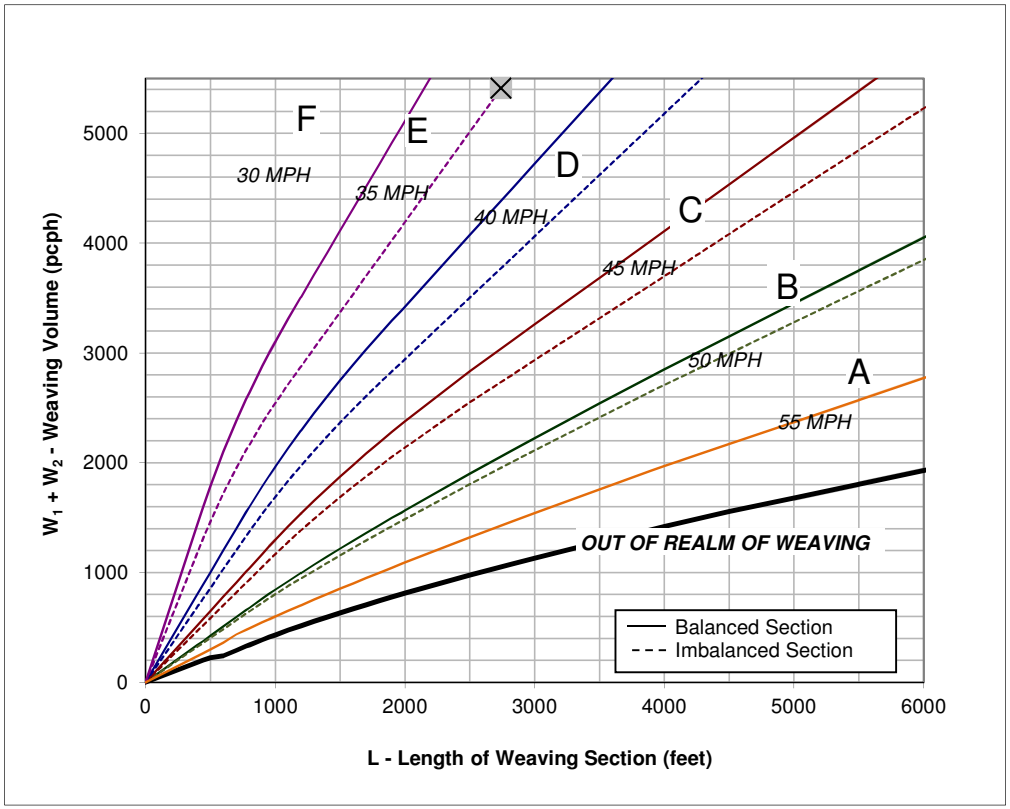
Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	6
Length of Weaving Section (feet)	L	2,740

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,990	Volume (vph)*	3,660	Volume (vph)*	1,570
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,235	Volume (pcph)	3,788	Volume (pcph)	1,625

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor AM
Freeway	I-80 Westbound
On-ramp	SR 65
Off-ramp	Atlantic St WB & EB

	Entering Volume	Growth
Mainline	3,330	100%
On-ramp	3,660	Ramp Split
Off-ramp	1,570	100%



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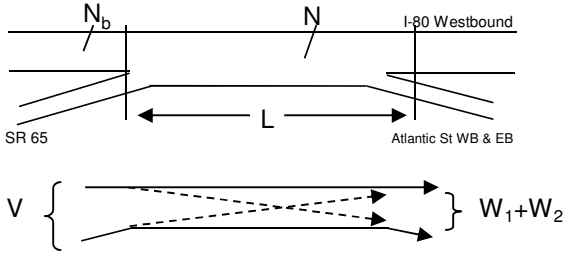


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **35 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **32.7**
4. Weaving Intensity Factor (k) **2.99**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,744**
6. Level of Service (LOS) **E**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	6,000

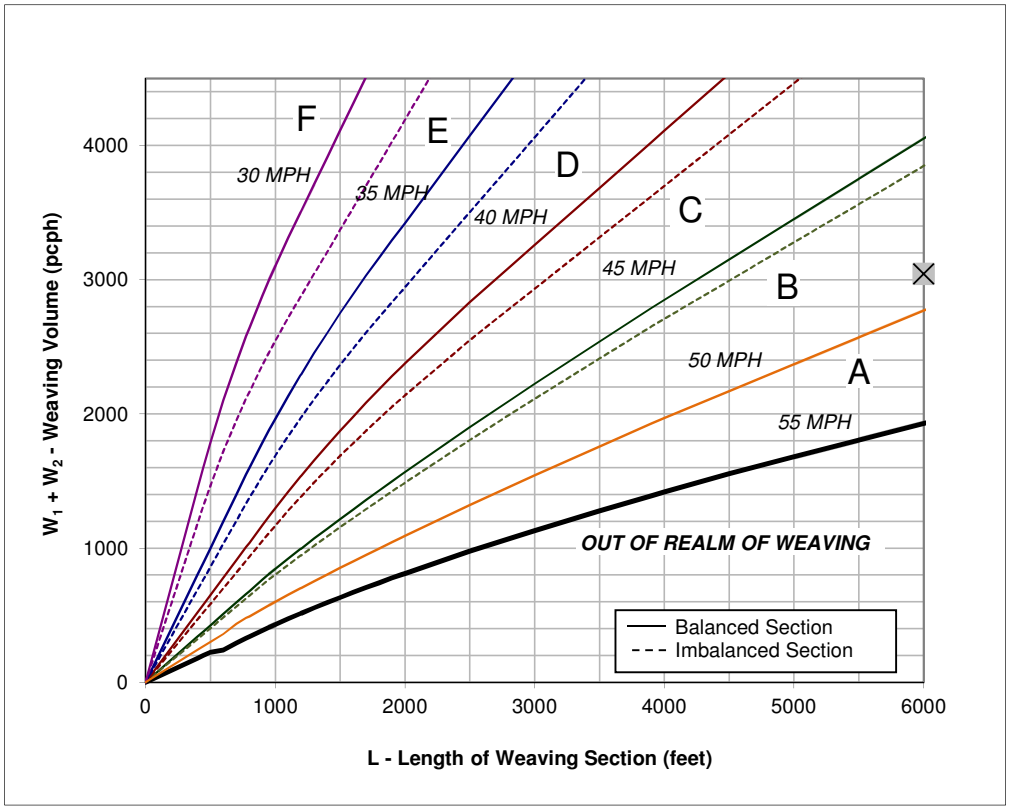
*does not count loop to slip distance

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,750	Volume (vph)*	1,870	Volume (vph)*	1,070
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,986	Volume (pcph)	1,935	Volume (pcph)	1,107

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 Westbound
On-ramp	Douglas Blvd (Loop & Slip)
Off-ramp	Riverside Ave

	Entering Volume	Growth
Mainline	4,615	100%
On-ramp	1,950	Ramp Split
Off-ramp	1,150	96%
HOV	1,395	16%



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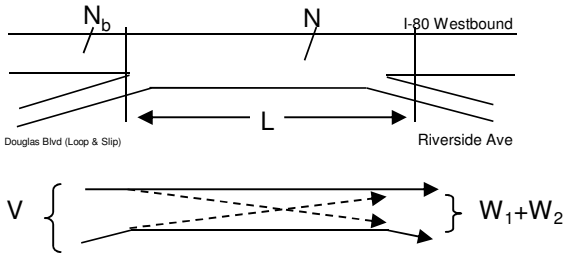


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **48.7**
4. Weaving Intensity Factor (k) **1.40**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,859**
6. Level of Service (LOS) **E**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	6,000

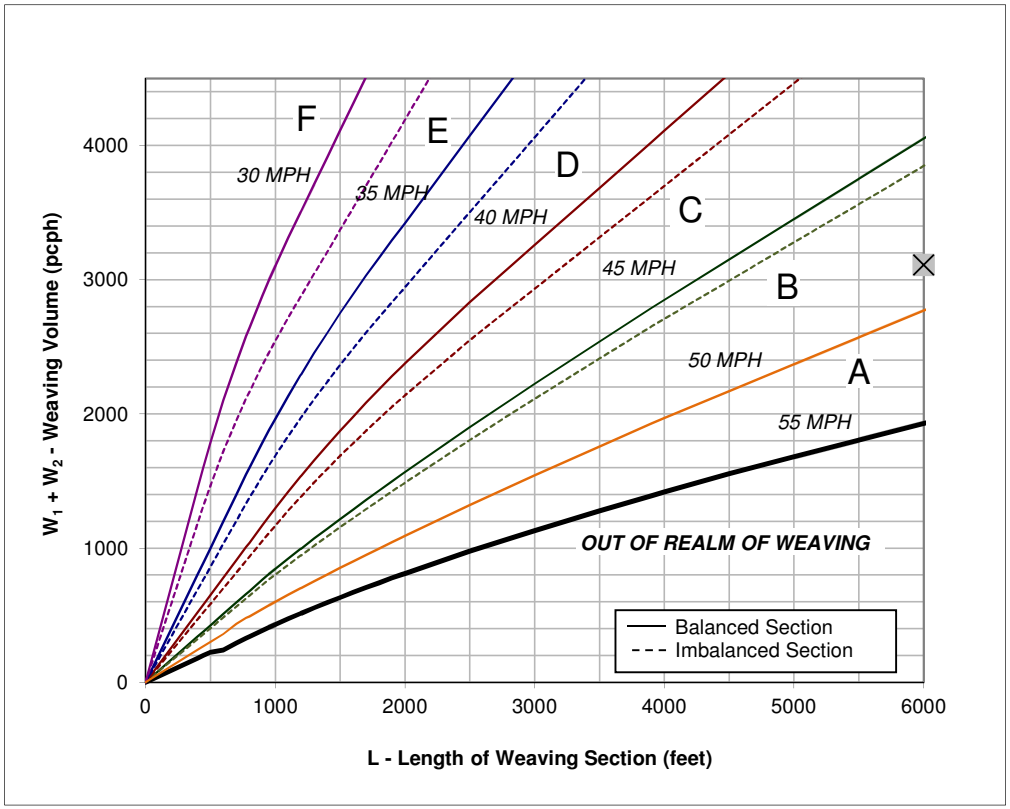
*does not count loop to slip distance

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,885	Volume (vph)*	1,910	Volume (vph)*	1,095
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,126	Volume (pcph)	1,977	Volume (pcph)	1,133

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 Westbound
On-ramp	Douglas Blvd (Loop & Slip)
Off-ramp	Riverside Ave

	Entering Volume	Growth
Mainline	4,705	102%
On-ramp	1,990	Ramp Split
Off-ramp	1,175	96%
HOV	1,425	16%



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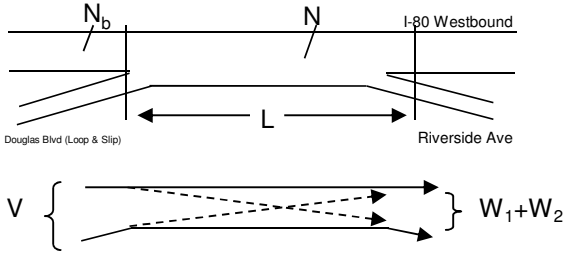


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **48.4**
4. Weaving Intensity Factor (k) **1.45**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,910**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	6,000

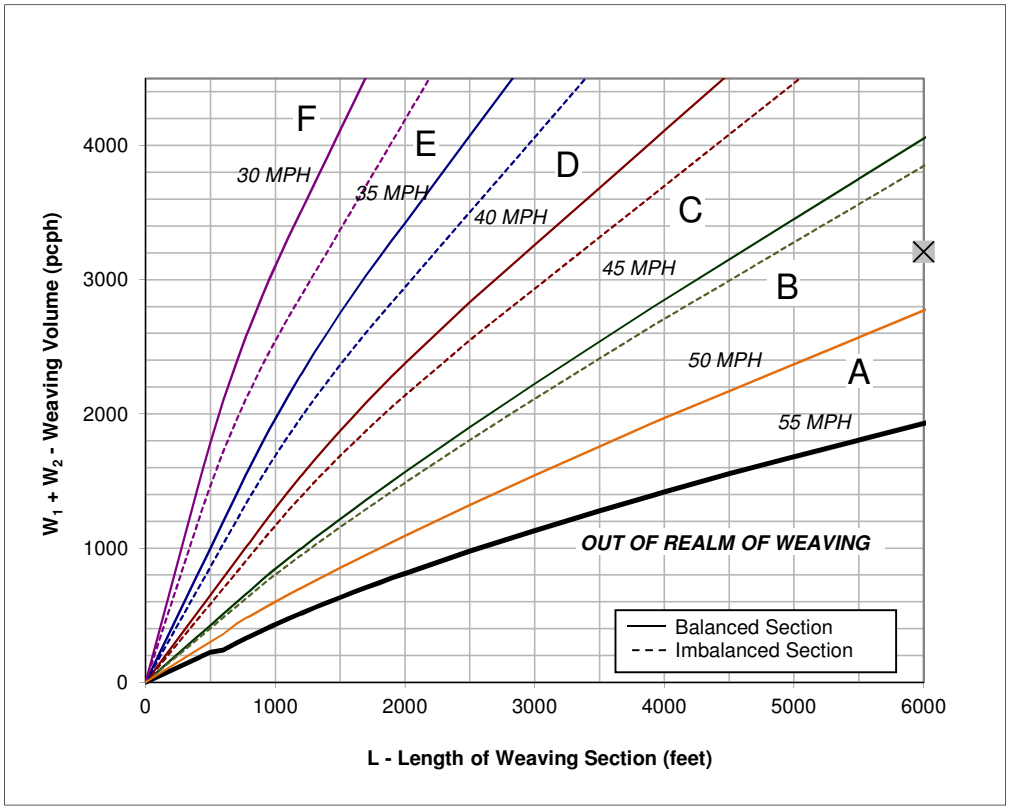
*does not count loop to slip distance

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,750	Volume (vph)*	1,950	Volume (vph)*	1,150
Truck Percentage	7%	Truck Percentage	7%	Truck Percentage	7%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,986	Volume (pcph)	2,018	Volume (pcph)	1,190

Project Information

Project	I-80/SR-65 Interchange
Scenario	2040 Design Year No Taylor PM
Freeway	I-80 Westbound
On-ramp	Douglas Blvd (Loop & Slip)
Off-ramp	Riverside Ave

	Entering Volume	Growth
Mainline	4,615	100%
On-ramp	1,950	Ramp Split
Off-ramp	1,150	100%
HOV	1,395	16%



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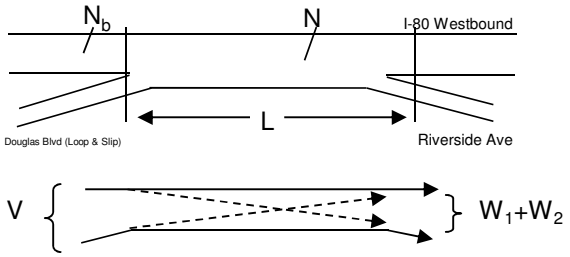


Capacity Analysis

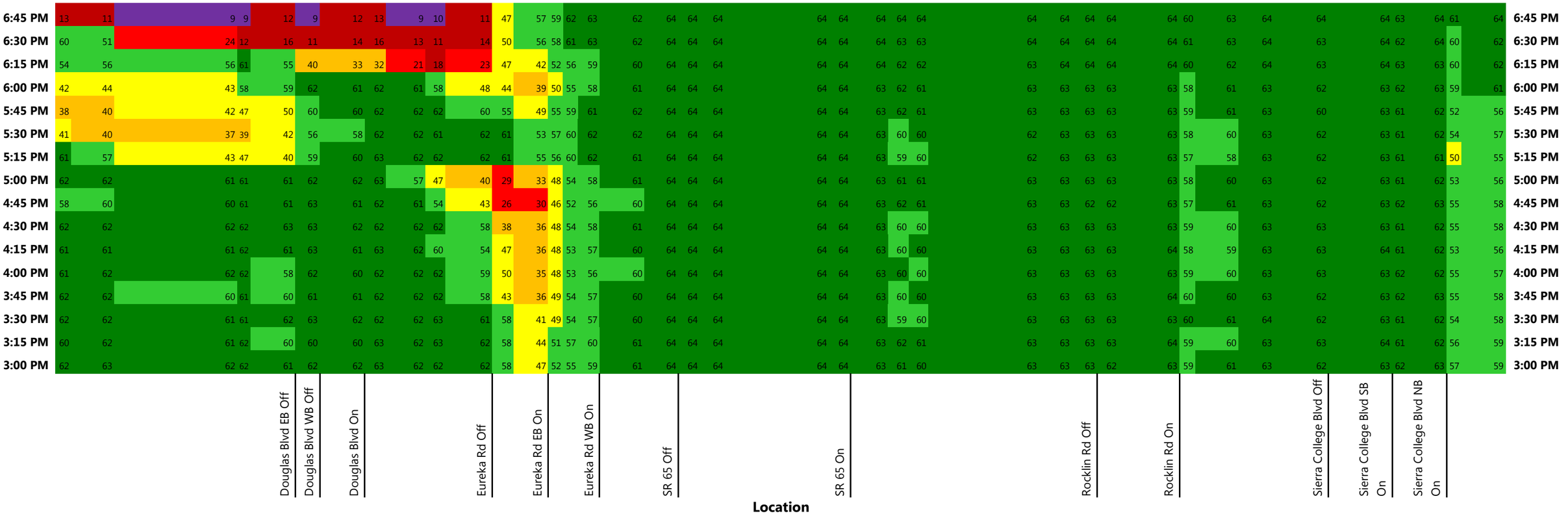
1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **48.0**
4. Weaving Intensity Factor (k) **1.52**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,901**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Average Link Speed for Mixed Flow Lanes - No Taylor Alternative
I-80 Eastbound



Legend

- 60 - 75 mph
- 50 - 60 mph
- 40 - 50 mph
- 30 - 40 mph
- 20 - 30 mph
- 10 - 20 mph
- 0 - 10 mph

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Design Year - Alt 1 (Full Taylor) with EB Aux**
Network Statistics | **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	300,466	266
Travel Distance [mi]	All Vehicles	1,113,874	1,573
Travel Time [h]	All Vehicles	29,788	385.8
Average Speed [mph]	All Vehicles	37.4	0.5
Total Delay [h]	All Vehicles	10,122	378.9
Average Delay per Vehicle [s]	All Vehicles	119	4.5
VHD/VMT [min/mile]	All Vehicles	0.55	0.02
Number of Vehicles Served	HOV	53,141	79
Travel Distance [mi]	HOV	217,959	848
Travel Time [h]	HOV	5,339	52
Average Speed [mph]	HOV	40.8	0.3
Total Delay [h]	HOV	1,535	47
Average Delay per Vehicle [s]	HOV	102	3
VHD/VMT [min/mile]	HOV	0.42	0.01
Number of Vehicles Served	Truck	5,473	12
Travel Distance [mi]	Truck	26,245	220
Travel Time [h]	Truck	662	17
Average Speed [mph]	Truck	39.6	1
Total Delay [h]	Truck	208	14
Average Delay per Vehicle [s]	Truck	134	9
VHD/VMT [min/mile]	Truck	0.47	0.03

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	53,140	5,470	300,470
Demand Volume	53,990	6,030	300,030
Percent Demand Served	98.4%	90.7%	100.1%
Vehicle Miles of Travel	217,960	26,250	1,113,870
Person Miles of Travel	457,710	27,560	1,354,930
Vehicle Hours of Travel	5,340	660	29,790
Vehicle Hours of Delay	1,540	210	10,120
VHD % of VHT	28.8%	31.8%	34.0%
Average Delay per Vehicle (min)	1.74	2.30	2.02
Person Hours of Delay	3,230	220	11,820
Average Travel Speed	40.8	39.6	37.4

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor) with EB Aux
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	678	10	11:38	01:02	16.8
	I-80 at Auburn to SR-65 at Blue Oaks	32,856	1487	14	08:16	01:04	18.1
	I-80 at Sierra College to I-80 at Antelope	45,839	653	13	11:05	00:47	18.8
	I-80 at Auburn to I-80 at Sierra College	36,732	919	11	06:41	00:02	25.0
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	282	6	08:33	00:06	22.9
	I-80 at Auburn to SR-65 at Blue Oaks	32,856	730	11	06:28	00:02	23.1
	I-80 at Sierra College to I-80 at Antelope	45,839	206	6	09:07	00:19	22.8
	I-80 at Auburn to I-80 at Sierra College	36,732	313	8	06:36	00:01	25.3

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor) with EB Aux
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,971	47	102.1%	971	22	96.2%				62.1	0.3	27.9	0.3	C
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,934	68	101.3%							61.4	1.0	33.0	0.8	D
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,927	80	101.2%				1,132	64	98.4%	55.2	6.7	37.5	9.3	E
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,767	137	101.3%				395	45	101.2%	60.2	6.4	28.8	8.4	D
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	7,374	153	101.3%							62.6	0.9	26.9	0.5	D
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	7,378	151	101.3%	1,799	57	96.7%	945	60	99.5%	62.2	0.4	29.4	0.8	D
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	8,232	146	100.5%							62.5	0.9	28.7	0.7	D
9	I-80 EB - Eureka Rd EB On-ramp	Merge	8,229	146	100.5%	322	34	103.8%				59.3	3.4	29.2	1.5	D
10	I-80 EB - Eureka Rd to SR-65	Weave	8,551	138	100.6%	1,391	56	96.0%	6,024	163	100.1%	58.9	1.9	27.5	1.2	C
11	I-80 EB - SR-65 Off-ramp to Taylor Rd Off-ramp	Basic	3,916	94	99.6%							63.6	0.2	17.5	0.4	B
12	I-80 EB - Taylor Rd Off-ramp	Diverge	3,915	94	99.6%				591	41	98.5%	63.7	0.2	16.6	0.4	B
13	I-80 EB - Taylor Rd Off to On-ramp	Basic	3,324	100	99.8%							63.9	0.2	16.5	0.4	B
18	I-80 EB - Taylor Rd On-ramp	Merge	3,324	102	99.8%	180	25	82.0%				64.0	0.1	17.7	0.5	B
19	I-80 EB - SR-65 On-ramp	Merge	3,503	101	98.7%	2,531	90	97.7%				60.0	0.6	32.9	0.7	D
20	I-80 EB - SR-65 to Rocklin Rd	Basic	6,034	121	98.3%							62.0	0.3	27.7	0.7	D
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	6,024	142	98.1%				1,445	67	99.0%	63.2	0.2	26.2	0.6	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	4,569	150	97.6%							63.0	0.2	26.4	0.8	D
24	I-80 EB - Rocklin Rd On-ramp	Merge	4,567	149	97.6%	263	14	101.2%				58.7	1.1	27.3	0.9	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	4,826	150	97.7%							62.8	0.2	27.6	0.8	D
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	4,826	155	97.7%				692	53	92.3%	60.9	1.3	29.2	1.0	D
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	4,125	129	98.4%							62.9	0.4	23.9	0.6	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	4,123	141	98.4%	334	10	98.2%				60.4	0.8	22.7	0.7	C
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	4,452	132	98.3%	854	25	101.6%				59.2	1.0	27.9	1.1	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,077	24	105.9%				745	53	104.9%	60.3	0.6	21.9	0.5	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,329	57	106.0%							63.3	0.4	20.5	0.4	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,329	58	106.0%	406	12	104.1%				62.2	0.3	19.3	0.4	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,735	60	105.8%	422	13	103.0%				60.8	0.7	22.3	0.4	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,149	66	105.3%							63.1	0.2	24.1	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,150	68	105.3%				308	41	102.7%	62.3	0.7	25.2	0.7	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,841	81	105.5%							63.3	0.3	22.5	0.5	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,840	81	105.5%	1,648	77	106.3%				57.6	1.8	29.5	1.4	D
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,486	119	105.7%							51.6	7.1	38.0	6.2	E
47	I-80 WB - SR-65 Off-ramp	Diverge	5,483	123	105.6%				2,034	81	104.3%	63.2	0.2	23.0	0.7	C
48	I-80 WB - Taylor Rd Off-ramp	Diverge	3,446	105	106.4%				326	35	105.0%	63.5	0.3	17.0	0.7	B
49	I-80 WB - Taylor Rd Off to On-ramp	Basic	3,116	91	106.3%							63.9	0.2	17.2	0.6	B
50	I-80 WB - Taylor Rd On-ramp	Merge	3,116	91	106.3%	656	47	99.4%				63.1	0.4	17.7	0.6	B
60	I-80 WB - SR-65 to Atlantic St	Weave	3,775	99	105.1%	4,164	138	99.6%	492	46	104.6%	58.5	4.4	25.5	7.2	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,427	144	101.7%				1,081	70	101.0%	43.1	16.2	46.5	30.9	F
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,290	148	101.0%							28.1	14.8	84.8	31.3	F
64	I-80 WB - Atlantic St On-ramp	Merge	6,244	163	100.2%	1,183	71	97.0%				23.0	9.6	76.4	16.5	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,336	180	98.5%				1,079	69	97.2%	31.3	2.0	72.7	4.3	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,204	137	97.9%							24.3	0.7	98.8	4.0	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,174	148	97.4%	1,301	51	96.4%				21.7	0.5	111.9	3.3	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,419	117	96.5%	653	25	89.5%				27.4	0.3	73.9	0.8	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,072	172	95.9%							60.0	0.4	32.4	0.5	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,066	104	95.8%				1,186	61	94.9%	62.4	0.1	28.1	0.4	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,879	105	95.9%							62.4	0.1	32.8	0.5	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,881	105	96.0%	195	11	92.7%				62.9	0.1	26.3	0.4	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,074	113	95.8%	599	16	107.0%				62.0	0.6	22.6	0.6	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,670	122	96.6%							62.4	0.2	28.2	0.5	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,665	121	96.5%				1,112	62	95.8%	61.7	0.9	29.3	0.5	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,555	127	96.7%							62.8	0.3	25.2	0.6	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,555	128	96.7%	347	9	99.1%				61.2	0.8	22.4	0.7	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	6,901	118	96.8%	528	16	99.7%	53	13	59.1%	62.3	0.4	24.3	0.4	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,376	134	97.4%							62.9	0.1	26.9	0.4	D
80	I-80 WB - Truck Scales On-ramp	Merge	7,373	134	97.4%	53	13	59.0%				62.6	0.2	26.8	0.7	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	7,431	109	97.0%							61.5	0.5	28.7	0.6	D
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	7,429	112	97.0%				1,196	72	95.7%	61.8	0.5	26.8	0.4	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	6,242	124	97.4%							62.8	0.3	23.8	0.4	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	6,244	127	97.4%	897	5	99.7%				56.6	1.7	26.0	1.2	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	7,140	127	97.7%	600	21	103.5%				62.0	0.6	28.7	0.5	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

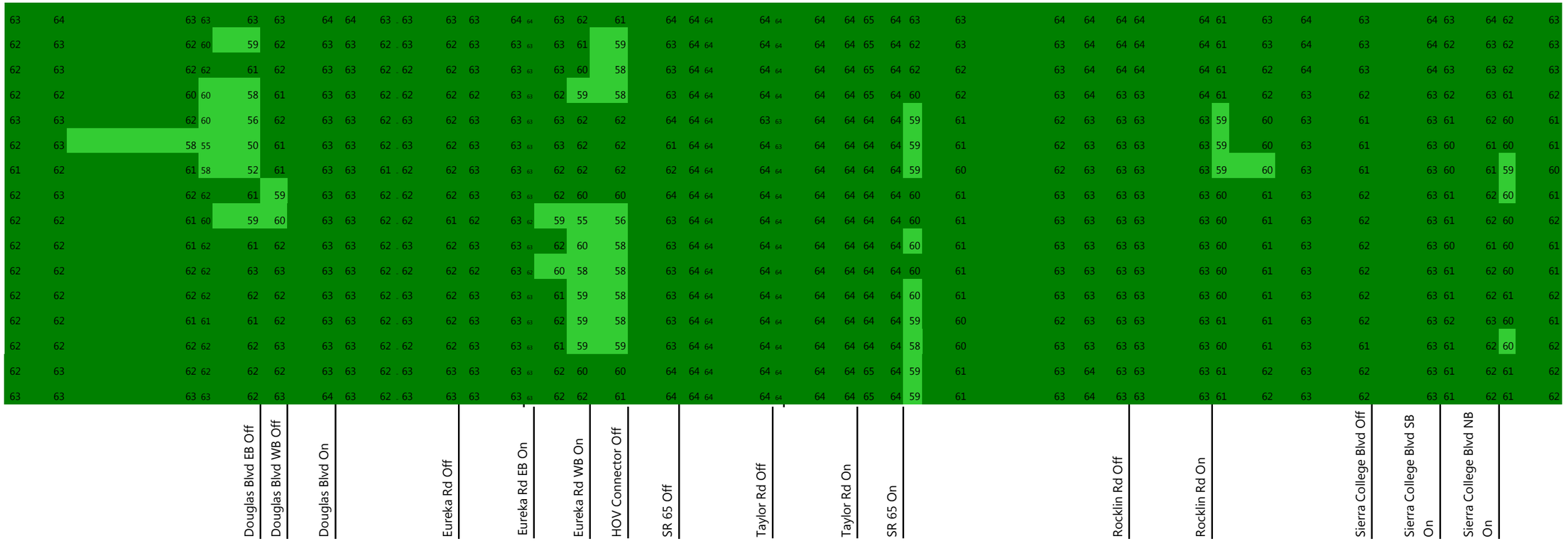
VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor) with EB Aux
PM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,127	10	101.6%				129	19	107.3%	64.5	0.2	10.1	0.1	B
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	998	24	100.8%							64.5	0.2	8.6	0.2	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	999	24	100.9%	690	16	100.1%				61.3	0.1	10.3	0.2	B
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,688	28	100.5%	644	15	94.8%				61.1	0.3	12.5	0.2	B
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,333	35	98.9%							63.1	0.5	21.3	0.3	C
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,334	35	98.9%							63.2	0.4	20.4	0.4	C
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,334	34	98.9%	1,450	62	100.7%	831	48	100.2%	60.5	0.6	22.1	0.5	C
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,957	79	99.6%							63.1	0.3	24.1	0.8	C
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,959	77	99.6%	582	46	95.5%				60.3	0.8	27.3	0.6	C
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,540	91	98.9%							62.4	0.2	29.1	0.7	D
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,539	96	98.9%				982	58	97.2%	62.7	0.1	26.1	0.7	C
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,554	85	99.4%							63.3	0.2	21.0	0.7	C
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,555	85	99.4%	466	31	103.5%				61.0	1.4	23.7	0.6	C
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	3,022	89	100.1%	728	40	99.7%	596	47	97.7%	61.7	0.4	25.1	0.8	C
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,164	86	100.8%							62.6	0.2	26.4	0.9	D
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,164	87	100.8%	559	40	105.4%				59.7	1.4	28.8	1.0	D
104	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	3,721	95	101.4%	1,001	46	101.1%	859	43	98.7%	61.5	0.4	28.6	0.9	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,857	100	101.8%							62.3	0.2	31.3	1.0	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,860	97	101.8%	336	26	88.5%				58.9	1.8	32.2	1.6	D
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	4,194	106	100.6%	1,356	47	98.3%	648	52	98.2%	60.2	0.3	31.7	0.6	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,902	111	100.2%							62.3	0.2	35.3	0.8	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,900	107	100.2%	462	39	100.4%				61.8	0.3	27.6	0.6	C
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	5,363	111	100.2%	1,109	43	99.0%				60.4	0.7	30.6	0.7	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	6,474	110	100.1%							58.7	1.1	33.5	0.9	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	6,474	110	100.1%				1,557	62	100.4%	61.2	0.6	29.2	0.5	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,915	127	99.9%							62.5	0.3	27.6	0.5	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,917	132	99.9%	1,774	83	95.9%	4,157	137	99.4%	60.6	0.6	25.0	0.5	C
120	SR-65 SB to EB I-80 Connector	Basic	2,531	90	97.7%							55.1	0.3	24.2	0.6	C
121	SR-65 SB to WB I-80 Connector	Basic	3,453	121	96.7%							55.6	0.5	23.6	0.5	C
123	SR-65 NB from WB I-80 Connector	Basic	2,032	84	104.2%							53.2	5.5	22.4	3.1	C
125	SR-65 NB from EB I-80 Connector	Basic	4,901	155	99.8%							46.6	14.5	41.2	25.7	E
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,880	157	99.4%	3,141	98	102.6%	1,621	91	97.6%	46.5	15.5	44.7	22.8	E
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	6,318	116	100.1%							27.4	6.8	98.2	22.6	F
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	6,289	114	99.7%	1,042	56	93.8%				30.8	0.6	73.2	1.3	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	7,318	93	98.6%							52.6	1.0	39.0	1.3	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	7,318	93	98.6%				1,523	78	100.2%	57.5	0.8	33.9	0.8	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	5,793	97	98.2%							61.8	0.4	37.3	0.7	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	5,794	99	98.2%	608	40	99.6%	2,216	87	98.5%	61.1	1.1	32.2	0.6	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	4,189	132	98.3%							61.8	1.0	30.7	0.9	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	4,189	129	98.3%	616	62	94.8%				57.6	2.9	32.8	1.9	D
136	SR-65 NB - Blue Oaks Blvd to HOV Lane End	Basic	4,806	146	97.9%							62.2	0.5	33.1	1.2	D
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	4,808	140	97.9%							61.8	0.4	29.9	0.9	D
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	4,808	137	97.9%				1,161	72	98.4%	62.7	0.2	27.9	0.7	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	3,645	131	97.7%							62.6	0.2	29.6	1.1	D
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	3,644	132	97.7%	294	29	101.3%				60.6	3.4	30.9	3.4	D
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	3,939	143	98.0%	750	40	105.7%	1,235	72	100.4%	61.9	0.3	28.3	1.0	D
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	3,453	129	98.6%							62.8	0.2	27.9	1.2	D
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	3,454	134	98.7%	384	35	98.3%				60.3	1.6	30.3	1.2	D
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,838	129	98.7%	492	39	102.6%				57.1	6.0	35.9	4.1	E
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	4,329	128	99.1%							58.8	0.7	37.9	1.0	E
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	4,329	130	99.1%				717	52	102.4%	60.4	1.0	37.1	0.9	E
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	3,606	127	98.2%							62.4	0.2	31.0	1.1	D
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	3,602	122	98.1%	951	47	97.1%	1,495	73	97.1%	62.4	0.2	27.2	0.9	C
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	3,056	126	98.3%							63.2	0.1	25.0	1.0	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	3,054	126	98.2%				1,860	100	97.9%	63.8	0.1	19.5	0.7	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	1,192	73	98.5%							64.2	0.2	10.1	0.7	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	1,192	69	98.5%	127	8	97.3%				63.1	0.2	10.2	0.6	B

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

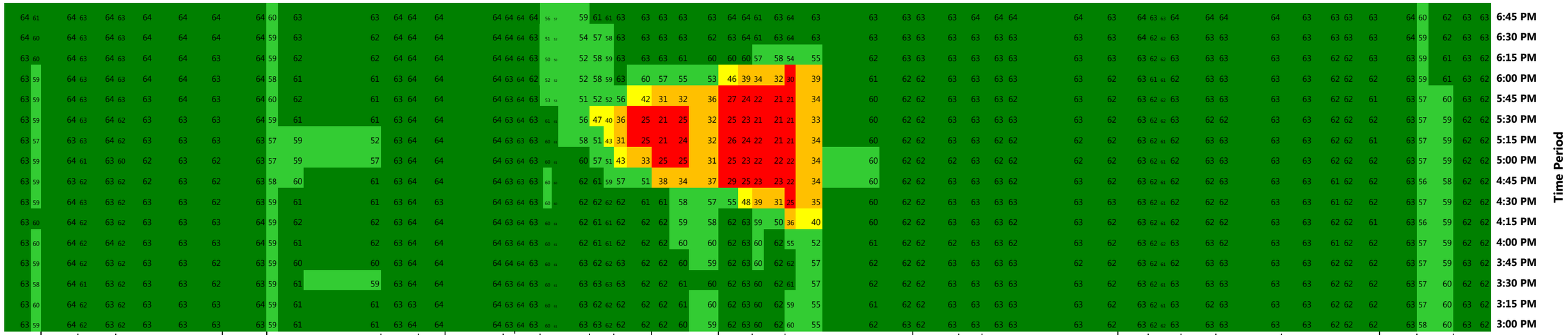
Average Link Speed for Mixed Flow Lanes - Alternative 1 (Full Taylor) with Eastbound Aux Lane
I-80 Eastbound - Design Year



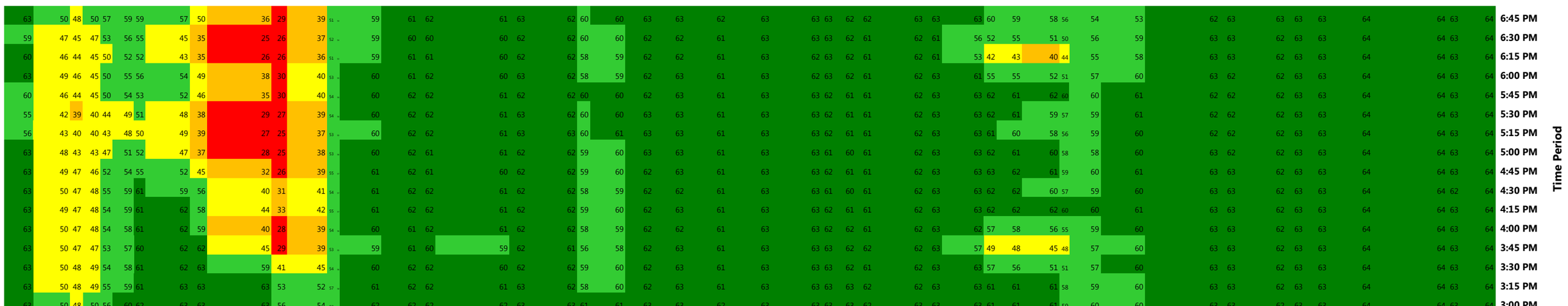
Legend

- 60 - 75 mph
- 50 - 60 mph
- 40 - 50 mph
- 30 - 40 mph
- 20 - 30 mph
- 10 - 20 mph
- 0 - 10 mph

Average Link Speed for Mixed Flow Lanes - Full Taylor Alternative
I-80 Westbound - Design Year



Average Link Speed for Mixed Flow Lanes - Full Taylor Alternative
SR 65 Northbound-Design Year



Legend
- 60 - 75 mph
- 50 - 60 mph
- 40 - 50 mph
- 30 - 40 mph
- 20 - 30 mph
- 10 - 20 mph
- 0 - 10 mph

Average Link Speed for Mixed Flow Lanes - Full Taylor Alternative
SR 65 Southbound-Design Year

Ferrari Ranch Rd Off	Ferrari Ranch Rd WB On	Ferrari Ranch Rd EB On	Lincoln Blvd On	Twelve Bridges Dr Off	Twelve Bridges Dr On	Placer Pkwy Off	Placer Pkwy WB On	Placer Pkwy EB On	Sunset Blvd Off	Sunset Blvd WB On	Sunset Blvd EB On	HOV Lane Start	Blue Oaks Blvd Off	Blue Oaks Blvd WB On	Blue Oaks Blvd EB On	Pleasant Grove Blvd Off	Pleasant Grove Blvd WB On	Pleasant Grove Blvd EB On	Galleria Blvd Off	Galleria Blvd On	I-80 Off	WB I-80	Time Period
65	65	61 61	64 #	64 64	62 64	64 62	63	63 #	63	64 63 64 63	62	64 63	64 62 63 63	63 #	64	64 63	63 60	62 63 #	58	61 63	63 62	63 62	62 # #	63	58 58 58 56 #	58	53	47	6:45 PM
65	65	61 61	64 #	64 64	61 64	64 62	63	63 #	63	64 63 63 63	62	63 63	63 62 62 62	63 #	63	63 63	63 60	61 62 #	58	61 62	62 61	63 62	61 # #	63	58 58 58 55 #	54	49	44	6:30 PM
65	65	61 61	64 #	64 64	61 63	63 61	62	63 #	63	64 63 63 63	62	63 63	63 61 62 62	62 #	63	63 63	63 59	60 62 #	58	61 62	62 61	63 61	59 # #	63	62 59 58 54 #	52	48	44	6:15 PM
65	65	61 61	64 #	64 64	60 63	63 62	62	63 #	63	63 62 63 62	62	63 63	63 61 61 61	62 #	63	63 63	63 59	61 62 #	57	61 62	62 61	63 61	60 # #	63	63 63 63 60 #	55	48	44	6:00 PM
65	65	61 60	64 #	64 64	61 63	63 61	61	63 #	63	63 63 63 62	61	63 63	63 62 62 61	62 #	63	63 63	63 59	60 62 #	57	60 62	62 61	63 61	59 # #	63	63 63 63 60 #	62	58	45	5:45 PM
65	65	61 60	64 #	63 64	60 63	63 61	61	62 #	63	63 63 63 62	61	63 63	63 61 61 60	61 #	63	63 63	62 59	60 62 #	57	60 62	62 61	63 61	59 # #	63	62 63 63 60 #	62	58	54	5:30 PM
65	65	61 60	63 #	64 64	61 63	63 61	61	63 #	63	64 63 63 62	61	63 63	63 61 60 60	61 #	62	63 62	62 59	60 62 #	58	60 62	62 61	63 61	59 # #	62	62 63 63 60 #	61	58	54	5:15 PM
64	64	61 60	63 #	63 64	60 63	63 61	61	62 #	63	63 62 62 62	61	63 63	63 60 60 60	61 #	62	63 62	62 59	60 62 #	58	61 62	62 61	63 61	60 # #	63	63 63 63 60 #	61	58	54	5:00 PM
65	65	61 60	64 #	64 64	61 63	63 61	61	63 #	63	63 62 61 61	61	63 63	63 62 61 60	61 #	62	63 62	62 60	60 62 #	58	60 62	62 61	63 61	59 # #	63	63 63 63 60 #	59	58	54	4:45 PM
64	64	61 60	63 #	63 64	60 63	63 61	61	62 #	63	63 61 61 61	61	62 62	63 61 60 60	61 #	62	63 62	62 59	59 61 #	58	60 61	62 61	63 61	59 # #	62	63 63 63 59 #	60	58	53	4:30 PM
65	65	61 60	63 #	63 64	60 63	63 61	61	62 #	63	63 62 62 62	61	63 63	63 62 62 61	61 #	62	63 62	62 60	60 61 #	57	59 62	62 61	63 61	59 # #	62	63 63 63 60 #	60	58	54	4:15 PM
64	64	61 60	63 #	63 64	60 63	63 61	62	63 #	63	63 62 62 62	61	63 63	63 62 62 61	61 #	62	63 62	62 60	60 62 #	58	60 62	62 61	63 62	60 # #	63	62 63 63 59 #	60	58	54	4:00 PM
65	65	61 60	64 #	64 64	61 63	64 61	62	63 #	62	63 62 62 62	61	62 63	63 61 61 61	61 #	62	63 62	62 59	59 61 #	58	60 62	62 61	63 61	59 # #	62	62 63 63 60 #	59	58	54	3:45 PM
65	65	61 60	63 #	64 64	60 63	63 60	62	63 #	63	63 62 62 62	61	62 63	63 60 60 60	60 #	62	63 62	62 59	59 61 #	58	60 62	62 61	63 61	59 # #	63	62 63 63 60 #	61	58	54	3:30 PM
65	65	61 60	64 #	64 64	61 64	64 60	62	63 #	63	63 62 63 62	61	63 63	63 62 62 61	61 #	62	62 62	62 60	60 61 #	58	61 62	62 61	63 62	60 # #	63	62 63 63 59 #	60	58	54	3:15 PM
65	65	61 60	64 #	64 64	60 63	63 60	61	63 #	63	63 62 62 62	61	62 62	62 61 61 60	60 #	62	63 62	62 59	59 61 #	57	59 62	62 61	63 61	60 # #	61	62 63 63 60 #	60	58	54	3:00 PM

Location

Time Period

Legend

60 - 75 mph
50 - 60 mph
40 - 50 mph
30 - 40 mph
20 - 30 mph
10 - 20 mph
0 - 10 mph

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor) with EB Aux
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	4,665	4,621	99.1%	21.7	1.6	C
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	2,210	2,175	98.4%	14.5	0.9	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	2,335	2,311	99.0%	19.1	2.3	B
4	SR-65 SB Ramps/Sunset Blvd	Signal	4,225	4,308	102.0%	10.2	0.7	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	4,295	4,425	103.0%	11.4	0.4	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	7,035	6,906	98.2%	169.0	20.8	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	4,225	4,232	100.2%	83.5	31.3	F
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	6,115	6,442	105.4%	8.2	0.7	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	5,305	5,310	100.1%	10.3	0.5	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	5,260	5,175	98.4%	53.9	10.0	D
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	6,035	5,960	98.8%	22.8	3.3	C
12	SR-65 SB Ramps/Galleria Blvd	Signal	6,225	6,055	97.3%	23.5	1.6	C
13	Galleria Blvd/Antelope Creek Dr	Signal	4,215	3,808	90.3%	21.9	2.5	C
14	Galleria Blvd/Roseville Pkwy	Signal	8,125	7,644	94.1%	99.2	20.2	F
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,796	4,509	94.0%	64.5	26.5	E
16	Taylor Rd/East Roseville Pkwy	Signal	7,130	6,966	97.7%	53.7	6.6	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	6,405	6,484	101.2%	49.6	11.5	D
18	Wills Rd/Atlantic St	Signal	3,350	3,417	102.0%	28.1	2.5	C
19	I-80 WB Ramps/Atlantic St	Signal	4,770	4,768	100.0%	14.4	5.7	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	6,495	6,420	98.8%	105.1	15.6	F
21	North Sunrise Ave/Eureka Rd	Signal	6,760	6,874	101.7%	102.2	24.0	F
22	Harding Blvd/Wills Rd	Signal	3,005	3,074	102.3%	19.2	0.9	B
23	Harding Blvd/Douglas Blvd	Signal	3,875	3,774	97.4%	77.1	15.3	E
24	I-80 WB Ramps/Douglas Blvd	Signal	4,640	4,533	97.7%	26.3	7.1	C

Network Summary	
Total Demand Volume (veh/hr)	121,496
Total Volume Served (veh/hr)	120,191
Percent Served	98.9%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor) with EB Aux
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,430	5,264	96.9%	31.0	18.5	C
26	North Sunrise Ave/Douglas Blvd	Signal	6,285	6,054	96.3%	169.3	26.7	F
27	Pacific St/Woodside Dr	Signal	3,350	3,351	100.0%	8.2	1.1	A
28	Pacific St/Sunset Blvd	Signal	5,310	5,344	100.6%	32.5	2.0	C
29	Granite Dr/Rocklin Rd	Signal	3,980	4,181	105.1%	83.9	21.4	F
30	I-80 WB Ramps/Rocklin Rd	Signal	3,800	3,967	104.4%	30.9	14.3	C
31	I-80 EB Ramps/Rocklin Rd	Signal	3,650	3,726	102.1%	23.4	5.4	C
32	Aguilar Rd/Rocklin Rd	Signal	2,940	2,998	102.0%	19.8	1.8	B
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	4,115	4,084	99.2%	10.4	0.6	B
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,580	2,589	100.3%	30.6	1.2	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	4,815	4,888	101.5%	23.7	3.1	C
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	4,465	4,504	100.9%	20.2	3.5	C
37	Taylor Rd/I-80 Ramps	Signal	3,805	3,811	100.2%	25.1	1.9	C
40	Galleria Blvd/Berry St	Signal	2,980	2,979	100.0%	11.3	0.9	B

Network Summary	
Total Demand Volume (veh/hr)	57,505
Total Volume Served (veh/hr)	57,739
Percent Served	100.4%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor) with EB Aux**
Queue Length | **PM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	66	8	313	76	NO
	Through						
	Right Turn	1500	66	8	314	76	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	23	9	131	42	NO
	Through						
	Right Turn	1500	23	9	131	42	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	59	7	200	37	NO
	Through						
	Right Turn	1330	61	7	203	37	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	60	4	234	34	NO
	Through						
	Right Turn	1400	15	2	126	36	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor) with EB Aux**
Queue Length | **PM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	94	32	631	396	MAX
	Through	2260	146	81	858	312	NO
	Right Turn	200	28	37	584	312	MAX

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	45	5	208	29	NO
	Through						
	Right Turn	1100	45	5	207	29	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	26	3	144	22	NO
	Through						
	Right Turn	1130	28	3	146	22	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	45	2	159	22	NO
	Through						
	Right Turn	1420	45	2	159	22	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor) with EB Aux**
Queue Length | **PM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	10	1	83	23	NO
WB	Left Turn						
	Through						
	Right Turn	1170	76	9	405	126	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	75	2	323	42	NO
WB	Left Turn						
	Through						
	Right Turn	1780	11	4	100	13	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	11	21	166	524	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor) with EB Aux**
Queue Length | **PM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	114	21	427	109	MAX
	Through	1700	29	16	195	93	NO
	Right Turn	1700	4	3	117	112	NO
SB	Left Turn	550	75	7	260	108	NO
	Through						
	Right Turn	550	59	10	321	54	NO
EB	Left Turn	1120	55	3	192	29	NO
	Through	1120	159	38	759	145	NO
	Right Turn	810	28	20	344	145	NO
WB	Left Turn						
	Through	1370	615	447	1515	11	MAX
	Right Turn	280	8	8	201	206	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	82	78	418	104	NO
	Through	1530	82	78	418	104	NO
	Right Turn	730	82	78	419	104	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor) with EB Aux**
Queue Length | **PM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	142	282	1151	795	NO
SB	Left Turn						
	Through						
	Right Turn	1250	84	51	372	486	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	73	42	334	120	NO
	Through						
	Right Turn	1230	85	43	354	120	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	69	11	272	65	NO
	Through						
	Right Turn	1080	47	9	282	71	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor) with EB Aux**
Queue Length | **PM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	91	5	429	89	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	97	13	394	54	NO
	Through						
	Right Turn	1650	97	13	394	54	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	129	28	502	121	NO
	Through						
	Right Turn	1620	129	28	502	121	NO

Intersection 37 **Taylor Rd/I-80 Ramps** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	700	57	6	281	75	NO
	Through						
	Right Turn	700	27	10	215	57	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

Leisch Method for Weaving Analysis

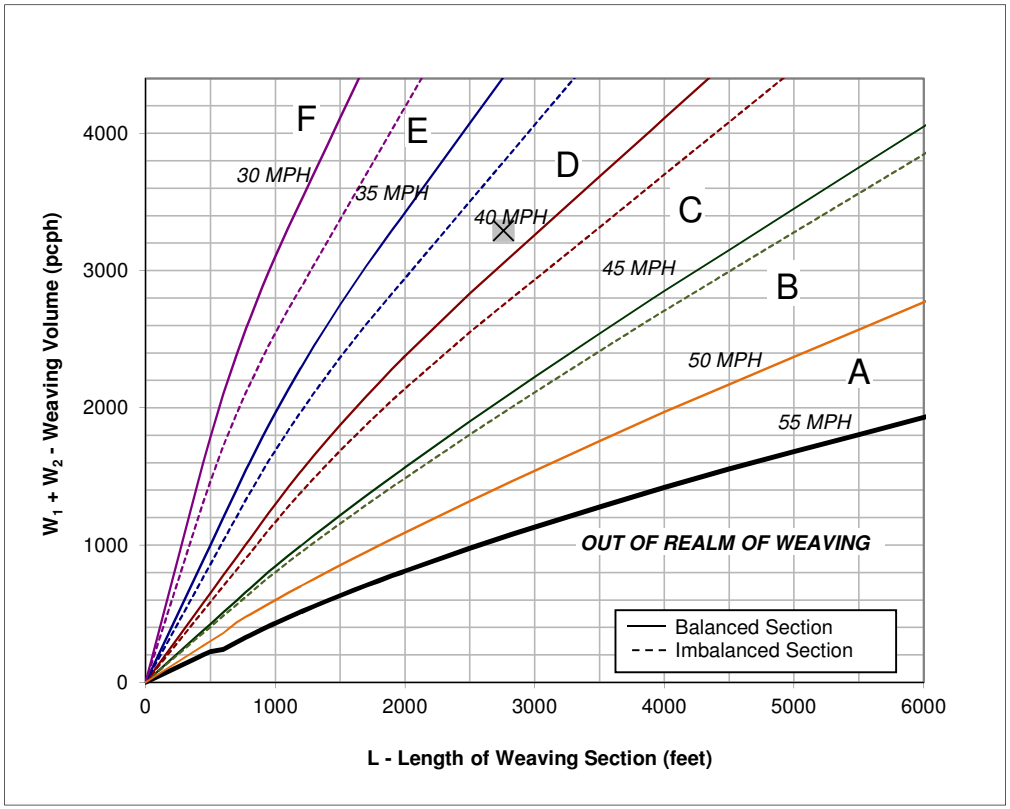
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	2,760

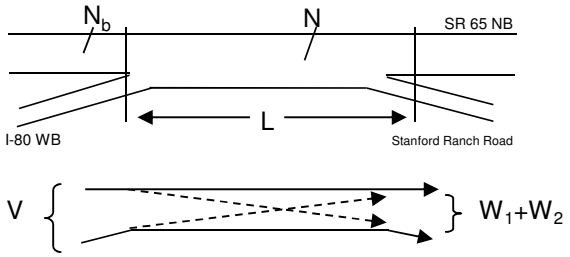
Project Information

Project	I-80/SR 65 Interchange
Scenario	Alt 1 - Design Year PM
Freeway	SR 65 NB
On-ramp	I-80 WB
Off-ramp	Stanford Ranch Road

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,860	Volume (vph)*	1,759	Volume (vph)*	1,468
Truck Percentage	5.0%	Truck Percentage	3.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,032	Volume (pcph)	1,785	Volume (pcph)	1,505



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? [If optional exit lane, then "Y". Otherwise "N".]	Y
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?	**35 MPH** and **40 MPH**
If below the 55 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F.	
3. Interpolated Weaving Speed (S_w, mph)	39.1
4. Weaving Intensity Factor (k)	2.62
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	2,367
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

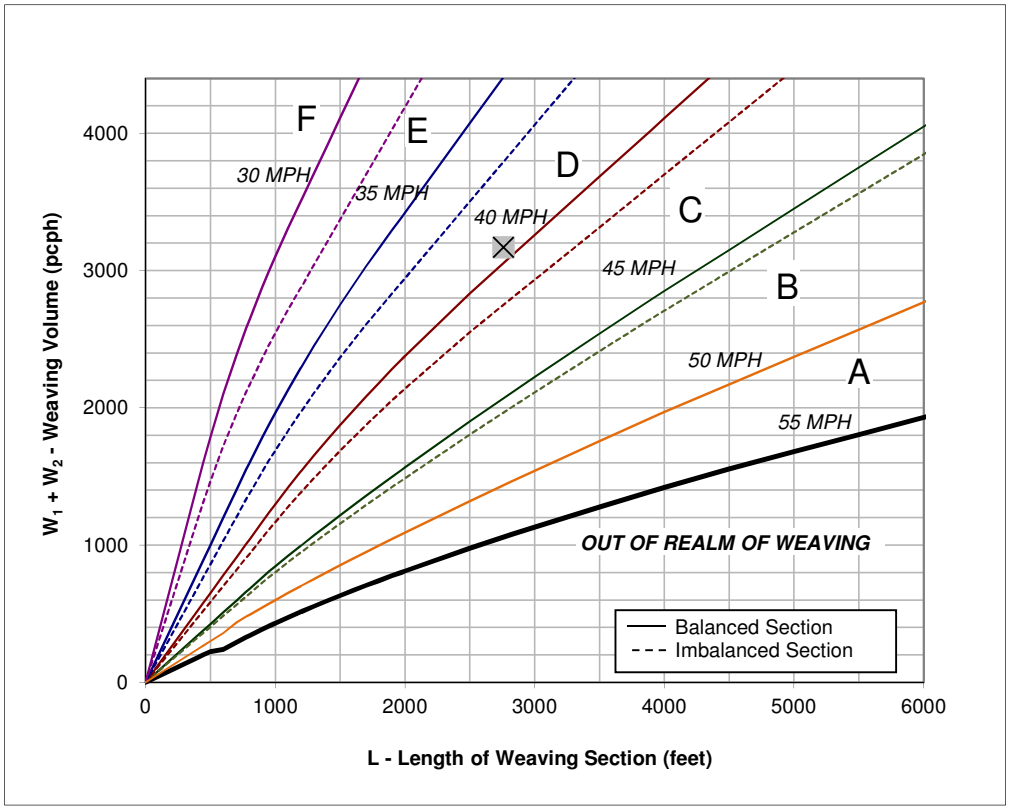
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	2,760

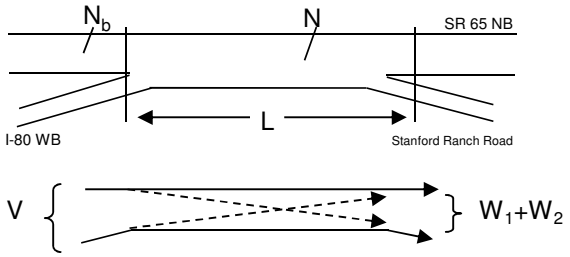
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,820	Volume (vph)*	1,764	Volume (vph)*	1,344
Truck Percentage	5.0%	Truck Percentage	3.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,991	Volume (pcph)	1,790	Volume (pcph)	1,378

Project Information

Project	I-80/SR 65 Interchange
Scenario	Alt 2 - Design Year PM
Freeway	SR 65 NB
On-ramp	I-80 WB
Off-ramp	Stanford Ranch Road



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **39.6**
4. Weaving Intensity Factor (k) **2.57**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,290**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

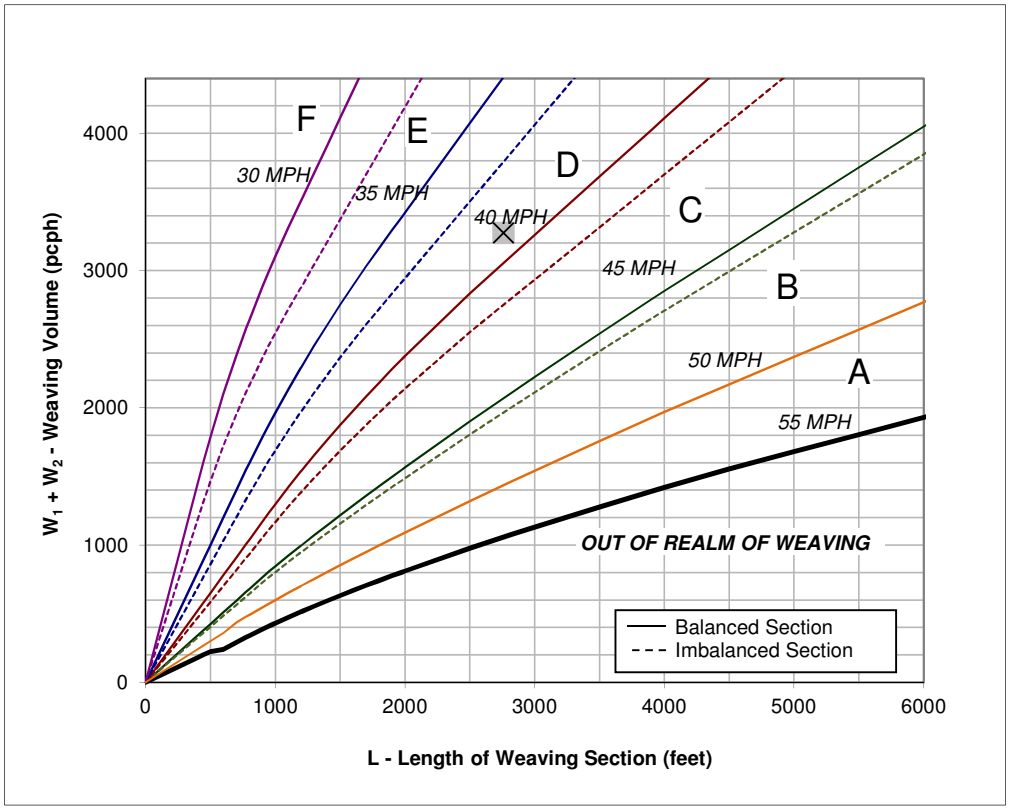
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	2,760

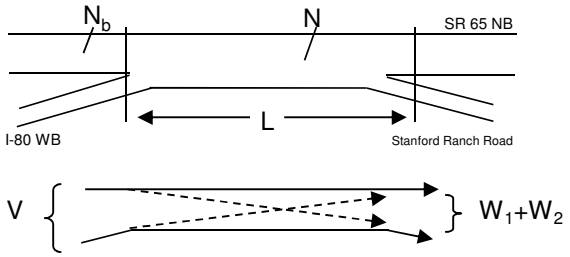
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,980	Volume (vph)*	1,695	Volume (vph)*	1,516
Truck Percentage	5.0%	Truck Percentage	3.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	7,155	Volume (pcph)	1,720	Volume (pcph)	1,554

Project Information

Project	I-80/SR 65 Interchange
Scenario	Alt 3 - Design Year PM
Freeway	SR 65 NB
On-ramp	I-80 WB
Off-ramp	Stanford Ranch Road



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? [If optional exit lane, then "Y". Otherwise "N".]	Y
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?	**35 MPH** and **40 MPH**
If below the 55 MPH curve, out of the realm of weaving. If left of the 30 MPH curve, LOS is F.	
3. Interpolated Weaving Speed (S_w, mph)	39.2
4. Weaving Intensity Factor (k)	2.61
5. Service Volume (SV, pcph) $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$	2,414
6. Level of Service (LOS)	F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

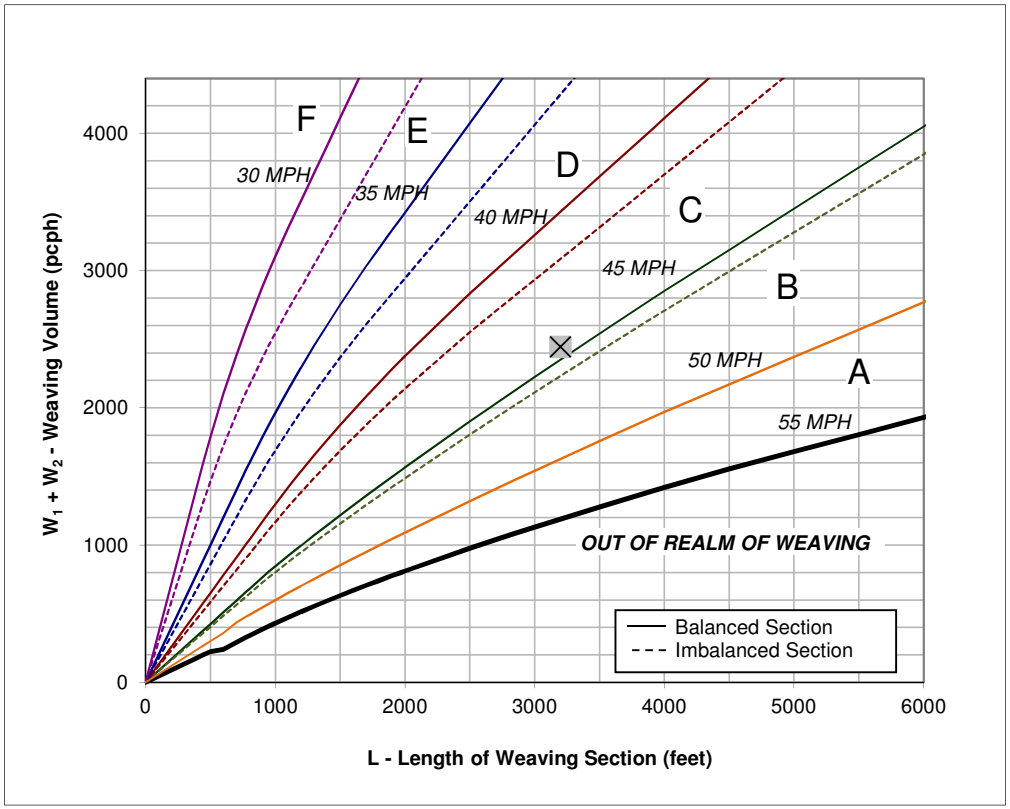
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	3,200

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,189	Volume (vph)*	994	Volume (vph)*	1,418
Truck Percentage	3.5%	Truck Percentage	2.0%	Truck Percentage	3.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,297	Volume (pcph)	1,004	Volume (pcph)	1,439

Project Information

Project	I-80/SR 65 Interchange
Scenario	Alt 1 - Design Year PM
Freeway	SR 65 NB
On-ramp	Stanford Ranch Rd
Off-ramp	Pleasant Grove Blvd



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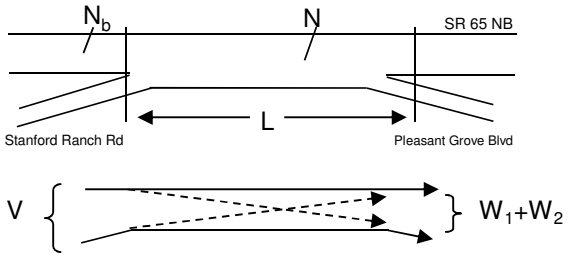


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **44.6**
4. Weaving Intensity Factor (k) **2.02**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,440**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

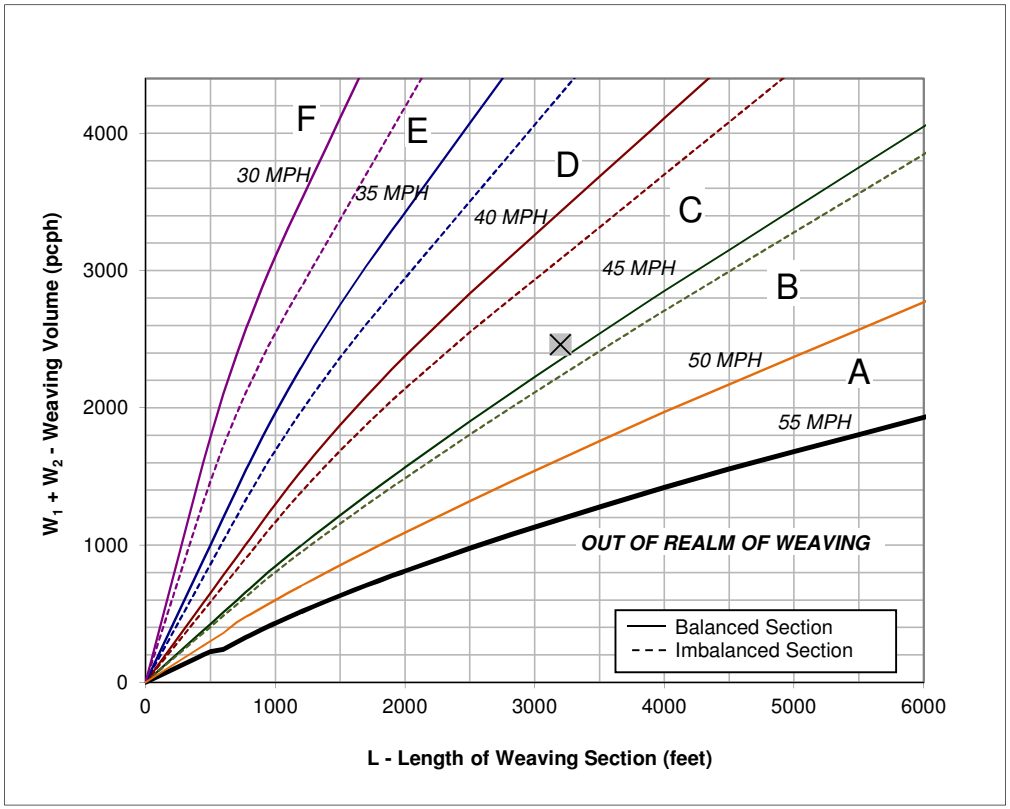
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	3,200

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,117	Volume (vph)*	1,003	Volume (vph)*	1,425
Truck Percentage	3.5%	Truck Percentage	2.0%	Truck Percentage	3.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,224	Volume (pcph)	1,013	Volume (pcph)	1,446

Project Information

Project	I-80/SR 65 Interchange
Scenario	Alt 2 - Design Year PM
Freeway	SR 65 NB
On-ramp	Stanford Ranch Rd
Off-ramp	Pleasant Grove Blvd



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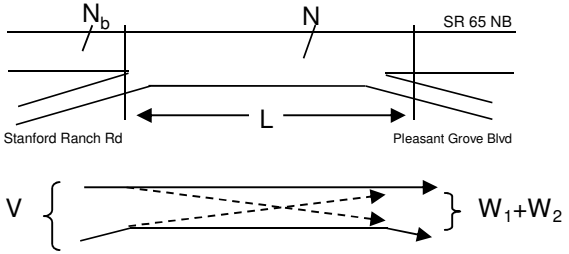


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **44.5**
4. Weaving Intensity Factor (k) **2.03**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,424**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

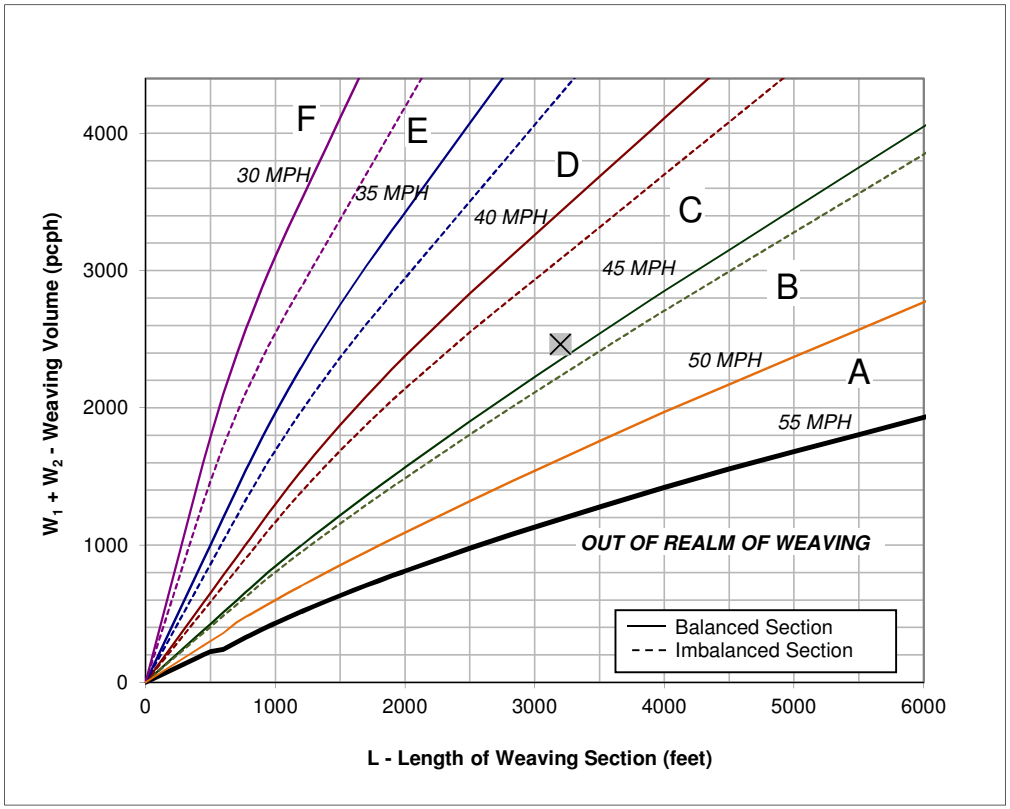
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	3
Length of Weaving Section (feet)	L	3,200

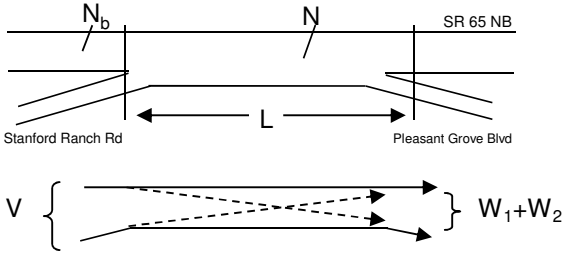
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,117	Volume (vph)*	995	Volume (vph)*	1,437
Truck Percentage	3.5%	Truck Percentage	2.0%	Truck Percentage	3.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,224	Volume (pcph)	1,005	Volume (pcph)	1,459

Project Information

Project	I-80/SR 65 Interchange
Scenario	Alt 3 - Design Year PM
Freeway	SR 65 NB
On-ramp	Stanford Ranch Rd
Off-ramp	Pleasant Grove Blvd



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **44.5**
4. Weaving Intensity Factor (k) **2.03**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,421**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

I-80/SR 65 Interchange Improvements

Vissim Model Results – Existing Conditions

VISSIM Metrics
Calibration Comparison
I-80 / SR-65 Interchange
Fehr & Peers
Link Volumes
February 15, 2013

AM Peak Period

Link		Measured Volumes	Modeled Conditions				Link Flow Criteria		Link GEH Criteria	
		Demand Volume (vph)	Served Volume (vph)	Difference			Measure	Meets Target?	Target	Meets Target?
Fwy	Location			vph	%	GEH				
Interstate 80	EB - Auburn Blvd Off to On-ramp	18,390	18,521	131	1%	1.0	+/- 400 vph	Yes	< 5	Yes
	EB - Auburn Blvd On-ramp	2,374	2,405	31	1%	0.6	+/- 15%	Yes	< 5	Yes
	EB - Auburn Blvd to Douglas Blvd	20,764	20,898	134	1%	0.9	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd EB Off-Ramp	4,053	4,035	-18	0%	0.3	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd EB to WB Off-ramp	16,711	16,832	121	1%	0.9	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd WB Off-Ramp	940	972	32	3%	1.0	+/- 15%	Yes	< 5	Yes
	EB - Douglas Blvd Off to On-Ramp	15,771	15,848	77	0%	0.6	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd On-Ramp	2,981	2,951	-30	-1%	0.5	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd to Eureka Rd	18,752	18,783	31	0%	0.2	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd Off-Ramp	3,572	3,754	182	5%	3.0	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd Off to On-ramp	15,180	15,015	-166	-1%	1.3	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd EB On-Ramp	494	516	22	4%	1.0	+/- 100 vph	Yes	< 5	Yes
	EB - Eureka Rd EB to WB On-Ramp	15,674	15,526	-148	-1%	1.2	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd WB On-Ramp	1,475	1,384	-91	-6%	2.4	+/- 15%	Yes	< 5	Yes
	EB - Eureka Rd to Taylor Rd	17,149	16,903	-246	-1%	1.9	+/- 400 vph	Yes	< 5	Yes
	EB - Taylor Rd Off-Ramp	744	814	70	9%	2.5	+/- 15%	Yes	< 5	Yes
	EB - Taylor Rd to SR-65	16,405	16,074	-332	-2%	2.6	+/- 400 vph	Yes	< 5	Yes
	EB - SR-65 Off-Ramp	8,324	7,693	-631	-8%	7.1	+/- 400 vph	No	< 5	No
	EB - SR-65 Off to On-Ramp	8,081	8,365	284	4%	3.1	+/- 400 vph	Yes	< 5	Yes
	EB - SR-65 On-Ramp	3,601	3,595	-6	0%	0.1	+/- 400 vph	Yes	< 5	Yes
	EB - SR-65 to Rocklin Rd	11,682	11,947	265	2%	2.4	+/- 400 vph	Yes	< 5	Yes
	EB - Rocklin Rd Off-Ramp	3,709	3,797	88	2%	1.4	+/- 400 vph	Yes	< 5	Yes
	EB - Rocklin Rd Off to On-ramp	7,973	8,128	155	2%	1.7	+/- 400 vph	Yes	< 5	Yes
	EB - Rocklin Rd On-Ramp	612	592	-20	-3%	0.8	+/- 100 vph	Yes	< 5	Yes
	EB - Rocklin Rd to Sierra College Blvd	8,585	8,713	128	1%	1.4	+/- 400 vph	Yes	< 5	Yes
	EB - Sierra College Rd Off-Ramp	960	988	28	3%	0.9	+/- 15%	Yes	< 5	Yes
	EB - Sierra College Blvd Off to On-Ramp	7,625	7,716	91	1%	1.0	+/- 400 vph	Yes	< 5	Yes
	EB - Sierra College Blvd SB On-Ramp	411	402	-9	-2%	0.5	+/- 100 vph	Yes	< 5	Yes
	EB - Sierra College Blvd SB to NB On-Ramp	8,036	8,117	81	1%	0.9	+/- 400 vph	Yes	< 5	Yes
	EB - Sierra College Blvd NB On-Ramp	876	835	-41	-5%	1.4	+/- 15%	Yes	< 5	Yes
	EB - Sierra College Blvd to Horseshoe Bar Rd	8,912	8,947	35	0%	0.4	+/- 400 vph	Yes	< 5	Yes
	WB - Horseshoe Bar Rd to Sierra College Blvd	13,864	13,940	76	1%	0.6	+/- 400 vph	Yes	< 5	Yes
	WB - Sierra College Blvd Off-ramp	2,282	2,259	-23	-1%	0.5	+/- 15%	Yes	< 5	Yes
	WB - Sierra College Blvd Off to On-ramp	11,582	11,672	90	1%	0.8	+/- 400 vph	Yes	< 5	Yes
	WB - Sierra College Blvd NB On-Ramp	194	196	2	1%	0.1	+/- 100 vph	Yes	< 5	Yes
	WB - Sierra College Blvd NB to SB On-Ramp	11,776	11,864	88	1%	0.8	+/- 400 vph	Yes	< 5	Yes
	WB - Sierra College Blvd SB On-Ramp	945	971	26	3%	0.8	+/- 15%	Yes	< 5	Yes
	WB - Sierra College Blvd to Rocklin Rd	12,721	12,828	107	1%	1.0	+/- 400 vph	Yes	< 5	Yes
	WB - Rocklin Rd Off-Ramp	686	686	0	0%	0.0	+/- 100 vph	Yes	< 5	Yes
	WB - Rocklin Rd Off to On-Ramp	12,035	12,130	95	1%	0.9	+/- 400 vph	Yes	< 5	Yes
	WB - Rocklin Rd On-Ramp	2,695	2,765	70	3%	1.3	+/- 400 vph	Yes	< 5	Yes
	WB - Rocklin Rd to SR-65	14,730	14,881	151	1%	1.2	+/- 400 vph	Yes	< 5	Yes
	WB - SR-65 Off-Ramp	3,865	4,072	207	5%	3.3	+/- 400 vph	Yes	< 5	Yes
	WB - SR-65 Off to On-Ramp	10,865	10,789	-76	-1%	0.7	+/- 400 vph	Yes	< 5	Yes
	WB - SR-65 On-Ramp	11,253	11,211	-42	0%	0.4	+/- 400 vph	Yes	< 5	Yes
	WB - SR-65 to Taylor Rd	22,118	21,631	-487	-2%	3.3	+/- 400 vph	No	< 5	Yes
	WB - Taylor Rd On-Ramp	1,837	1,864	27	1%	0.6	+/- 15%	Yes	< 5	Yes
	WB - Taylor Rd to Atlantic St	23,955	23,855	-100	0%	0.6	+/- 400 vph	Yes	< 5	Yes
	WB - Atlantic St WB Off-Ramp	1,039	1,041	2	0%	0.0	+/- 15%	Yes	< 5	Yes
	WB - Atlantic St WB to EB Off-ramp	22,916	22,807	-109	0%	0.7	+/- 400 vph	Yes	< 5	Yes
	WB - Atlantic St EB Off-ramp	2,814	2,719	-95	-3%	1.8	+/- 400 vph	Yes	< 5	Yes
	WB - Atlantic St Off to On-ramp	20,102	20,087	-15	0%	0.1	+/- 400 vph	Yes	< 5	Yes
	WB - Atlantic St On-Ramp	2,382	2,293	-89	-4%	1.8	+/- 15%	Yes	< 5	Yes
	WB - Atlatnic St to Douglas Blvd	22,484	22,376	-108	0%	0.7	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd Off-Ramp	3,203	3,058	-145	-5%	2.6	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd Off to On-Ramp	19,281	19,318	37	0%	0.3	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd WB On-Ramp	2,693	2,507	-186	-7%	3.7	+/- 15%	Yes	< 5	Yes
	WB - Douglas Blvd WB to EB On-Ramp	21,974	21,825	-150	-1%	1.0	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd EB On-Ramp	1,255	1,257	2	0%	0.0	+/- 15%	Yes	< 5	Yes
	WB - Douglas Blvd to Riverside Ave	23,229	23,071	-158	-1%	1.0	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave Off-ramp	1,860	1,689	-171	-9%	4.1	+/- 15%	Yes	< 5	Yes
	WB - Riverside Ave Off to On-Ramp	21,369	21,375	6	0%	0.0	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave NB On-ramp	699	723	24	3%	0.9	+/- 100 vph	Yes	< 5	Yes
	WB - Riverside Ave NB to SB On-Ramp	22,068	22,098	30	0%	0.2	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave SB On-ramp	4,233	4,324	91	2%	1.4	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave to Antelope Rd	26,301	26,420	119	0%	0.7	+/- 400 vph	Yes	< 5	Yes
	WB - Antelope Rd Off-ramp	1,270	1,151	-119	-9%	3.4	+/- 15%	Yes	< 5	Yes
	WB - Antelope Rd Off to On-Ramp	25,031	25,275	244	1%	1.5	+/- 400 vph	Yes	< 5	Yes
	WB - Antelope Rd WB On-ramp	2,088	2,083	-5	0%	0.1	+/- 15%	Yes	< 5	Yes
	WB - Antelope Rd WB to EB On-Ramp	27,119	27,359	240	1%	1.5	+/- 400 vph	Yes	< 5	Yes
	WB - Antelope Rd EB On-ramp	1,448	1,441	-7	-1%	0.2	+/- 15%	Yes	< 5	Yes
	WB - Antelope Rd to Elkhorn Blvd	28,567	28,633	66	0%	0.4	+/- 400 vph	Yes	< 5	Yes
	WB - Elkhorn Blvd Off-ramp	2,315	2,148	-167	-7%	3.5	+/- 15%	Yes	< 5	Yes
	WB - Elkhorn Blvd Off to On-Ramp	26,252	26,653	401	2%	2.5	+/- 400 vph	No	< 5	Yes
	WB - Elkhorn Blvd WB On-ramp	2,597	2,587	-10	0%	0.2	+/- 15%	Yes	< 5	Yes
	WB - Elkhorn Blvd WB to EB On-Ramp	28,849	29,235	386	1%	2.3	+/- 400 vph	Yes	< 5	Yes
	WB - Elkhorn Blvd EB On-ramp	3,184	3,160	-24	-1%	0.4	+/- 400 vph	Yes	< 5	Yes
	WB - Elkhorn Blvd to Madison Ave	32,033	32,393	360	1%	2.0	+/- 400 vph	Yes	< 5	Yes
	NB - I-80 to Stanford Ranch Rd	12,189	11,737	-452	-4%	4.1	+/- 400 vph	No	< 5	Yes
	NB - Stanford Ranch Rd Off-Ramp	2,331	2,239	-92	-4%	1.9	+/- 15%	Yes	< 5	Yes
	NB - Stanford Ranch Rd Off to On-Ramp	9,858	9,487	-371	-4%	3.8	+/- 400 vph	Yes	< 5	Yes
	NB - Stanford Ranch Rd On-Ramp	1,712	1,698	-14	-1%	0.3	+/- 15%	Yes	< 5	Yes
	NB - Stanford Ranch Rd to Pleasant Grove Blvd	11,570	11,169	-401	-3%	3.8	+/- 400 vph	No	< 5	Yes
	NB - Pleasant Grove Blvd Off-Ramp	2,131	1,978	-153	-7%	3.4	+/- 15%	Yes	< 5	Yes
	NB - Pleasant Grove Blvd Off to On-Ramp	9,439	9,184	-255	-3%	2.6	+/- 400 vph	Yes	< 5	Yes
	NB - Pleasant Grove Blvd On-Ramp	830	810	-20	-2%	0.7	+/- 15%	Yes	< 5	Yes
	NB - Pleasant Grove to Blue Oaks Blvd	10,269	9,990	-279	-3%	2.8	+/- 400 vph	Yes	< 5	Yes

State Route 65	NB - Blue Oaks Blvd Off-Ramp	4,193	4,035	-158	-4%	2.5	+/- 400 vph	Yes	< 5	Yes
	NB - Blue Oaks Blvd Off to On-Ramp	6,076	5,942	-134	-2%	1.7	+/- 400 vph	Yes	< 5	Yes
	NB - Blue Oaks Blvd On-Ramp	1,134	1,118	-16	-1%	0.5	+/- 15%	Yes	< 5	Yes
	NB - Blue Oaks Blvd to Sunset Blvd	7,210	7,052	-158	-2%	1.9	+/- 400 vph	Yes	< 5	Yes
	NB - Sunset Blvd Off-Ramp	3,371	3,279	-92	-3%	1.6	+/- 400 vph	Yes	< 5	Yes
	NB - Sunset Blvd Off to On-ramp	3,839	3,766	-73	-2%	1.2	+/- 400 vph	Yes	< 5	Yes
	NB - Sunset Blvd EB On-Ramp	113	117	4	4%	0.4	+/- 100 vph	Yes	< 5	Yes
	NB - Sunset Blvd EB to WB On-ramp	3,952	3,883	-70	-2%	1.1	+/- 400 vph	Yes	< 5	Yes
	NB - Sunset Blvd WB On-Ramp	609	597	-12	-2%	0.5	+/- 100 vph	Yes	< 5	Yes
	NB - Sunset Blvd to Twelve Bridges Dr	4,561	4,467	-94	-2%	1.4	+/- 400 vph	Yes	< 5	Yes
	NB - Twelve Bridges Dr Off-Ramp	979	915	-64	-7%	2.1	+/- 15%	Yes	< 5	Yes
	NB - Twelve Bridges Dr Off to On-ramp	3,582	3,542	-41	-1%	0.7	+/- 400 vph	Yes	< 5	Yes
	NB - Twelve Bridges Dr On-Ramp	631	607	-24	-4%	1.0	+/- 100 vph	Yes	< 5	Yes
	NB - Twelve Bridges Dr to Sterling Pkwy	4,213	4,147	-66	-2%	1.0	+/- 400 vph	Yes	< 5	Yes
	SB - Sterling Pkwy to Twelve Bridges Dr	8,307	8,327	20	0%	0.2	+/- 400 vph	Yes	< 5	Yes
	SB - Twelve Bridges Dr Off-Ramp	865	852	-14	-2%	0.5	+/- 15%	Yes	< 5	Yes
	SB - Twelve Bridges Dr Off to On-Ramp	7,442	7,474	32	0%	0.4	+/- 400 vph	Yes	< 5	Yes
	SB - Twelve Bridges Dr On-Ramp	1,930	1,876	-54	-3%	1.2	+/- 15%	Yes	< 5	Yes
	SB - Twelve Bridges Dr to Sunset Blvd	9,372	9,343	-29	0%	0.3	+/- 400 vph	Yes	< 5	Yes
	SB - Sunset Blvd Off-Ramp	1,081	1,041	-40	-4%	1.2	+/- 15%	Yes	< 5	Yes
	SB - Sunset Blvd Off to On-ramp	8,291	8,294	3	0%	0.0	+/- 400 vph	Yes	< 5	Yes
	SB - Sunset Blvd WB On-Ramp	1,224	1,203	-21	-2%	0.6	+/- 15%	Yes	< 5	Yes
	SB - Sunset Blvd WB to EB On-Ramp	9,515	9,497	-18	0%	0.2	+/- 400 vph	Yes	< 5	Yes
	SB - Sunset Blvd EB On-Ramp	1,075	1,040	-35	-3%	1.1	+/- 15%	Yes	< 5	Yes
	SB - Sunset Blvd to Blue Oaks Blvd	10,590	10,534	-56	-1%	0.5	+/- 400 vph	Yes	< 5	Yes
	SB - Blue Oaks Blvd Off-Ramp	1,761	1,798	37	2%	0.9	+/- 15%	Yes	< 5	Yes
	SB - Blue Oaks Blvd Off to On-Ramp	8,829	8,729	-100	-1%	1.1	+/- 400 vph	Yes	< 5	Yes
	SB - Blue Oaks Blvd WB On-Ramp	1,330	1,217	-113	-9%	3.2	+/- 15%	Yes	< 5	Yes
	SB - Blue Oaks Blvd WB to EB On-Ramp	10,159	9,943	-216	-2%	2.2	+/- 400 vph	Yes	< 5	Yes
	SB - Blue Oaks Blvd EB On-Ramp	3,103	2,907	-197	-6%	3.6	+/- 400 vph	Yes	< 5	Yes
	SB - Blue Oaks Blvd to Pleasant Grove Blvd	13,262	12,846	-416	-3%	3.6	+/- 400 vph	No	< 5	Yes
	SB - Pleasant Grove Blvd Off-Ramp	1,680	1,662	-18	-1%	0.4	+/- 15%	Yes	< 5	Yes
	SB - Pleasant Grove Blvd Off to On-ramp	11,582	11,175	-407	-4%	3.8	+/- 400 vph	No	< 5	Yes
	SB - Pleasant Grove Blvd WB On-Ramp	1,649	1,602	-47	-3%	1.2	+/- 15%	Yes	< 5	Yes
	SB - Pleasant Grove Blvd WB to EB On-Ramp	13,231	12,776	-455	-3%	4.0	+/- 400 vph	No	< 5	Yes
	SB - Pleasant Grove Blvd EB On-Ramp	1,839	1,795	-44	-2%	1.0	+/- 15%	Yes	< 5	Yes
	SB - Pleasant Grove Blvd to Galleria Blvd	15,070	14,565	-506	-3%	4.2	+/- 400 vph	No	< 5	Yes
	SB - Galleria Blvd Off-Ramp	2,744	2,389	-355	-13%	7.0	+/- 15%	Yes	< 5	No
	SB - Galleria Blvd Off to On-Ramp	12,326	12,171	-155	-1%	1.4	+/- 400 vph	Yes	< 5	Yes
	SB - Galleria Blvd On-Ramp	2,528	2,652	124	5%	2.4	+/- 15%	Yes	< 5	Yes
	SB - Galleria Blvd to I-80	14,854	14,821	-33	0%	0.3	+/- 400 vph	Yes	< 5	Yes
	SB SR-65 n/o Sterling Pkwy	4,945	5,436	491	10%	6.8	+/- 400 vph	No	< 5	No
	NB SR-65 n/o Sterling Pkwy	3,235	3,197	-38	-1%	0.7	+/- 400 vph	Yes	< 5	Yes
	EB Sterling Pkwy e/o SR-65	1,115	1,085	-30	-3%	0.9	+/- 15%	Yes	< 5	Yes
	WB Sterling Pkwy e/o SR-65	3,499	3,042	-457	-13%	8.0	+/- 400 vph	No	< 5	No
	EB Twelve Bridges Dr w/o SB SR-65	531	476	-55	-10%	2.5	+/- 100 vph	Yes	< 5	Yes
	WB Twelve Bridges Dr w/o SB SR-65	887	830	-57	-6%	1.9	+/- 15%	Yes	< 5	Yes
	EB Twelve Bridges Dr e/o SB SR-65	875	807	-68	-8%	2.3	+/- 15%	Yes	< 5	Yes
	WB Twelve Bridges Dr e/o SB SR-65	2,296	2,190	-106	-5%	2.2	+/- 15%	Yes	< 5	Yes
	EB Twelve Bridges Dr e/o NB SR-65	1,451	1,450	-1	0%	0.0	+/- 15%	Yes	< 5	Yes
	WB Twelve Bridges Dr e/o NB SR-65	2,524	2,531	7	0%	0.1	+/- 15%	Yes	< 5	Yes
	EB Sunset Blvd w/o SB SR-65	1,511	1,493	-18	-1%	0.5	+/- 15%	Yes	< 5	Yes
	WB Sunset Blvd w/o SB SR-65	2,714	2,751	37	1%	0.7	+/- 400 vph	Yes	< 5	Yes
	EB Sunset Blvd e/o SB SR-65	1,193	1,172	-21	-2%	0.6	+/- 15%	Yes	< 5	Yes
	WB Sunset Blvd e/o SB SR-65	3,614	3,634	20	1%	0.3	+/- 400 vph	Yes	< 5	Yes
	EB Sunset Blvd e/o NB SR-65	2,632	2,450	-182	-7%	3.6	+/- 15%	Yes	< 5	Yes
	WB Sunset Blvd e/o NB SR-65	2,404	3,152	748	31%	14.2	+/- 400 vph	No	< 5	No
	EB Blue Oaks Blvd w/o Washington Blvd	5,406	5,339	-67	-1%	0.9	+/- 400 vph	Yes	< 5	Yes
	WB Blue Oaks Blvd w/o Washington Blvd	2,651	2,518	-133	-5%	2.6	+/- 15%	Yes	< 5	Yes
	WB Blue Oaks Blvd w/o NB SR-65 ramp	3,617	3,139	-478	-13%	8.2	+/- 400 vph	No	< 5	No
	EB Blue Oaks Blvd e/o Washington Blvd	6,018	5,583	-435	-7%	5.7	+/- 400 vph	No	< 5	No
	WB Blue Oaks Blvd e/o Washington Blvd	3,264	3,140	-124	-4%	2.2	+/- 400 vph	Yes	< 5	Yes
	SB Washington Blvd s/o Blue Oaks Blvd	1,884	2,159	275	15%	6.1	+/- 15%	Yes	< 5	No
	NB Washington Blvd s/o Blue Oaks Blvd	1,289	1,202	-87	-7%	2.5	+/- 15%	Yes	< 5	Yes
	EB Blue Oaks Blvd e/o NB SR-65	2,799	2,893	94	3%	1.8	+/- 400 vph	Yes	< 5	Yes
	WB Blue Oaks Blvd e/o NB SR-65	2,973	3,024	51	2%	0.9	+/- 400 vph	Yes	< 5	Yes
	EB Pleasant Grove Blvd w/o SB SR-65	4,344	4,359	15	0%	0.2	+/- 400 vph	Yes	< 5	Yes
	WB Pleasant Grove Blvd w/o SB SR-65	4,792	4,816	24	0%	0.3	+/- 400 vph	Yes	< 5	Yes
	EB Pleasant Grove Blvd e/o SB SR-65	2,887	2,924	37	1%	0.7	+/- 400 vph	Yes	< 5	Yes
	WB Pleasant Grove Blvd e/o SB SR-65	5,143	5,121	-22	0%	0.3	+/- 400 vph	Yes	< 5	Yes
	EB Pleasant Grove Blvd e/o NB SR-65	3,353	3,419	66	2%	1.1	+/- 400 vph	Yes	< 5	Yes
	WB Pleasant Grove Blvd e/o NB SR-65	4,308	4,467	159	4%	2.4	+/- 400 vph	Yes	< 5	Yes
	EB Five Star Blvd w/o Stanford Ranch Rd	731	643	-88	-12%	3.4	+/- 15%	Yes	< 5	Yes
	WB Five Star Blvd w/o Stanford Ranch Rd	813	811	-2	0%	0.1	+/- 15%	Yes	< 5	Yes
	EB Five Star Blvd e/o Stanford Ranch Rd	953	916	-37	-4%	1.2	+/- 15%	Yes	< 5	Yes
	WB Five Star Blvd e/o Stanford Ranch Rd	1,207	1,173	-34	-3%	1.0	+/- 15%	Yes	< 5	Yes
	SB Stanford Ranch Rd n/o Five Star Blvd	3,832	4,162	330	9%	5.2	+/- 400 vph	Yes	< 5	No
	NB Stanford Ranch Rd n/o Five Star Blvd	2,174	2,033	-141	-7%	3.1	+/- 15%	Yes	< 5	Yes
	SB Stanford Ranch Rd s/o Five Star Blvd	5,143	5,294	151	3%	2.1	+/- 400 vph	Yes	< 5	Yes
	NB Stanford Ranch Rd s/o Five Star Blvd	3,313	3,076	-237	-7%	4.2	+/- 400 vph	Yes	< 5	Yes
	SB Stanford Ranch Rd n/o NB SR-65	4,978	5,258	280	6%	3.9	+/- 400 vph	Yes	< 5	Yes
	NB Stanford Ranch Rd n/o NB SR-65	3,372	3,260	-112	-3%	1.9	+/- 400 vph	Yes	< 5	Yes
	SB Galleria Blvd n/o SB SR-65	5,173	5,272	99	2%	1.4	+/- 400 vph	Yes	< 5	Yes
	NB Galleria Blvd n/o SB SR-65	2,948	2,746	-202	-7%	3.8	+/- 400 vph	Yes	< 5	Yes
	SB Galleria Blvd s/o SB SR-65	5,320	5,196	-124	-2%	1.7	+/- 400 vph	Yes	< 5	Yes
	NB Galleria Blvd s/o SB SR-65	2,879	2,939	60	2%	1.1	+/- 400 vph	Yes	< 5	Yes
	EB Antelope Creek Dr w/o Galleria Blvd	167	177	10	6%	0.8	+/- 100 vph	Yes	< 5	Yes
	WB Antelope Creek Dr w/o Galleria Blvd	366	366	0	0%	0.0	+/- 100 vph	Yes	< 5	Yes
	EB Antelope Creek Dr e/o Galleria Blvd	593	613	20	3%	0.8	+/- 100 vph	Yes	< 5	Yes
	WB Antelope Creek Dr e/o Galleria Blvd	482	524	42	9%	1.9	+/- 100 vph	Yes	< 5	Yes
	SB Galleria Blvd n/o Antelope Creek Dr	4,660	4,497	-163	-4%	2.4	+/- 400 vph	Yes	< 5	Yes
	NB Galleria Blvd n/o Antelope Creek Dr	2,837	2,888	51	2%	1.0	+/- 400 vph	Yes	< 5	Yes
	SB Galleria Blvd s/o Antelope Creek Dr	4,292	4,162	-130	-3%	2.0	+/- 400 vph	Yes	< 5	Yes
	NB Galleria Blvd s/o Antelope Creek Dr	2,779	2,804	25	1%	0.5	+/- 400 vph	Yes	< 5	Yes
	EB Roseville Pkwy w/o Galleria Blvd	5,267	5,330	63	1%	0.9	+/- 400 vph	Yes	< 5	Yes
	WB Roseville Pkwy w/o Galleria Blvd	3,091	3,205	114	4%	2.0	+/- 400 vph	Yes	< 5	Yes
	EB Roseville Pkwy e/o Galleria Blvd	5,218	5,228	10	0%	0.1	+/- 400 vph	Yes	< 5	Yes

WB Roseville Pkwy e/o Galleria Blvd	3,859	3,908	49	1%	0.8	+/- 400 vph	Yes	< 5	Yes
SB Galleria Blvd n/o Roseville Pkwy	4,339	4,192	-147	-3%	2.3	+/- 400 vph	Yes	< 5	Yes
NB Galleria Blvd n/o Roseville Pkwy	2,900	2,928	28	1%	0.5	+/- 400 vph	Yes	< 5	Yes
SB Galleria Blvd s/o Roseville Pkwy	3,779	3,606	-173	-5%	2.9	+/- 400 vph	Yes	< 5	Yes
NB Galleria Blvd s/o Roseville Pkwy	1,523	1,537	14	1%	0.4	+/- 15%	Yes	< 5	Yes
EB Roseville Pkwy w/o Creekside Ridge Dr	5,205	5,165	-40	-1%	0.6	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy w/o Creekside Ridge Dr	3,958	4,010	52	1%	0.8	+/- 400 vph	Yes	< 5	Yes
SB Creekside Ridge Dr n/o Roseville Pkwy	294	341	47	16%	2.6	+/- 100 vph	Yes	< 5	Yes
NB Creekside Ridge Dr n/o Roseville Pkwy	825	700	-125	-15%	4.5	+/- 15%	No	< 5	Yes
SB Creekside Ridge Dr s/o Roseville Pkwy	54	53	-1	-2%	0.1	+/- 100 vph	Yes	< 5	Yes
NB Creekside Ridge Dr s/o Roseville Pkwy	43	48	5	11%	0.7	+/- 100 vph	Yes	< 5	Yes
EB Roseville Pkwy w/o Taylor Rd	5,267	5,434	167	3%	2.3	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy w/o Taylor Rd	4,562	4,690	128	3%	1.9	+/- 400 vph	Yes	< 5	Yes
EB Roseville Pkwy e/o Taylor Rd	6,555	6,307	-248	-4%	3.1	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy e/o Taylor Rd	4,804	4,616	-189	-4%	2.7	+/- 400 vph	Yes	< 5	Yes
SB Taylor Rd n/o Roseville Pkwy	1,907	1,781	-127	-7%	2.9	+/- 15%	Yes	< 5	Yes
NB Taylor Rd n/o Roseville Pkwy	1,193	1,203	10	1%	0.3	+/- 15%	Yes	< 5	Yes
SB Taylor Rd s/o Roseville Pkwy	1,631	1,472	-159	-10%	4.0	+/- 15%	Yes	< 5	Yes
NB Taylor Rd s/o Roseville Pkwy	1,963	1,842	-121	-6%	2.8	+/- 15%	Yes	< 5	Yes
EB Roseville Pkwy w/o Sunrise Ave	6,452	6,251	-201	-3%	2.5	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy w/o Sunrise Ave	4,677	4,421	-256	-5%	3.8	+/- 400 vph	Yes	< 5	Yes
EB Roseville Pkwy e/o Sunrise Ave	5,098	4,917	-182	-4%	2.6	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy e/o Sunrise Ave	4,484	4,268	-216	-5%	3.3	+/- 400 vph	Yes	< 5	Yes
SB Sunrise Ave n/o Roseville Pkwy	694	585	-110	-16%	4.3	+/- 100 vph	No	< 5	Yes
NB Sunrise Ave n/o Roseville Pkwy	1,700	1,624	-76	-4%	1.9	+/- 15%	Yes	< 5	Yes
SB Sunrise Ave s/o Roseville Pkwy	1,790	1,552	-238	-13%	5.8	+/- 15%	Yes	< 5	No
NB Sunrise Ave s/o Roseville Pkwy	1,635	1,409	-226	-14%	5.8	+/- 15%	Yes	< 5	No
EB Atlantic St w/o Wills Rd	2,535	2,647	112	4%	2.2	+/- 15%	Yes	< 5	Yes
WB Atlantic St w/o Wills Rd	1,895	1,882	-13	-1%	0.3	+/- 15%	Yes	< 5	Yes
EB Atlantic St w/o WB I-80	2,688	2,819	131	5%	2.5	+/- 400 vph	Yes	< 5	Yes
WB Atlantic St w/o WB I-80	2,057	2,055	-2	0%	0.0	+/- 15%	Yes	< 5	Yes
SB Wills Rd s/o Atlantic St	1,140	1,123	-17	-2%	0.5	+/- 15%	Yes	< 5	Yes
NB Wills Rd s/o Atlantic St	1,131	1,125	-6	-1%	0.2	+/- 15%	Yes	< 5	Yes
SB Galleria Blvd n/o Wills Rd	3,505	3,529	24	1%	0.4	+/- 400 vph	Yes	< 5	Yes
NB Galleria Blvd n/o Wills Rd	1,795	1,891	96	5%	2.2	+/- 15%	Yes	< 5	Yes
SB Harding Blvd s/o Wills Rd	3,388	3,259	-129	-4%	2.2	+/- 400 vph	Yes	< 5	Yes
NB Harding Blvd s/o Wills Rd	1,679	1,648	-31	-2%	0.8	+/- 15%	Yes	< 5	Yes
EB Eureka Rd w/o Taylor Rd	4,725	4,721	-5	0%	0.1	+/- 400 vph	Yes	< 5	Yes
WB Eureka Rd w/o Taylor Rd	2,623	3,893	1270	48%	22.3	+/- 400 vph	No	< 5	No
EB Eureka Rd e/o Taylor Rd	6,002	6,106	104	2%	1.3	+/- 400 vph	Yes	< 5	Yes
WB Eureka Rd e/o Taylor Rd	2,965	2,904	-61	-2%	1.1	+/- 400 vph	Yes	< 5	Yes
SB Taylor Rd n/o Eureka Rd	1,495	1,223	-272	-18%	7.4	+/- 15%	No	< 5	No
NB Taylor Rd n/o Eureka Rd	2,163	2,081	-82	-4%	1.8	+/- 15%	Yes	< 5	Yes
EB Eureka Rd w/o Sunrise Ave	5,864	5,887	23	0%	0.3	+/- 400 vph	Yes	< 5	Yes
WB Eureka Rd w/o Sunrise Ave	3,011	2,917	-94	-3%	1.7	+/- 400 vph	Yes	< 5	Yes
EB Eureka Rd e/o Sunrise Ave	4,522	4,737	215	5%	3.2	+/- 400 vph	Yes	< 5	Yes
WB Eureka Rd e/o Sunrise Ave	2,448	2,422	-26	-1%	0.5	+/- 15%	Yes	< 5	Yes
SB Sunrise Ave n/o Eureka Rd	1,588	1,458	-130	-8%	3.3	+/- 15%	Yes	< 5	Yes
NB Sunrise Ave n/o Eureka Rd	1,581	1,618	37	2%	0.9	+/- 15%	Yes	< 5	Yes
SB Sunrise Ave s/o Eureka Rd	2,211	1,876	-335	-15%	7.4	+/- 15%	No	< 5	No
NB Sunrise Ave s/o Eureka Rd	1,425	1,381	-44	-3%	1.2	+/- 15%	Yes	< 5	Yes
EB Douglas Blvd w/o Harding Blvd	3,203	3,586	383	12%	6.6	+/- 400 vph	Yes	< 5	No
WB Douglas Blvd w/o Harding Blvd	2,700	3,150	450	17%	8.3	+/- 400 vph	No	< 5	No
EB Douglas Blvd e/o Harding Blvd	3,146	4,127	981	31%	16.3	+/- 400 vph	No	< 5	No
WB Douglas Blvd e/o Harding Blvd	3,404	3,582	178	5%	3.0	+/- 400 vph	Yes	< 5	Yes
SB Harding Blvd n/o Douglas Blvd	2,009	1,236	-774	-39%	19.2	+/- 15%	No	< 5	No
NB Harding Blvd n/o Douglas Blvd	1,424	1,026	-398	-28%	11.4	+/- 15%	No	< 5	No
SB Harding Blvd s/o Douglas Blvd	256	274	18	7%	1.1	+/- 100 vph	Yes	< 5	Yes
NB Harding Blvd s/o Douglas Blvd	165	173	8	5%	0.6	+/- 100 vph	Yes	< 5	Yes
EB Douglas Blvd w/o Sunrise Ave	6,545	6,170	-375	-6%	4.7	+/- 400 vph	Yes	< 5	Yes
WB Douglas Blvd w/o Sunrise Ave	5,212	5,192	-21	0%	0.3	+/- 400 vph	Yes	< 5	Yes
EB Douglas Blvd e/o Sunrise Ave	5,497	5,225	-272	-5%	3.7	+/- 400 vph	Yes	< 5	Yes
WB Douglas Blvd e/o Sunrise Ave	4,698	4,796	98	2%	1.4	+/- 400 vph	Yes	< 5	Yes
SB Sunrise Ave n/o Douglas Blvd	1,545	1,658	113	7%	2.8	+/- 15%	Yes	< 5	Yes
NB Sunrise Ave n/o Douglas Blvd	2,298	2,324	26	1%	0.5	+/- 15%	Yes	< 5	Yes
SB Sunrise Ave s/o Douglas Blvd	1,824	1,288	-536	-29%	13.6	+/- 15%	No	< 5	No
NB Sunrise Ave s/o Douglas Blvd	2,043	2,254	211	10%	4.5	+/- 15%	Yes	< 5	Yes
EB Woodside Dr e/o Pacific St	188	184	-4	-2%	0.3	+/- 100 vph	Yes	< 5	Yes
WB Woodside Dr e/o Pacific St	469	463	-6	-1%	0.3	+/- 100 vph	Yes	< 5	Yes
SB Pacific St n/o Woodside Dr	3,309	3,201	-108	-3%	1.9	+/- 400 vph	Yes	< 5	Yes
NB Pacific St n/o Woodside Dr	1,605	1,634	29	2%	0.7	+/- 15%	Yes	< 5	Yes
SB Pacific St s/o Woodside Dr	3,594	3,475	-119	-3%	2.0	+/- 400 vph	Yes	< 5	Yes
NB Pacific St s/o Woodside Dr	1,609	1,630	21	1%	0.5	+/- 15%	Yes	< 5	Yes
EB Sunset Blvd w/o Pacific St	3,711	3,624	-87	-2%	1.4	+/- 400 vph	Yes	< 5	Yes
WB Sunset Blvd w/o Pacific St	1,672	1,814	142	8%	3.4	+/- 15%	Yes	< 5	Yes
EB Sunset Blvd e/o Pacific St	297	281	-16	-5%	0.9	+/- 100 vph	Yes	< 5	Yes
WB Sunset Blvd e/o Pacific St	463	419	-45	-10%	2.1	+/- 100 vph	Yes	< 5	Yes
SB Pacific St n/o Sunset Blvd	2,096	2,239	143	7%	3.1	+/- 15%	Yes	< 5	Yes
NB Pacific St n/o Sunset Blvd	2,529	2,557	28	1%	0.6	+/- 15%	Yes	< 5	Yes
SB Pacific St s/o Sunset Blvd	3,311	3,216	-95	-3%	1.7	+/- 400 vph	Yes	< 5	Yes
NB Pacific St s/o Sunset Blvd	1,539	1,587	48	3%	1.2	+/- 15%	Yes	< 5	Yes
EB Rocklin Rd w/o Granite Dr	2,406	2,379	-27	-1%	0.5	+/- 15%	Yes	< 5	Yes
WB Rocklin Rd w/o Granite Dr	1,982	1,934	-48	-2%	1.1	+/- 15%	Yes	< 5	Yes
EB Rocklin Rd e/o Granite Dr	3,000	3,008	8	0%	0.2	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd e/o Granite Dr	3,009	2,922	-87	-3%	1.6	+/- 400 vph	Yes	< 5	Yes
SB Granite Dr n/o Rocklin Rd	1,160	1,165	5	0%	0.1	+/- 15%	Yes	< 5	Yes
NB Granite Dr n/o Rocklin Rd	1,673	1,596	-77	-5%	1.9	+/- 15%	Yes	< 5	Yes
EB Rocklin Rd w/o WB I-80	3,153	3,195	42	1%	0.8	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd w/o WB I-80	3,161	3,103	-58	-2%	1.0	+/- 400 vph	Yes	< 5	Yes
EB Rocklin Rd e/o WB I-80	1,981	2,005	24	1%	0.5	+/- 15%	Yes	< 5	Yes
WB Rocklin Rd e/o WB I-80	3,998	3,994	-4	0%	0.1	+/- 400 vph	Yes	< 5	Yes
EB Rocklin Rd e/o EB I-80	3,572	3,596	24	1%	0.4	+/- 400 vph	Yes	< 5	Yes
EB Rocklin Rd e/o EB I-80	2,492	2,395	-97	-4%	2.0	+/- 15%	Yes	< 5	Yes
EB Rocklin Rd w/o Aguilar Rd	3,581	3,561	-20	-1%	0.3	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd w/o Aguilar Rd	2,567	2,249	-319	-12%	6.5	+/- 15%	Yes	< 5	No
EB Rocklin Rd e/o Aguilar Rd	3,295	3,248	-47	-1%	0.8	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd e/o Aguilar Rd	2,029	1,985	-44	-2%	1.0	+/- 15%	Yes	< 5	Yes

SB Aguilar Rd s/o Rocklin Rd	152	173	21	14%	1.6	+/- 100 vph	Yes	< 5	Yes
NB Aguilar Rd s/o Rocklin Rd	404	343	-61	-15%	3.2	+/- 100 vph	Yes	< 5	Yes
Overall	**1,450,418**	**1,442,063**	**-8355**	**-0.6%**	**6.9**	**+/- 5%**	**Yes**	**< 4**	**No**

Link Volumes		
	Target	% Met
< 700 vph	> 85 %	95%
> 700 & < 2,700 vph	> 85 %	96%
> 2,700 vph	> 85 %	90%
GEH Statistic	> 85 %	90%

Aggregated Volumes		
	Target	% Met
Intersections	> 85 %	86%
Interchanges	> 85 %	100%

VISSIM Metrics
Calibration Comparison
I-80/SR 65 Interchange
Fehr & Peers
Travel Time
June 3, 2012

AM Peak Period

		Measured	Modeled Conditions			Calibration Targets[1]	
Path	Time Period	Travel Time (minutes)	Travel Time (minutes)	Difference (minutes)	Percent Difference	Target	Meets Target?
I-80 WB: Blue Oaks Blvd to Antelope Road	7:15 - 7:30	10.27	8.40	-1.87	-18.2%	+/- 15%	No
	7:45 - 8:00	10.80	10.38	-0.42	-3.9%	+/- 15%	Yes
	8:15 - 8:30	8.05	8.50	0.45	5.6%	+/- 15%	Yes
I-80 EB: Antelope Road to Blue Oaks Blvd	7:00 - 7:15	6.69	6.79	0.10	1.5%	+/- 15%	Yes
	7:45 - 8:00	7.28	7.46	0.18	2.5%	+/- 15%	Yes
	8:15 - 8:30	6.99	6.89	-0.10	-1.5%	+/- 15%	Yes
	8:45 - 9:00	6.93	6.89	-0.04	-0.6%	+/- 15%	Yes
I-80 WB: Sierra College Blvd to Antelope Road	7:00 - 7:15	7.98	9.34	1.36	17.0%	+/- 15%	No
	7:30 - 7:45	8.25	8.46	0.21	2.5%	+/- 15%	Yes
	8:00 - 8:15	7.83	8.48	0.64	8.2%	+/- 15%	Yes
	8:30 - 8:45	7.73	8.33	0.60	7.7%	+/- 15%	Yes
I-80 EB: Antelope Road to Sierra College Blvd	7:15 - 7:30	5.93	6.58	0.65	10.9%	+/- 15%	Yes
	7:45 - 8:00	6.13	6.71	0.58	9.5%	+/- 15%	Yes
	8:30 - 8:45	5.91	6.55	0.64	10.9%	+/- 15%	Yes
	8:45 - 9:00	6.16	6.55	0.39	6.4%	+/- 15%	Yes

Measure	% Cases
> 85%	87%
Met Target	

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Existing Conditions**
Network Statistics **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	143,451	56
Travel Distance [mi]	All Vehicles	645,274	1,372
Travel Time [h]	All Vehicles	13,757	107.7
Average Speed [mph]	All Vehicles	46.9	0.4
Total Delay [h]	All Vehicles	2,672	118.7
Average Delay per Vehicle [s]	All Vehicles	66	2.9
VHD/VMT [min/mile]	All Vehicles	0.25	0.01
Number of Vehicles Served	HOV	29,190	103
Travel Distance [mi]	HOV	127,289	610
Travel Time [h]	HOV	2,707	23
Average Speed [mph]	HOV	47.0	0.3
Total Delay [h]	HOV	518	19
Average Delay per Vehicle [s]	HOV	63	2
VHD/VMT [min/mile]	HOV	0.24	0.01
Number of Vehicles Served	Truck	3,675	31
Travel Distance [mi]	Truck	19,339	309
Travel Time [h]	Truck	398	6
Average Speed [mph]	Truck	48.5	0
Total Delay [h]	Truck	68	3
Average Delay per Vehicle [s]	Truck	65	3
VHD/VMT [min/mile]	Truck	0.21	0.01

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	29,190	3,670	143,450
Demand Volume	24,518	3,839	143,735
Percent Demand Served	119.1%	95.6%	99.8%
Vehicle Miles of Travel	127,290	19,340	645,270
Person Miles of Travel	267,310	20,310	786,260
Vehicle Hours of Travel	2,710	400	13,760
Vehicle Hours of Delay	520	70	2,670
VHD % of VHT	19.2%	17.5%	19.4%
Average Delay per Vehicle (min)	1.07	1.14	1.12
Person Hours of Delay	1,090	70	3,240
Average Travel Speed	47.0	48.5	46.9

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	6,073	57	112.3%	845	15	115.0%				59.1	1.3	24.5	0.6	C
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	6,906	71	112.4%							62.2	0.2	27.9	0.3	D
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	6,902	66	112.3%				1,398	64	109.9%	62.1	0.7	23.8	0.6	C
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	5,505	78	113.0%				337	36	115.0%	63.4	0.3	18.7	0.4	B
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	5,162	72	112.7%							63.6	0.1	21.2	0.3	C
6	I-80 EB - Douglas Blvd On-ramp	Merge	5,161	74	112.7%	857	34	100.2%				61.3	1.1	26.8	0.9	C
7	I-80 EB - Eureka Rd Off-ramp	Diverge	6,016	101	110.7%				1,219	72	111.4%	61.7	0.4	26.2	0.5	C
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	4,795	109	110.4%							63.3	0.2	21.0	0.3	C
9	I-80 EB - Eureka Rd EB On-ramp	Merge	4,798	116	110.5%	200	25	123.6%				63.3	0.2	18.6	0.3	B
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	5,001	127	111.0%	438	40	102.9%	242	32	115.3%	62.4	0.4	23.1	0.6	C
11	I-80 EB - Taylor Rd to SR-65	Basic	5,201	117	110.2%							62.0	0.3	27.8	0.6	D
17	I-80 EB - SR-65 Off-ramp	Diverge	5,204	112	110.3%				2,534	83	106.6%	61.5	0.6	27.6	0.4	C
18	I-80 EB - SR-65 Off to On-ramp	Basic	2,671	96	113.9%							64.0	0.1	15.1	0.5	B
19	I-80 EB - SR-65 On-ramp	Merge	2,674	100	114.1%	1,275	72	111.5%				61.3	1.4	20.9	0.7	C
20	I-80 EB - SR-65 to Lane Drop	Basic	3,953	126	113.3%							60.4	2.1	24.9	1.0	C
21	I-80 EB - Lane Drop to Rocklin Rd	Basic	3,955	123	113.4%							62.2	0.6	24.6	0.8	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	3,957	124	113.4%				1,284	72	113.6%	61.1	1.0	22.2	0.9	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	2,674	106	113.4%							63.5	0.5	16.9	0.8	B
24	I-80 EB - Rocklin Rd On-ramp	Merge	2,674	105	113.4%	220	26	119.1%				62.5	0.5	15.7	0.5	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	2,895	101	113.9%							63.9	0.1	17.2	0.7	B

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	2,898	100	113.9%				296	27	110.0%	63.3	0.5	17.9	0.7	B
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,606	89	114.6%							63.7	0.3	16.5	0.5	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,608	89	114.7%	133	4	102.5%				63.0	0.3	15.1	0.4	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	2,742	91	114.1%	277	8	107.6%				60.8	0.7	16.6	0.4	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,202	25	105.7%				733	39	107.7%	59.2	1.0	22.2	0.5	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,466	49	105.2%							63.0	0.4	20.9	0.2	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,464	53	105.2%	55	3	103.4%				63.2	0.2	18.1	0.2	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,517	57	105.1%	292	6	109.8%				60.1	1.0	19.5	0.4	B
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	3,804	66	105.3%							63.4	0.1	21.2	0.3	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	3,802	65	105.2%				240	29	111.9%	63.1	0.2	21.2	0.5	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,560	60	104.7%							63.3	0.1	19.8	0.2	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,559	65	104.7%	763	40	104.5%				53.4	2.0	24.4	1.5	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,313	86	104.5%							61.3	0.3	26.3	0.5	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	4,312	92	104.4%							63.1	0.2	17.8	0.3	B
48	I-80 WB - SR-65 Off-ramp	Diverge	4,311	95	104.4%				1,173	52	102.2%	63.1	0.5	18.8	0.5	B
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,131	85	105.0%							63.2	0.3	17.7	0.5	B
50	I-80 WB - SR-65 On-ramp	Merge	3,130	90	105.0%	2,916	80	103.0%				63.0	0.1	24.7	0.3	C

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
60	I-80 WB - Taylor Rd On-ramp	Merge	6,040	128	103.9%	584	43	113.5%				62.1	0.2	27.7	0.4	C
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	6,623	144	104.7%				347	38	112.4%	60.7	1.7	31.2	1.1	D
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	6,274	141	104.3%				828	63	100.2%	52.9	3.1	37.3	2.1	E
63	I-80 WB - Atlantic St Off to On-ramp	Basic	5,434	150	104.7%							62.6	0.4	22.4	0.6	C
64	I-80 WB - Atlantic St On-ramp	Merge	5,431	137	104.6%	684	43	104.6%				59.1	2.1	24.2	0.9	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	6,114	144	104.6%				879	55	99.7%	56.5	3.0	31.7	1.9	D
66	I-80 WB - Douglas Rd Off to On-ramp	Basic	5,239	146	105.5%							60.8	1.5	29.9	0.9	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	5,239	139	105.5%	797	52	103.9%				52.0	3.4	35.6	2.7	E
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	6,037	132	105.3%	406	39	106.8%				48.4	3.1	41.7	3.3	E
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	6,433	134	105.3%							62.5	0.3	33.1	0.7	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	6,428	134	105.2%				473	43	89.5%	54.1	5.4	40.3	4.6	E
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	5,958	134	106.7%							60.8	0.9	31.4	0.9	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	5,960	132	106.8%	122	7	61.2%				63.3	0.1	24.8	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,083	133	105.2%	1,185	15	105.6%				62.8	0.7	23.3	0.9	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,270	137	105.3%							63.0	0.1	27.8	0.6	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,272	142	105.3%				288	40	87.2%	60.1	7.7	27.7	7.3	C

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR 65 Interchange
Existing Conditions
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,981	122	106.2%							53.4	15.1	37.6	24.7	E
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,985	156	106.2%	546	26	103.7%				41.1	15.3	53.5	31.7	F
78	I-80 WB - Antelope Rd to Truck Scales	Weave	7,558	233	106.4%	334	10	89.8%	38	15		38.3	18.8	61.8	30.7	F
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,995	416	107.0%							30.2	14.6	89.2	31.0	F
80	I-80 WB - Truck Scales On-ramp	Merge	8,047	484	107.7%	38	15					23.5	1.2	110.1	4.8	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	8,159	475	109.2%							24.1	1.8	104.6	8.6	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	8,175	473	109.4%				647	54	98.7%	27.1	2.3	79.8	4.9	F
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	7,567	424	111.0%							56.6	0.7	29.9	1.3	D
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	7,570	427	111.0%	635	43	100.6%				52.4	2.4	35.0	3.7	E
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	8,195	410	110.0%	810	23	100.1%				56.6	6.2	35.0	5.9	E

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
97	SR-65 SB - Twelve Bridges Dr Off-ramp	Diverge	2,633	65	109.0%				305	32	111.7%	63.4	0.3	19.0	0.5	B
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,326	63	108.6%							63.2	0.2	19.3	0.6	C
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,323	65	108.5%	612	31	114.6%				49.7	1.7	26.0	1.3	C
100	SR-65 SB - Twelve Bridges Dr to Sunset Blvd	Basic	2,931	74	109.5%							62.6	0.1	25.0	0.5	C
101	SR-65 SB - Sunset Blvd Off-ramp	Diverge	2,927	68	109.4%				366	37	104.5%	62.7	0.2	23.2	0.4	C
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	2,560	80	110.0%							62.7	0.2	22.0	0.7	C
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	2,557	84	109.9%	414	33	109.9%				56.3	2.7	25.2	1.6	C
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	2,973	96	110.0%	314	23	104.5%				59.6	6.6	29.5	8.5	D
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	3,281	88	109.3%							62.0	0.3	27.7	0.9	D
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	3,278	88	109.1%				633	36	117.5%	57.3	3.5	29.2	1.8	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	2,640	74	107.1%							48.5	13.7	31.9	11.3	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	2,636	80	107.0%	371	32	95.8%				28.3	14.0	60.2	24.7	F
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,008	96	105.5%	844	55	96.9%	635	57	105.5%	20.0	3.2	74.9	8.6	F
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	3,198	86	102.5%							19.4	0.7	88.7	1.8	F
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	3,190	71	102.2%	453	34	106.5%				20.8	2.1	72.4	6.0	F
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	3,637	63	102.6%	546	35	102.5%				36.5	0.5	53.4	1.2	F
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	4,176	50	102.4%							60.0	1.7	35.6	1.1	E
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	4,176	50	102.4%				763	44	95.3%	60.6	1.1	35.2	0.5	E
115	SR-65 SB - Galleria Blvd Off to Lane Add	Basic	3,411	66	104.0%							61.6	1.9	30.3	1.3	D
116	SR-65 SB - Lane Add to Galleria Blvd On-ramp	Basic	3,414	67	104.1%							63.3	0.2	21.0	0.5	C
117	SR-65 SB - Galleria Blvd On-ramp	Merge	3,414	69	104.1%	777	45	111.6%				51.4	3.3	30.1	2.9	D
118	SR-65 SB - I-80 WB Off-ramp	Diverge	4,190	81	105.4%				2,918	82	103.1%	62.7	0.4	23.8	0.5	C

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
125	SR-65 NB - I-80 WB On-ramp	Merge	2,531	94	106.5%	1,173	61	102.2%				35.6	5.2	52.9	10.5	F
126	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	3,704	109	105.1%							60.4	1.6	32.2	1.1	D
127	SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	3,704	107	105.1%				633	49	101.3%	59.8	1.6	32.9	1.0	D
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,072	115	106.0%							62.5	0.5	26.9	1.1	D
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	3,074	110	106.1%	561	45	106.4%				53.2	4.5	33.6	3.4	D
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	3,632	112	106.0%							61.1	0.7	30.1	1.1	D
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	3,632	112	106.0%				611	36	100.5%	62.0	0.5	28.1	1.1	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,018	114	107.1%							62.7	0.5	26.6	1.0	D
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,021	118	107.2%	206	22	95.0%	1,430	82	104.6%	63.3	0.1	21.1	1.1	C
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	1,799	83	107.9%							63.7	0.2	16.0	0.7	B
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	1,799	86	108.0%	319	31	99.5%				60.9	1.1	17.4	0.6	B
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,115	78	106.5%							63.3	0.2	18.4	0.7	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,116	84	106.5%				1,003	50	102.4%	63.5	0.1	16.4	0.6	B
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	1,115	58	110.6%							64.1	0.1	10.4	0.6	A
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	1,117	60	110.8%	38	14	113.9%				63.5	0.4	10.6	0.5	B
140	SR-65 NB - Sunset Blvd WB On-ramp	Merge	1,154	63	110.8%	216	27	114.2%				63.8	0.2	12.3	0.5	B
141	SR-65 NB - Sunset Blvd to Twelve Bridges Dr	Basic	1,374	71	111.7%							63.8	0.2	12.7	0.5	B
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	1,377	70	112.1%				275	33	96.0%	63.6	0.1	12.8	0.5	B
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	1,106	58	117.3%							63.9	0.2	10.7	0.4	A
144	SR-65 NB - Twelve Bridges Dr On-ramp	Merge	1,109	59	117.6%	219	18	108.4%				62.7	0.4	11.7	0.3	B

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80 / SR-65 Interchange
Existing Conditions
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	SR-65/Sterling Pkwy	Signal	3,592	4,018	111.9%	18.7	0.8	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,086	1,200	110.5%	3.8	0.2	A
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,305	1,426	109.3%	3.3	0.4	A
4	SR-65 SB Ramps/Sunset Blvd	Signal	1,789	1,961	109.6%	7.0	0.5	A
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,101	2,227	106.0%	9.9	0.4	A
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks	Signal	3,555	3,653	102.8%	43.4	12.9	D
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	2,229	2,308	103.5%	23.7	8.3	C
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	3,383	3,542	104.7%	9.1	1.1	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	2,720	2,864	105.3%	10.3	0.9	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	2,578	2,842	110.2%	18.8	1.1	B
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	2,941	3,201	108.9%	8.5	1.3	A
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,107	3,308	106.5%	12.8	0.8	B
13	Galleria Blvd/Antelope Creek Dr	Signal	2,373	2,551	107.5%	10.3	1.0	B
14	Galleria Blvd/Roseville Pkwy	Signal	4,665	5,153	110.5%	29.8	1.9	C
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,147	3,527	112.1%	5.7	0.6	A
16	Taylor Rd/East Roseville Pkwy	Signal	4,274	4,645	108.7%	29.5	3.7	C
17	North Sunrise Ave/East Roseville Pkwy	Signal	4,073	4,218	103.6%	37.2	4.4	D
18	Wills Rd/Atlantic St	Signal	1,717	1,953	113.7%	10.2	0.6	B
19	I-80 WB Ramps/Atlantic St	Signal	2,676	2,885	107.8%	7.0	0.6	A
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	3,496	4,005	114.6%	26.4	3.1	C
21	North Sunrise Ave/Eureka Rd	Signal	3,296	3,463	105.1%	24.1	4.8	C
22	Harding Blvd/Wills Rd	Signal	1,952	2,133	109.3%	11.6	0.8	B
23	Harding Blvd/Douglas Blvd	Signal	2,603	2,782	106.9%	18.5	1.2	B
24	I-80 WB Ramps/Douglas Blvd	Signal	3,426	3,597	105.0%	14.4	1.4	B

Network Summary	
Total Demand Volume (veh/hr)	68,084
Total Volume Served (veh/hr)	73,464
Percent Served	107.9%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.
3. For Side-street Stop and Uncontrolled intersections, the delay for the highest movement is reported.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80 / SR-65 Interchange
Existing Conditions
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	3,868	4,094	105.9%	5.5	0.5	A
26	North Sunrise Ave/Douglas Blvd	Signal	4,048	4,364	107.8%	26.3	1.1	C
27	Pacific St/Woodside Dr	Signal	1,576	1,703	108.1%	6.6	0.4	A
28	Pacific St/Sunset Blvd	Signal	2,323	2,619	112.8%	17.7	1.5	B
29	Granite Dr/Rocklin Rd	Signal	1,985	2,085	105.0%	14.7	1.5	B
30	I-80 WB Ramps/Rocklin Rd	Signal	2,326	2,514	108.1%	21.3	2.4	C
31	I-80 EB Ramps/Rocklin Rd	Signal	2,448	2,739	111.9%	17.1	1.1	B
32	Aguilar Rd/Rocklin Rd	Signal	1,783	1,979	111.0%	8.0	1.2	A
253	Galleria Blvd/Berry St	Signal	1,805	1,944	107.7%	8.5	0.9	A

Network Summary	
Total Demand Volume (veh/hr)	22,162
Total Volume Served (veh/hr)	24,042
Percent Served	108.5%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Metrics
Calibration Comparison
I-80 / SR 65 Interchange
Fehr & Peers
Link Volumes
February 15, 2013

PM Peak Period

Link		Measured Volumes	Modeled Conditions				Link Flow Criteria		Link GEH Criteria	
		Demand Volume (vph)	Served Volume (vph)	Difference			Measure	Meets Target?	Target	Meets Target?
Fwy	Location			vph	%	GEH				
Interstate 80	EB - Auburn Blvd Off to On-ramp	24,273	24,417	144	0.6%	0.9	+/- 400 vph	Yes	< 5	Yes
	EB - Auburn Blvd On-ramp	2,625	2,461	-164	-6.3%	3.3	+/- 15%	Yes	< 5	Yes
	EB - Auburn Blvd to Douglas Blvd	26,898	26,889	-9	0.0%	0.1	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd EB Off-Ramp	4,450	4,467	17	0.4%	0.3	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd EB to WB Off-ramp	22,448	22,430	-18	-0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd WB Off-Ramp	1,519	1,594	75	4.9%	1.9	+/- 15%	Yes	< 5	Yes
	EB - Douglas Blvd Off to On-Ramp	20,929	20,839	-90	-0.4%	0.6	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd On-Ramp	4,441	4,388	-53	-1.2%	0.8	+/- 400 vph	Yes	< 5	Yes
	EB - Douglas Blvd to Eureka Rd	25,370	25,232	-138	-0.5%	0.9	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd Off-Ramp	3,787	3,701	-86	-2.3%	1.4	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd Off to On-ramp	21,583	21,534	-49	-0.2%	0.3	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd EB On-Ramp	825	919	94	11.4%	3.2	+/- 15%	Yes	< 5	Yes
	EB - Eureka Rd EB to WB On-Ramp	22,408	22,451	43	0.2%	0.3	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd WB On-Ramp	3,287	3,406	119	3.6%	2.1	+/- 400 vph	Yes	< 5	Yes
	EB - Eureka Rd to Taylor Rd	25,695	25,862	167	0.7%	1.0	+/- 400 vph	Yes	< 5	Yes
	EB - Taylor Rd Off-Ramp	1,809	1,861	52	2.9%	1.2	+/- 15%	Yes	< 5	Yes
	EB - Taylor Rd to SR-65	23,886	24,009	123	0.5%	0.8	+/- 400 vph	Yes	< 5	Yes
	EB - SR-65 Off-Ramp	12,666	12,443	-223	-1.8%	2.0	+/- 400 vph	Yes	< 5	Yes
	EB - SR-65 Off to On-Ramp	11,220	11,581	361	3.2%	3.4	+/- 400 vph	Yes	< 5	Yes
	EB - SR-65 On-Ramp	5,807	5,848	41	0.7%	0.5	+/- 400 vph	Yes	< 5	Yes
	EB - SR-65 to Rocklin Rd	17,027	17,439	412	2.4%	3.1	+/- 400 vph	No	< 5	Yes
	EB - Rocklin Rd Off-Ramp	4,352	4,615	263	6.0%	3.9	+/- 400 vph	Yes	< 5	Yes
	EB - Rocklin Rd Off to On-ramp	12,675	12,852	177	1.4%	1.6	+/- 400 vph	Yes	< 5	Yes
	EB - Rocklin Rd On-Ramp	947	932	-15	-1.6%	0.5	+/- 15%	Yes	< 5	Yes
	EB - Rocklin Rd to Sierra College Blvd	13,622	13,795	173	1.3%	1.5	+/- 400 vph	Yes	< 5	Yes
	EB - Sierra College Rd Off-Ramp	1,069	1,233	164	15.3%	4.8	+/- 15%	No	< 5	Yes
	EB - Sierra College Blvd Off to On-Ramp	12,553	12,565	12	0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
	EB - Sierra College Blvd SB On-Ramp	757	742	-15	-2.0%	0.6	+/- 15%	Yes	< 5	Yes
	EB - Sierra College Blvd SB to NB On-Ramp	13,310	13,310	0	0.0%	0.0	+/- 400 vph	Yes	< 5	Yes
	EB - Sierra College Blvd NB On-Ramp	1,613	1,608	-5	-0.3%	0.1	+/- 15%	Yes	< 5	Yes
	EB - Sierra College Blvd to Horseshoe Bar Rd	14,923	14,924	1	0.0%	0.0	+/- 400 vph	Yes	< 5	Yes
	WB - Horseshoe Bar Rd to Sierra College Blvd	11,488	11,488	0	0.0%	0.0	+/- 400 vph	Yes	< 5	Yes
	WB - Sierra College Blvd Off-ramp	1,748	1,727	-21	-1.2%	0.5	+/- 15%	Yes	< 5	Yes
	WB - Sierra College Blvd Off to On-ramp	9,740	9,766	26	0.3%	0.3	+/- 400 vph	Yes	< 5	Yes
	WB - Sierra College Blvd NB On-Ramp	336	328	-8	-2.4%	0.4	+/- 100 vph	Yes	< 5	Yes
	WB - Sierra College Blvd NB to SB On-Ramp	10,076	10,096	20	0.2%	0.2	+/- 400 vph	Yes	< 5	Yes
	WB - Sierra College Blvd SB On-Ramp	859	922	63	7.3%	2.1	+/- 15%	Yes	< 5	Yes
	WB - Sierra College Blvd to Rocklin Rd	10,935	11,029	94	0.9%	0.9	+/- 400 vph	Yes	< 5	Yes
	WB - Rocklin Rd Off-Ramp	926	889	-37	-4.0%	1.2	+/- 15%	Yes	< 5	Yes
	WB - Rocklin Rd Off to On-Ramp	10,009	10,151	142	1.4%	1.4	+/- 400 vph	Yes	< 5	Yes
	WB - Rocklin Rd On-Ramp	3,742	3,849	107	2.9%	1.7	+/- 400 vph	Yes	< 5	Yes
	WB - Rocklin Rd to SR-65	13,751	14,019	268	1.9%	2.3	+/- 400 vph	Yes	< 5	Yes
	WB - SR-65 Off-Ramp	4,649	4,810	161	3.5%	2.3	+/- 400 vph	Yes	< 5	Yes
	WB - SR-65 Off to On-Ramp	9,102	9,230	128	1.4%	1.3	+/- 400 vph	Yes	< 5	Yes
	WB - SR-65 On-Ramp	9,425	9,356	-69	-0.7%	0.7	+/- 400 vph	Yes	< 5	Yes
	WB - SR-65 to Taylor Rd	18,527	18,255	-272	-1.5%	2.0	+/- 400 vph	Yes	< 5	Yes
	WB - Taylor Rd On-Ramp	1,604	1,595	-9	-0.6%	0.2	+/- 15%	Yes	< 5	Yes
	WB - Taylor Rd to Atlantic St	20,131	20,192	61	0.3%	0.4	+/- 400 vph	Yes	< 5	Yes
	WB - Atlantic St WB Off-Ramp	1,282	1,378	96	7.5%	2.6	+/- 15%	Yes	< 5	Yes
	WB - Atlantic St WB to EB Off-ramp	18,849	18,827	-22	-0.1%	0.2	+/- 400 vph	Yes	< 5	Yes
	WB - Atlantic St EB Off-ramp	2,525	2,576	51	2.0%	1.0	+/- 15%	Yes	< 5	Yes
	WB - Atlantic St Off to On-ramp	16,324	16,264	-60	-0.4%	0.5	+/- 400 vph	Yes	< 5	Yes
	WB - Atlantic St On-Ramp	3,356	3,540	184	5.5%	3.1	+/- 400 vph	Yes	< 5	Yes
	WB - Atlatnic St to Douglas Blvd	19,680	19,814	134	0.7%	1.0	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd Off-Ramp	3,440	3,435	-5	-0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd Off to On-Ramp	16,240	16,385	145	0.9%	1.1	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd WB On-Ramp	4,066	3,783	-283	-7.0%	4.5	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd WB to EB On-Ramp	20,306	20,170	-136	-0.7%	1.0	+/- 400 vph	Yes	< 5	Yes
	WB - Douglas Blvd EB On-Ramp	1,618	1,614	-5	-0.3%	0.1	+/- 15%	Yes	< 5	Yes
	WB - Douglas Blvd to Riverside Ave	21,924	21,811	-113	-0.5%	0.8	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave Off-ramp	2,708	2,608	-100	-3.7%	1.9	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave Off to On-Ramp	19,216	19,227	11	0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave NB On-ramp	701	703	2	0.2%	0.1	+/- 15%	Yes	< 5	Yes
	WB - Riverside Ave NB to SB On-Ramp	19,917	19,932	15	0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave SB On-ramp	3,138	3,368	230	7.3%	4.0	+/- 400 vph	Yes	< 5	Yes
	WB - Riverside Ave to Antelope Rd	23,055	23,322	267	1.2%	1.8	+/- 400 vph	Yes	< 5	Yes
	WB - Antelope Rd Off-ramp	3,357	3,370	13	0.4%	0.2	+/- 400 vph	Yes	< 5	Yes
	WB - Antelope Rd Off to On-Ramp	19,698	19,978	280	1.4%	2.0	+/- 400 vph	Yes	< 5	Yes
	WB - Antelope Rd WB On-ramp	1,313	1,307	-6	-0.5%	0.2	+/- 15%	Yes	< 5	Yes
	WB - Antelope Rd WB to EB On-Ramp	21,011	21,289	278	1.3%	1.9	+/- 400 vph	Yes	< 5	Yes
	WB - Antelope Rd EB On-ramp	936	925	-11	-1.1%	0.3	+/- 15%	Yes	< 5	Yes
	WB - Antelope Rd to Elkhorn Blvd	21,947	22,156	209	1.0%	1.4	+/- 400 vph	Yes	< 5	Yes
	WB - Elkhorn Blvd Off-ramp	3,750	3,755	5	0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
	WB - Elkhorn Blvd Off to On-Ramp	18,197	18,515	318	1.7%	2.3	+/- 400 vph	Yes	< 5	Yes
	WB - Elkhorn Blvd WB On-ramp	2,529	2,530	1	0.0%	0.0	+/- 15%	Yes	< 5	Yes
	WB - Elkhorn Blvd WB to EB On-Ramp	20,726	21,048	322	1.6%	2.2	+/- 400 vph	Yes	< 5	Yes
	WB - Elkhorn Blvd EB On-ramp	2,294	2,286	-8	-0.3%	0.2	+/- 15%	Yes	< 5	Yes
	WB - Elkhorn Blvd to Madison Ave	23,020	23,341	321	1.4%	2.1	+/- 400 vph	Yes	< 5	Yes
	NB - I-80 to Stanford Ranch Rd	17,315	17,273	-42	-0.2%	0.3	+/- 400 vph	Yes	< 5	Yes
	NB - Stanford Ranch Rd Off-Ramp	4,687	4,834	147	3.1%	2.1	+/- 400 vph	Yes	< 5	Yes
	NB - Stanford Ranch Rd Off to On-Ramp	12,628	12,446	-182	-1.4%	1.6	+/- 400 vph	Yes	< 5	Yes
	NB - Stanford Ranch Rd On-Ramp	3,634	3,483	-151	-4.2%	2.5	+/- 400 vph	Yes	< 5	Yes
	NB - Stanford Ranch Rd to Pleasant Grove Blvd	16,262	15,935	-327	-2.0%	2.6	+/- 400 vph	Yes	< 5	Yes
	NB - Pleasant Grove Blvd Off-Ramp	4,030	4,181	151	3.7%	2.4	+/- 400 vph	Yes	< 5	Yes
	NB - Pleasant Grove Blvd Off to On-Ramp	12,232	11,759	-473	-3.9%	4.3	+/- 400 vph	No	< 5	Yes
	NB - Pleasant Grove Blvd On-Ramp	2,089	2,020	-69	-3.3%	1.5	+/- 15%	Yes	< 5	Yes
	NB - Pleasant Grove to Blue Oaks Blvd	14,321	13,782	-539	-3.8%	4.5	+/- 400 vph	No	< 5	Yes

State Route 65	NB - Blue Oaks Blvd Off-Ramp	4,701	4,204	-497	-10.6%	7.5	+/- 400 vph	No	< 5	No
	NB - Blue Oaks Blvd Off to On-Ramp	9,620	9,588	-32	-0.3%	0.3	+/- 400 vph	Yes	< 5	Yes
	NB - Blue Oaks Blvd On-Ramp	1,793	1,861	68	3.8%	1.6	+/- 15%	Yes	< 5	Yes
	NB - Blue Oaks Blvd to Sunset Blvd	11,413	11,454	41	0.4%	0.4	+/- 400 vph	Yes	< 5	Yes
	NB - Sunset Blvd Off-Ramp	2,780	2,705	-75	-2.7%	1.4	+/- 400 vph	Yes	< 5	Yes
	NB - Sunset Blvd Off to On-ramp	8,633	8,754	121	1.4%	1.3	+/- 400 vph	Yes	< 5	Yes
	NB - Sunset Blvd EB On-Ramp	247	249	2	0.9%	0.1	+/- 100 vph	Yes	< 5	Yes
	NB - Sunset Blvd EB to WB On-ramp	8,880	9,003	123	1.4%	1.3	+/- 400 vph	Yes	< 5	Yes
	NB - Sunset Blvd WB On-Ramp	1,002	955	-47	-4.7%	1.5	+/- 15%	Yes	< 5	Yes
	NB - Sunset Blvd to Twelve Bridges Dr	9,882	9,958	76	0.8%	0.8	+/- 400 vph	Yes	< 5	Yes
	NB - Twelve Bridges Dr Off-Ramp	2,235	2,165	-70	-3.1%	1.5	+/- 15%	Yes	< 5	Yes
	NB - Twelve Bridges Dr Off to On-ramp	7,647	7,799	152	2.0%	1.7	+/- 400 vph	Yes	< 5	Yes
	NB - Twelve Bridges Dr On-Ramp	1,100	916	-184	-16.7%	5.8	+/- 15%	No	< 5	No
	NB - Twelve Bridges Dr to Sterling Pkwy	8,747	8,715	-32	-0.4%	0.3	+/- 400 vph	Yes	< 5	Yes
	SB - Sterling Pkwy to Twelve Bridges Dr	6,566	6,641	75	1.1%	0.9	+/- 400 vph	Yes	< 5	Yes
	SB - Twelve Bridges Dr Off-Ramp	855	840	-15	-1.8%	0.5	+/- 15%	Yes	< 5	Yes
	SB - Twelve Bridges Dr Off to On-Ramp	5,711	5,807	96	1.7%	1.3	+/- 400 vph	Yes	< 5	Yes
	SB - Twelve Bridges Dr On-Ramp	1,519	1,587	68	4.5%	1.7	+/- 15%	Yes	< 5	Yes
	SB - Twelve Bridges Dr to Sunset Blvd	7,230	7,417	187	2.6%	2.2	+/- 400 vph	Yes	< 5	Yes
	SB - Sunset Blvd Off-Ramp	912	982	70	7.7%	2.3	+/- 15%	Yes	< 5	Yes
	SB - Sunset Blvd Off to On-ramp	6,318	6,459	141	2.2%	1.8	+/- 400 vph	Yes	< 5	Yes
	SB - Sunset Blvd WB On-Ramp	1,782	1,774	-8	-0.5%	0.2	+/- 15%	Yes	< 5	Yes
	SB - Sunset Blvd WB to EB On-Ramp	8,100	8,238	138	1.7%	1.5	+/- 400 vph	Yes	< 5	Yes
	SB - Sunset Blvd EB On-Ramp	2,299	2,230	-69	-3.0%	1.5	+/- 15%	Yes	< 5	Yes
	SB - Sunset Blvd to Blue Oaks Blvd	10,399	10,485	86	0.8%	0.8	+/- 400 vph	Yes	< 5	Yes
	SB - Blue Oaks Blvd Off-Ramp	1,997	2,024	27	1.4%	0.6	+/- 15%	Yes	< 5	Yes
	SB - Blue Oaks Blvd Off to On-Ramp	8,402	8,477	75	0.9%	0.8	+/- 400 vph	Yes	< 5	Yes
	SB - Blue Oaks Blvd WB On-Ramp	1,415	1,067	-348	-24.6%	9.9	+/- 15%	No	< 5	No
	SB - Blue Oaks Blvd WB to EB On-Ramp	9,817	9,547	-270	-2.7%	2.7	+/- 400 vph	Yes	< 5	Yes
	SB - Blue Oaks Blvd EB On-Ramp	3,384	3,205	-179	-5.3%	3.1	+/- 400 vph	Yes	< 5	Yes
	SB - Blue Oaks Blvd to Pleasant Grove Blvd	13,201	12,756	-445	-3.4%	3.9	+/- 400 vph	No	< 5	Yes
	SB - Pleasant Grove Blvd Off-Ramp	2,177	2,256	79	3.6%	1.7	+/- 15%	Yes	< 5	Yes
	SB - Pleasant Grove Blvd Off to On-ramp	11,024	10,512	-512	-4.6%	4.9	+/- 400 vph	No	< 5	Yes
	SB - Pleasant Grove Blvd WB On-Ramp	1,252	1,403	151	12.1%	4.1	+/- 15%	Yes	< 5	Yes
	SB - Pleasant Grove Blvd WB to EB On-Ramp	12,276	11,917	-359	-2.9%	3.3	+/- 400 vph	Yes	< 5	Yes
	SB - Pleasant Grove Blvd EB On-Ramp	2,281	2,298	17	0.8%	0.4	+/- 15%	Yes	< 5	Yes
	SB - Pleasant Grove Blvd to Galleria Blvd	14,557	14,227	-330	-2.3%	2.7	+/- 400 vph	Yes	< 5	Yes
	SB - Galleria Blvd Off-Ramp	3,198	2,954	-244	-7.6%	4.4	+/- 400 vph	Yes	< 5	Yes
	SB - Galleria Blvd Off to On-Ramp	11,359	11,277	-82	-0.7%	0.8	+/- 400 vph	Yes	< 5	Yes
	SB - Galleria Blvd On-Ramp	3,873	3,913	40	1.0%	0.6	+/- 400 vph	Yes	< 5	Yes
	SB - Galleria Blvd to I-80	15,232	15,191	-42	-0.3%	0.3	+/- 400 vph	Yes	< 5	Yes
	SB SR 65 n/o Sterling Pkwy	4,588	4,645	57	1.2%	0.8	+/- 400 vph	Yes	< 5	Yes
	NB SR 65 n/o Sterling Pkwy	5,719	5,876	157	2.7%	2.1	+/- 400 vph	Yes	< 5	Yes
	EB Sterling Pkwy e/o SR 65	3,251	3,078	-173	-5.3%	3.1	+/- 400 vph	Yes	< 5	Yes
	WB Sterling Pkwy e/o SR 65	2,201	2,212	11	0.5%	0.2	+/- 15%	Yes	< 5	Yes
	EB Twelve Bridges Dr w/o SB SR 65	1,293	1,066	-227	-17.5%	6.6	+/- 15%	No	< 5	No
	WB Twelve Bridges Dr w/o SB SR-65	980	972	-8	-0.8%	0.2	+/- 15%	Yes	< 5	Yes
	EB Twelve Bridges Dr e/o SB SR 65	1,588	1,358	-230	-14.5%	6.0	+/- 15%	Yes	< 5	No
	WB Twelve Bridges Dr e/o SB SR-65	1,939	2,007	68	3.5%	1.5	+/- 15%	Yes	< 5	Yes
	EB Twelve Bridges Dr e/o NB SR 65	2,866	2,870	4	0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
	WB Twelve Bridges Dr e/o NB SR-65	2,082	2,260	178	8.5%	3.8	+/- 15%	Yes	< 5	Yes
	EB Sunset Blvd w/o SB SR 65	3,297	3,262	-36	-1.1%	0.6	+/- 400 vph	Yes	< 5	Yes
	WB Sunset Blvd w/o SB SR-65	2,178	1,974	-204	-9.4%	4.5	+/- 15%	Yes	< 5	Yes
	EB Sunset Blvd e/o SB SR 65	1,729	1,843	114	6.6%	2.7	+/- 15%	Yes	< 5	Yes
	WB Sunset Blvd e/o SB SR-65	3,779	3,574	-205	-5.4%	3.4	+/- 400 vph	Yes	< 5	Yes
	EB Sunset Blvd e/o NB SR 65	2,794	3,011	217	7.8%	4.0	+/- 400 vph	Yes	< 5	Yes
	WB Sunset Blvd e/o NB SR-65	3,313	3,699	386	11.6%	6.5	+/- 400 vph	Yes	< 5	No
	EB Blue Oaks Blvd w/o Washington Blvd	6,884	6,938	54	0.8%	0.6	+/- 400 vph	Yes	< 5	Yes
	WB Blue Oaks Blvd w/o Washington Blvd	4,031	4,363	332	8.2%	5.1	+/- 400 vph	Yes	< 5	No
	WB Blue Oaks Blvd w/o NB SR 65 ramp	4,121	3,935	-186	-4.5%	2.9	+/- 400 vph	Yes	< 5	Yes
	EB Blue Oaks Blvd e/o Washington Blvd	7,841	8,142	301	3.8%	3.4	+/- 400 vph	Yes	< 5	Yes
	WB Blue Oaks Blvd e/o Washington Blvd	4,121	3,935	-186	-4.5%	2.9	+/- 400 vph	Yes	< 5	Yes
	SB Washington Blvd s/o Blue Oaks Blvd	2,016	2,226	210	10.4%	4.6	+/- 15%	Yes	< 5	Yes
	NB Washington Blvd s/o Blue Oaks Blvd	2,631	2,893	262	9.9%	5.0	+/- 15%	Yes	< 5	Yes
	EB Blue Oaks Blvd e/o NB SR 65	5,033	4,856	-177	-3.5%	2.5	+/- 400 vph	Yes	< 5	Yes
	WB Blue Oaks Blvd e/o NB SR 65	4,208	4,167	-41	-1.0%	0.6	+/- 400 vph	Yes	< 5	Yes
	EB Pleasant Grove Blvd w/o SB SR 65	8,489	8,443	-46	-0.5%	0.5	+/- 400 vph	Yes	< 5	Yes
	WB Pleasant Grove Blvd w/o SB SR-65	7,805	7,617	-188	-2.4%	2.1	+/- 400 vph	Yes	< 5	Yes
	EB Pleasant Grove Blvd e/o SB SR 65	6,863	6,824	-39	-0.6%	0.5	+/- 400 vph	Yes	< 5	Yes
	WB Pleasant Grove Blvd e/o SB SR-65	7,535	7,439	-96	-1.3%	1.1	+/- 400 vph	Yes	< 5	Yes
	EB Pleasant Grove Blvd e/o NB SR 65	7,475	8,013	538	7.2%	6.1	+/- 400 vph	No	< 5	No
	WB Pleasant Grove Blvd e/o NB SR-65	6,206	6,460	254	4.1%	3.2	+/- 400 vph	Yes	< 5	Yes
	EB Five Star Blvd w/o Stanford Ranch Rd	2,109	1,952	-157	-7.5%	3.5	+/- 15%	Yes	< 5	Yes
	WB Five Star Blvd w/o Stanford Ranch Rd	2,278	2,440	162	7.1%	3.3	+/- 15%	Yes	< 5	Yes
	EB Five Star Blvd e/o Stanford Ranch Rd	2,045	1,973	-72	-3.5%	1.6	+/- 15%	Yes	< 5	Yes
	WB Five Star Blvd e/o Stanford Ranch Rd	2,149	2,048	-101	-4.7%	2.2	+/- 15%	Yes	< 5	Yes
	SB Stanford Ranch Rd n/o Five Star Blvd	4,046	4,073	27	0.7%	0.4	+/- 400 vph	Yes	< 5	Yes
	NB Stanford Ranch Rd n/o Five Star Blvd	5,446	5,674	228	4.2%	3.1	+/- 400 vph	Yes	< 5	Yes
	SB Stanford Ranch Rd s/o Five Star Blvd	6,916	6,422	-494	-7.1%	6.0	+/- 400 vph	No	< 5	No
	NB Stanford Ranch Rd s/o Five Star Blvd	8,381	8,436	55	0.7%	0.6	+/- 400 vph	Yes	< 5	Yes
	SB Stanford Ranch Rd n/o NB SR 65	7,033	7,188	155	2.2%	1.8	+/- 400 vph	Yes	< 5	Yes
	NB Stanford Ranch Rd n/o NB SR 65	8,645	8,930	285	3.3%	3.0	+/- 400 vph	Yes	< 5	Yes
	SB Galleria Blvd n/o SB SR 65	7,496	7,542	46	0.6%	0.5	+/- 400 vph	Yes	< 5	Yes
	NB Galleria Blvd n/o SB SR 65	8,055	7,920	-135	-1.7%	1.5	+/- 400 vph	Yes	< 5	Yes
	SB Galleria Blvd s/o SB SR 65	7,601	7,650	49	0.6%	0.6	+/- 400 vph	Yes	< 5	Yes
	NB Galleria Blvd s/o SB SR 65	8,835	8,978	143	1.6%	1.5	+/- 400 vph	Yes	< 5	Yes
	EB Antelope Creek Dr w/o Galleria Blvd	2,174	1,568	-606	-27.9%	14.0	+/- 15%	No	< 5	No
	WB Antelope Creek Dr w/o Galleria Blvd	1,268	1,268	0	0.0%	0.0	+/- 15%	Yes	< 5	Yes
	EB Antelope Creek Dr e/o Galleria Blvd	1,729	1,711	-18	-1.0%	0.4	+/- 15%	Yes	< 5	Yes
	WB Antelope Creek Dr e/o Galleria Blvd	2,233	2,264	31	1.4%	0.6	+/- 15%	Yes	< 5	Yes
	SB Galleria Blvd n/o Antelope Creek Dr	5,692	5,706	14	0.2%	0.2	+/- 400 vph	Yes	< 5	Yes
	NB Galleria Blvd n/o Antelope Creek Dr	8,167	8,262	95	1.2%	1.0	+/- 400 vph	Yes	< 5	Yes
	SB Galleria Blvd s/o Antelope Creek Dr	5,838	5,547	-291	-5.0%	3.9	+/- 400 vph	Yes	< 5	Yes
	NB Galleria Blvd s/o Antelope Creek Dr	6,903	7,010	107	1.5%	1.3	+/- 400 vph	Yes	< 5	Yes
	EB Roseville Pkwy w/o Galleria Blvd	7,361	7,396	35	0.5%	0.4	+/- 400 vph	Yes	< 5	Yes
	WB Roseville Pkwy w/o Galleria Blvd	7,438	7,603	165	2.2%	1.9	+/- 400 vph	Yes	< 5	Yes
	EB Roseville Pkwy e/o Galleria Blvd	6,337	6,253	-84	-1.3%	1.1	+/- 400 vph	Yes	< 5	Yes

WB Roseville Pkwy e/o Galleria Blvd	7,876	7,764	-112	-1.4%	1.3	+/- 400 vph	Yes	< 5	Yes
SB Galleria Blvd n/o Roseville Pkwy	5,990	5,795	-195	-3.3%	2.5	+/- 400 vph	Yes	< 5	Yes
NB Galleria Blvd n/o Roseville Pkwy	6,770	6,928	158	2.3%	1.9	+/- 400 vph	Yes	< 5	Yes
SB Galleria Blvd s/o Roseville Pkwy	4,986	4,833	-153	-3.1%	2.2	+/- 400 vph	Yes	< 5	Yes
NB Galleria Blvd s/o Roseville Pkwy	4,304	4,663	359	8.3%	5.4	+/- 400 vph	Yes	< 5	No
EB Roseville Pkwy w/o Creekside Ridge Dr	6,104	5,974	-130	-2.1%	1.7	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy w/o Creekside Ridge Dr	8,191	8,079	-112	-1.4%	1.2	+/- 400 vph	Yes	< 5	Yes
SB Creekside Ridge Dr n/o Roseville Pkwy	1,277	1,196	-81	-6.3%	2.3	+/- 15%	Yes	< 5	Yes
NB Creekside Ridge Dr n/o Roseville Pkwy	1,114	1,049	-65	-5.8%	2.0	+/- 15%	Yes	< 5	Yes
SB Creekside Ridge Dr s/o Roseville Pkwy	200	107	-93	-46.6%	7.5	+/- 100 vph	Yes	< 5	No
NB Creekside Ridge Dr s/o Roseville Pkwy	219	180	-39	-17.8%	2.8	+/- 100 vph	Yes	< 5	Yes
EB Roseville Pkwy w/o Taylor Rd	6,880	6,964	84	1.2%	1.0	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy w/o Taylor Rd	8,785	8,885	100	1.1%	1.1	+/- 400 vph	Yes	< 5	Yes
EB Roseville Pkwy e/o Taylor Rd	7,238	7,048	-190	-2.6%	2.3	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy e/o Taylor Rd	9,251	8,800	-451	-4.9%	4.8	+/- 400 vph	No	< 5	Yes
SB Taylor Rd n/o Roseville Pkwy	2,071	2,153	82	3.9%	1.8	+/- 15%	Yes	< 5	Yes
NB Taylor Rd n/o Roseville Pkwy	3,106	2,834	-272	-8.8%	5.0	+/- 400 vph	Yes	< 5	Yes
SB Taylor Rd s/o Roseville Pkwy	2,246	2,166	-80	-3.6%	1.7	+/- 15%	Yes	< 5	Yes
NB Taylor Rd s/o Roseville Pkwy	3,173	3,017	-156	-4.9%	2.8	+/- 400 vph	Yes	< 5	Yes
EB Roseville Pkwy w/o Sunrise Ave	7,106	7,018	-88	-1.2%	1.0	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy w/o Sunrise Ave	9,053	8,465	-589	-6.5%	6.3	+/- 400 vph	No	< 5	No
EB Roseville Pkwy e/o Sunrise Ave	6,566	6,647	81	1.2%	1.0	+/- 400 vph	Yes	< 5	Yes
WB Roseville Pkwy e/o Sunrise Ave	7,019	6,617	-402	-5.7%	4.9	+/- 400 vph	No	< 5	Yes
SB Sunrise Ave n/o Roseville Pkwy	1,633	1,612	-21	-1.3%	0.5	+/- 15%	Yes	< 5	Yes
NB Sunrise Ave n/o Roseville Pkwy	840	842	2	0.3%	0.1	+/- 15%	Yes	< 5	Yes
SB Sunrise Ave s/o Roseville Pkwy	2,297	2,087	-210	-9.1%	4.5	+/- 15%	Yes	< 5	Yes
NB Sunrise Ave s/o Roseville Pkwy	2,998	2,794	-205	-6.8%	3.8	+/- 400 vph	Yes	< 5	Yes
EB Atlantic St w/o Wills Rd	2,932	2,955	23	0.8%	0.4	+/- 400 vph	Yes	< 5	Yes
WB Atlantic St w/o Wills Rd	3,655	3,753	98	2.7%	1.6	+/- 400 vph	Yes	< 5	Yes
EB Atlantic St w/o WB I-80	2,999	3,242	243	8.1%	4.3	+/- 400 vph	Yes	< 5	Yes
WB Atlantic St w/o WB I-80	3,376	3,704	328	9.7%	5.5	+/- 400 vph	Yes	< 5	No
SB Wills Rd s/o Atlantic St	1,580	1,554	-26	-1.6%	0.6	+/- 15%	Yes	< 5	Yes
NB Wills Rd s/o Atlantic St	1,926	1,884	-42	-2.2%	1.0	+/- 15%	Yes	< 5	Yes
SB Galleria Blvd n/o Wills Rd	4,110	4,126	16	0.4%	0.2	+/- 400 vph	Yes	< 5	Yes
NB Galleria Blvd n/o Wills Rd	4,521	4,695	174	3.8%	2.6	+/- 400 vph	Yes	< 5	Yes
SB Harding Blvd s/o Wills Rd	3,793	3,654	-139	-3.7%	2.3	+/- 400 vph	Yes	< 5	Yes
NB Harding Blvd s/o Wills Rd	4,541	4,580	39	0.9%	0.6	+/- 400 vph	Yes	< 5	Yes
EB Eureka Rd w/o Taylor Rd	4,744	4,898	154	3.2%	2.2	+/- 400 vph	Yes	< 5	Yes
WB Eureka Rd w/o Taylor Rd	7,602	8,335	733	9.6%	8.2	+/- 400 vph	No	< 5	No
EB Eureka Rd e/o Taylor Rd	5,485	5,641	156	2.8%	2.1	+/- 400 vph	Yes	< 5	Yes
WB Eureka Rd e/o Taylor Rd	6,615	7,145	530	8.0%	6.4	+/- 400 vph	No	< 5	No
SB Taylor Rd n/o Eureka Rd	2,455	2,320	-135	-5.5%	2.8	+/- 15%	Yes	< 5	Yes
NB Taylor Rd n/o Eureka Rd	3,334	3,171	-163	-4.9%	2.9	+/- 400 vph	Yes	< 5	Yes
EB Eureka Rd w/o Sunrise Ave	5,440	5,569	129	2.4%	1.7	+/- 400 vph	Yes	< 5	Yes
WB Eureka Rd w/o Sunrise Ave	6,603	6,884	281	4.2%	3.4	+/- 400 vph	Yes	< 5	Yes
EB Eureka Rd e/o Sunrise Ave	4,540	4,517	-23	-0.5%	0.3	+/- 400 vph	Yes	< 5	Yes
WB Eureka Rd e/o Sunrise Ave	5,199	5,669	470	9.0%	6.4	+/- 400 vph	No	< 5	No
SB Sunrise Ave n/o Eureka Rd	2,573	2,172	-401	-15.6%	8.2	+/- 15%	No	< 5	No
NB Sunrise Ave n/o Eureka Rd	2,887	2,854	-33	-1.1%	0.6	+/- 400 vph	Yes	< 5	Yes
SB Sunrise Ave s/o Eureka Rd	2,968	2,571	-397	-13.4%	7.5	+/- 400 vph	Yes	< 5	No
NB Sunrise Ave s/o Eureka Rd	3,786	3,415	-371	-9.8%	6.2	+/- 400 vph	Yes	< 5	No
EB Douglas Blvd w/o Harding Blvd	3,619	4,160	541	14.9%	8.7	+/- 400 vph	No	< 5	No
WB Douglas Blvd w/o Harding Blvd	4,768	5,027	259	5.4%	3.7	+/- 400 vph	Yes	< 5	Yes
EB Douglas Blvd e/o Harding Blvd	5,056	5,665	609	12.0%	8.3	+/- 400 vph	No	< 5	No
WB Douglas Blvd e/o Harding Blvd	5,967	5,737	-230	-3.9%	3.0	+/- 400 vph	Yes	< 5	Yes
SB Harding Blvd n/o Douglas Blvd	3,376	2,632	-744	-22.0%	13.6	+/- 400 vph	No	< 5	No
NB Harding Blvd n/o Douglas Blvd	2,470	1,891	-579	-23.4%	12.4	+/- 15%	No	< 5	No
SB Harding Blvd s/o Douglas Blvd	415	454	39	9.3%	1.9	+/- 100 vph	Yes	< 5	Yes
NB Harding Blvd s/o Douglas Blvd	473	508	35	7.3%	1.6	+/- 100 vph	Yes	< 5	Yes
EB Douglas Blvd w/o Sunrise Ave	7,692	7,814	122	1.6%	1.4	+/- 400 vph	Yes	< 5	Yes
WB Douglas Blvd w/o Sunrise Ave	9,202	8,682	-521	-5.7%	5.5	+/- 400 vph	No	< 5	No
EB Douglas Blvd e/o Sunrise Ave	6,883	7,007	124	1.8%	1.5	+/- 400 vph	Yes	< 5	Yes
WB Douglas Blvd e/o Sunrise Ave	7,717	7,699	-18	-0.2%	0.2	+/- 400 vph	Yes	< 5	Yes
SB Sunrise Ave n/o Douglas Blvd	3,697	3,860	163	4.4%	2.6	+/- 400 vph	Yes	< 5	Yes
NB Sunrise Ave n/o Douglas Blvd	3,461	3,650	189	5.4%	3.2	+/- 400 vph	Yes	< 5	Yes
SB Sunrise Ave s/o Douglas Blvd	3,085	1,925	-1160	-37.6%	23.2	+/- 400 vph	No	< 5	No
NB Sunrise Ave s/o Douglas Blvd	3,525	3,544	19	0.5%	0.3	+/- 400 vph	Yes	< 5	Yes
EB Woodside Dr e/o Pacific St	580	617	37	6.4%	1.5	+/- 100 vph	Yes	< 5	Yes
WB Woodside Dr e/o Pacific St	370	347	-23	-6.3%	1.2	+/- 100 vph	Yes	< 5	Yes
SB Pacific St n/o Woodside Dr	3,154	3,268	114	3.6%	2.0	+/- 400 vph	Yes	< 5	Yes
NB Pacific St n/o Woodside Dr	4,234	4,198	-36	-0.9%	0.6	+/- 400 vph	Yes	< 5	Yes
SB Pacific St s/o Woodside Dr	3,220	3,306	86	2.7%	1.5	+/- 400 vph	Yes	< 5	Yes
NB Pacific St s/o Woodside Dr	4,510	4,506	-4	-0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
EB Sunset Blvd w/o Pacific St	3,589	3,923	334	9.3%	5.4	+/- 400 vph	Yes	< 5	No
WB Sunset Blvd w/o Pacific St	4,959	5,288	329	6.6%	4.6	+/- 400 vph	Yes	< 5	Yes
EB Sunset Blvd e/o Pacific St	705	545	-160	-22.8%	6.4	+/- 15%	No	< 5	No
WB Sunset Blvd e/o Pacific St	852	761	-92	-10.7%	3.2	+/- 15%	Yes	< 5	Yes
SB Pacific St n/o Sunset Blvd	3,840	3,919	79	2.1%	1.3	+/- 400 vph	Yes	< 5	Yes
NB Pacific St n/o Sunset Blvd	3,656	3,656	-1	0.0%	0.0	+/- 400 vph	Yes	< 5	Yes
SB Pacific St s/o Sunset Blvd	3,102	3,250	148	4.8%	2.6	+/- 400 vph	Yes	< 5	Yes
NB Pacific St s/o Sunset Blvd	4,141	4,136	-6	-0.1%	0.1	+/- 400 vph	Yes	< 5	Yes
EB Rocklin Rd w/o Granite Dr	3,081	3,143	62	2.0%	1.1	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd w/o Granite Dr	3,512	3,862	350	10.0%	5.8	+/- 400 vph	Yes	< 5	No
EB Rocklin Rd e/o Granite Dr	4,132	4,045	-87	-2.1%	1.4	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd e/o Granite Dr	4,491	4,579	88	2.0%	1.3	+/- 400 vph	Yes	< 5	Yes
SB Granite Dr n/o Rocklin Rd	2,645	2,362	-283	-10.7%	5.7	+/- 15%	Yes	< 5	No
NB Granite Dr n/o Rocklin Rd	2,633	2,212	-422	-16.0%	8.6	+/- 15%	No	< 5	No
EB Rocklin Rd w/o WB I-80	4,238	4,193	-45	-1.1%	0.7	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd w/o WB I-80	4,736	4,774	38	0.8%	0.6	+/- 400 vph	Yes	< 5	Yes
EB Rocklin Rd e/o WB I-80	2,597	2,516	-81	-3.1%	1.6	+/- 15%	Yes	< 5	Yes
WB Rocklin Rd e/o WB I-80	5,911	6,059	148	2.5%	1.9	+/- 400 vph	Yes	< 5	Yes
EB Rocklin Rd e/o EB I-80	4,246	4,236	-10	-0.2%	0.2	+/- 400 vph	Yes	< 5	Yes
EB Rocklin Rd e/o EB I-80	4,155	4,060	-95	-2.3%	1.5	+/- 400 vph	Yes	< 5	Yes
EB Rocklin Rd w/o Aguilar Rd	4,373	4,294	-79	-1.8%	1.2	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd w/o Aguilar Rd	4,217	3,843	-374	-8.9%	5.9	+/- 400 vph	Yes	< 5	No
EB Rocklin Rd e/o Aguilar Rd	3,705	3,529	-176	-4.8%	2.9	+/- 400 vph	Yes	< 5	Yes
WB Rocklin Rd e/o Aguilar Rd	3,722	3,546	-176	-4.7%	2.9	+/- 400 vph	Yes	< 5	Yes

SB Aguilar Rd s/o Rocklin Rd	497	446	-51	-10.2%	2.3	+/- 100 vph	Yes	< 5	Yes
NB Aguilar Rd s/o Rocklin Rd	324	297	-27	-8.3%	1.5	+/- 100 vph	Yes	< 5	Yes
Overall	**1,749,267**	**1,748,116**	**-1,151**	**-0.1%**	**0.9**	**+/- 5%**	**Yes**	**< 4**	**Yes**

Link Volumes		
	Target	% Met
< 700 vph	> 85 %	96%
> 700 & < 2,700 vph	> 85 %	96%
> 2,700 vph	> 85 %	100%
GEH Statistic	> 85 %	86%

Aggregated Volumes		
	Target	Modeled
Intersections	> 85 %	93%
Interchanges	> 85 %	100%

VISSIM Metrics
Calibration Comparison
I-80/SR 65 Interchange
Fehr & Peers
Travel Time
February 21, 2013

PM Peak Period

		Measured	Modeled Conditions			Calibration Targets[1]	
Path	Time Period	Travel Time (minutes)	Travel Time (minutes)	Difference (minutes)	Percent Difference	Target	Meets Target?
	4:00 -4:15	8.17	**8.27**	0.10	**1.3%**	+/- 15%	Yes
	4:30 - 4:45	8.03	**8.41**	0.38	**4.7%**	+/- 15%	Yes
	5:00 -5:15	8.27	**8.41**	0.14	**1.7%**	+/- 15%	Yes
	5:45 - 6:00	9.03	**8.20**	-0.83	**-9.2%**	+/- 15%	Yes
I-80 WB: Blue Oaks Blvd to Antelope Road	6:15 - 6.:30	8.05	**8.05**	0.00	**0.0%**	+/- 15%	Yes
	3:45 - 4:00	7.39	**9.52**	2.13	**28.7%**	+/- 15%	No
	4:15 - 4:30	8.06	**9.21**	1.15	**14.2%**	+/- 15%	Yes
	4:45 -5:00	8.61	**10.20**	1.59	**18.4%**	+/- 15%	No
	5:15 - 5:30	12.21	**9.58**	-2.63	**-21.5%**	+/- 15%	No
I-80 EB: Antelope Road to Blue Oaks Blvd	6:00 - 6:15	9.04	**8.25**	-0.79	**-8.7%**	+/- 15%	Yes
	4:00 -4:15	8.75	**8.07**	-0.68	**-7.8%**	+/- 15%	Yes
	5:00 -5:15	8.50	**8.19**	-0.31	**-3.6%**	+/- 15%	Yes
	5:30 -5:45	7.30	**8.10**	0.80	**11.0%**	+/- 15%	Yes
	6:00 - 6:15	7.77	**7.98**	0.22	**2.8%**	+/- 15%	Yes
I-80 WB: Sierra College Blvd to Antelope Road	6:30 - 6:45	7.68	**7.94**	0.26	**3.3%**	+/- 15%	Yes
	4:15 - 4:30	5.84	**6.55**	0.71	**12.1%**	+/- 15%	Yes
	4:45 -5:00	6.08	**6.63**	0.55	**9.0%**	+/- 15%	Yes
	5:15 - 5:30	6.26	**6.57**	0.31	**4.9%**	+/- 15%	Yes
I-80 EB: Antelope Road to Sierra College Blvd	5:45 - 6:00	7.06	**6.41**	-0.65	**-9.3%**	+/- 15%	Yes

Measure	% Cases
> 85%	84%
Not Met	

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Existing Conditions
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,109	466	0	08:25	00:00	23.3
	I-80 at Auburn to SR-65 at Blue Oaks	32,854	1113	0	09:16	00:00	16.1
	I-80 at Sierra College to I-80 at Antelope	44,492	473	0	08:11	00:00	24.7
	I-80 at Auburn to I-80 at Sierra College	35,359	874	0	06:35	00:00	24.4
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,109	131	0	08:17	00:00	23.7
	I-80 at Auburn to SR-65 at Blue Oaks	32,854	246	0	09:11	00:00	16.3
	I-80 at Sierra College to I-80 at Antelope	44,492	160	0	08:01	00:00	25.2
	I-80 at Auburn to I-80 at Sierra College	35,359	156	0	06:23	00:00	25.2

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Existing Conditions**
Network Statistics **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	198,170	39
Travel Distance [mi]	All Vehicles	730,101	1,288
Travel Time [h]	All Vehicles	16,851	93.9
Average Speed [mph]	All Vehicles	43.3	0.2
Total Delay [h]	All Vehicles	3,946	91.1
Average Delay per Vehicle [s]	All Vehicles	71	1.6
VHD/VMT [min/mile]	All Vehicles	0.32	0.01
Number of Vehicles Served	HOV	36,144	153
Travel Distance [mi]	HOV	135,800	858
Travel Time [h]	HOV	3,038	20
Average Speed [mph]	HOV	44.7	0.2
Total Delay [h]	HOV	652	16
Average Delay per Vehicle [s]	HOV	64	2
VHD/VMT [min/mile]	HOV	0.29	0.01
Number of Vehicles Served	Truck	2,717	49
Travel Distance [mi]	Truck	13,929	276
Travel Time [h]	Truck	297	5
Average Speed [mph]	Truck	46.9	1
Total Delay [h]	Truck	60	3
Average Delay per Vehicle [s]	Truck	78	5
VHD/VMT [min/mile]	Truck	0.26	0.02

	Vehicle Types		
Performance Measure	HOV	Truck	All
Vehicles Served	36,140	2,720	198,170
Demand Volume	35,829	2,724	195,975
Percent Demand Served	100.9%	99.9%	101.1%
Vehicle Miles of Travel	135,800	13,930	730,100
Person Miles of Travel	285,180	14,630	880,180
Vehicle Hours of Travel	3,040	300	16,850
Vehicle Hours of Delay	650	60	3,950
VHD % of VHT	21.4%	20.0%	23.4%
Average Delay per Vehicle (min)	1.08	1.32	1.20
Person Hours of Delay	1,370	60	4,670
Average Travel Speed	44.7	46.9	43.3

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	6,296	44	101.8%	649	10	92.6%				60.1	1.4	24.2	0.6	C
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	6,935	67	100.7%							55.6	2.9	39.4	2.1	E
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	6,929	75	100.6%				1,171	72	102.3%	62.2	0.3	22.3	0.4	C
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	5,760	93	100.4%				410	37	106.1%	62.6	1.8	18.0	1.1	B
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	5,351	79	100.0%							62.7	2.3	22.7	2.8	C
6	I-80 EB - Douglas Blvd On-ramp	Merge	5,349	86	99.9%	1,192	45	102.4%				56.7	7.3	30.5	9.1	D
7	I-80 EB - Eureka Rd Off-ramp	Diverge	6,549	128	100.5%				890	55	94.6%	52.0	9.2	46.4	19.6	F
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	5,670	133	101.7%							62.0	1.7	23.3	0.8	C
9	I-80 EB - Eureka Rd EB On-ramp	Merge	5,670	127	101.7%	297	33	129.6%				62.0	0.4	19.5	1.5	B
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	5,965	124	102.7%	977	55	108.7%	539	37	106.0%	48.1	12.4	42.3	17.7	E
11	I-80 EB - Taylor Rd to SR-65	Basic	6,412	147	103.5%							44.4	9.8	41.5	12.4	E
17	I-80 EB - SR-65 Off-ramp	Diverge	6,416	153	103.5%				3,181	94	99.8%	44.3	6.6	51.6	13.4	F
18	I-80 EB - SR-65 Off to On-ramp	Basic	3,231	108	107.4%							63.9	0.2	18.2	0.9	C
19	I-80 EB - SR-65 On-ramp	Merge	3,230	108	107.4%	1,581	89	100.0%				60.8	3.8	22.4	1.6	C
20	I-80 EB - SR-65 to Lane Drop	Basic	4,809	150	104.7%							58.5	3.3	27.5	1.5	D
21	I-80 EB - Lane Drop to Rocklin Rd	Basic	4,803	150	104.6%							61.7	0.5	26.9	0.6	D
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,803	151	104.6%				1,217	65	107.4%	61.0	1.0	23.8	0.7	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,586	138	103.7%							63.1	0.4	20.2	0.8	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,587	138	103.7%	267	26	104.8%				61.5	0.7	19.0	0.9	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,857	147	103.9%							63.5	0.2	20.7	0.8	C

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,857	147	103.9%				374	41	131.6%	62.2	1.3	21.8	0.9	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	3,482	138	101.5%							63.3	0.5	19.6	0.6	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	3,481	132	101.5%	236	6	107.2%				62.5	0.4	18.2	0.7	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	3,720	121	101.9%	464	9	102.0%				59.7	1.1	21.0	0.9	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	3,241	18	106.0%				490	42	104.5%	60.7	0.8	16.5	0.3	B
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	2,749	52	106.3%							63.7	0.2	16.4	0.3	B
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	2,747	54	106.2%	70	3	100.4%				63.6	0.1	14.2	0.3	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	2,819	60	106.1%	293	7	122.0%				61.5	0.6	15.3	0.4	B
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	3,106	60	107.2%							63.8	0.1	16.8	0.4	B
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	3,104	63	107.2%				273	28	101.3%	63.2	0.3	19.4	0.5	B
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	2,831	64	107.7%							63.4	0.2	17.0	0.3	B
45	I-80 WB - Rocklin Rd On-ramp	Merge	2,829	59	107.7%	1,080	60	111.2%				50.8	1.6	24.0	1.5	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	3,912	80	108.7%							61.8	0.4	24.2	0.6	C
47	I-80 WB - HOV Lane Start to SR-65	Basic	3,904	69	108.5%							63.2	0.2	16.2	0.2	B
48	I-80 WB - SR-65 Off-ramp	Diverge	3,903	67	108.4%				1,258	53	107.3%	52.6	9.9	35.1	19.9	E
49	I-80 WB - SR-65 Off to On-ramp	Basic	2,632	67	108.4%							63.8	0.2	14.9	0.3	B
50	I-80 WB - SR-65 On-ramp	Merge	2,633	66	108.5%	2,498	96	102.3%				63.5	0.1	20.6	0.6	C

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
60	I-80 WB - Taylor Rd On-ramp	Merge	5,126	109	105.2%	470	34	104.6%				62.8	0.1	23.7	0.5	C
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	5,589	122	105.1%				422	46	113.0%	60.9	2.5	25.0	1.1	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	5,169	110	104.5%				682	58	103.0%	60.3	1.8	26.8	0.9	C
63	I-80 WB - Atlantic St Off to On-ramp	Basic	4,489	122	104.8%							63.4	0.3	17.7	0.6	B
64	I-80 WB - Atlantic St On-ramp	Merge	4,490	123	104.8%	1,126	65	114.6%				61.1	1.4	21.6	0.8	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	5,616	145	106.6%				956	71	107.0%	60.6	2.3	26.1	1.4	C
66	I-80 WB - Douglas Rd Off to On-ramp	Basic	4,656	105	106.4%							62.3	1.2	25.6	0.7	C
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	4,656	103	106.5%	1,029	61	89.5%				49.7	3.1	33.5	3.3	D
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	5,683	125	102.9%	524	41	113.6%				49.5	3.6	37.1	2.6	E
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	6,198	135	103.6%							62.8	0.1	31.4	0.7	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	6,199	132	103.6%				759	59	101.6%	57.3	2.8	36.1	2.4	E
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	5,446	118	104.0%							61.5	0.6	28.4	0.7	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	5,443	122	103.9%	199	7	99.4%				63.5	0.1	22.6	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	5,639	124	103.7%	985	11	110.5%				62.9	0.5	21.7	0.6	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	6,612	138	104.5%							63.1	0.1	25.9	0.6	C
75	I-80 WB - Antelope Rd Off-ramp	Diverge	6,604	137	104.4%				959	40	102.6%	56.7	2.7	31.1	1.7	D

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR 65 Interchange
Existing Conditions
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	5,632	145	104.4%							59.7	0.8	23.4	0.6	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	5,633	143	104.5%	321	8	97.7%				60.5	0.9	22.0	1.0	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	5,948	138	104.0%	261	5	99.7%	19	10	100.0%	62.9	0.2	23.3	0.5	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	6,180	135	103.6%							63.2	0.1	23.7	0.5	C
80	I-80 WB - Truck Scales On-ramp	Merge	6,179	134	103.6%	19	10	100.0%				63.0	0.1	23.5	0.6	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	6,189	144	103.5%							63.0	0.2	23.8	0.7	C
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	6,190	143	103.5%				1,011	56	99.0%	58.3	1.6	26.1	1.0	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	5,174	150	104.3%							61.6	0.8	20.6	0.7	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	5,175	148	104.4%	708	9	106.9%				58.8	0.7	20.7	0.7	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	5,875	152	104.5%	605	9	105.6%				62.7	0.7	24.0	0.5	C

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
97	SR-65 SB - Twelve Bridges Dr Off-ramp	Diverge	1,745	43	101.6%				210	26	101.3%	63.8	0.2	12.4	0.3	B
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	1,532	38	101.5%							63.6	0.3	12.7	0.3	B
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	1,532	39	101.4%	388	26	101.8%				57.7	0.9	14.9	0.5	B
100	SR-65 SB - Twelve Bridges Dr to Sunset Blvd	Basic	1,928	53	102.0%							63.2	0.3	15.9	0.6	B
101	SR-65 SB - Sunset Blvd Off-ramp	Diverge	1,930	56	102.1%				268	27	109.8%	63.3	0.3	14.7	0.4	B
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	1,660	52	100.8%							63.3	0.3	13.4	0.5	B
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	1,662	53	100.9%	547	24	108.1%				56.1	1.6	17.6	0.8	B
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	2,210	59	102.7%	617	32	102.8%				62.2	0.3	22.1	0.7	C
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	2,821	77	102.5%							62.4	0.3	23.3	0.6	C
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	2,822	74	102.5%				528	41	97.5%	60.7	1.6	23.8	0.8	C
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	2,294	75	103.8%							62.6	0.6	19.4	0.8	C
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	2,293	74	103.7%	282	24	76.1%				60.2	1.0	19.7	0.6	B
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	2,578	74	99.9%	907	45	97.7%	559	42	99.2%	60.8	0.3	21.1	0.6	C
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	2,922	101	99.2%							61.9	0.8	25.0	0.8	C
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	2,922	97	99.1%	352	25	117.6%				51.4	4.3	31.3	3.1	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	3,276	94	100.9%	620	45	106.1%				47.5	3.8	38.8	4.0	E
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	3,895	104	101.7%							61.9	0.6	32.4	1.0	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	3,895	104	101.7%				831	52	105.6%	62.0	0.4	32.2	1.0	D
115	SR-65 SB - Galleria Blvd Off to Lane Add	Basic	3,060	108	100.6%							62.0	0.4	27.1	1.0	D
116	SR-65 SB - Lane Add to Galleria Blvd On-ramp	Basic	3,057	109	100.5%							63.3	0.2	19.4	0.3	C
117	SR-65 SB - Galleria Blvd On-ramp	Merge	3,057	111	100.5%	1,021	70	104.0%				55.8	2.7	24.3	1.8	C
118	SR-65 SB - I-80 WB Off-ramp	Diverge	4,079	134	101.4%				2,498	96	102.3%	62.9	0.1	21.6	0.8	C

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80 / SR-65 Interchange
Existing Conditions
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
125	SR-65 NB - I-80 WB On-ramp	Merge	3,178	94	99.7%	1,232	58	105.1%				20.8	1.5	95.2	3.8	F
126	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,405	94	101.1%							28.7	2.7	76.5	5.7	F
127	SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	4,404	94	101.0%				1,247	56	108.8%	34.4	3.4	62.4	4.8	F
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,157	93	98.2%							58.7	4.8	27.4	2.6	D
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	3,156	89	98.2%	961	57	103.9%				48.9	10.0	39.2	8.8	E
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,118	113	99.5%							60.8	0.4	31.5	1.1	D
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,118	113	99.5%				1,109	69	109.8%	62.2	0.2	27.9	0.9	C
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,010	116	96.2%							63.2	0.2	24.2	1.1	C
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,012	115	96.3%	516	51	94.5%	1,061	67	90.4%	63.1	0.1	21.3	0.9	C
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,465	99	98.6%							63.1	0.4	20.1	1.1	C
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,464	103	98.6%	528	33	110.2%				56.2	2.7	24.5	2.2	C
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,991	116	100.4%							62.7	0.2	25.3	0.9	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,988	111	100.3%				651	54	94.4%	62.9	0.1	22.7	0.7	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	2,334	97	101.9%							63.2	0.2	19.7	0.8	C
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	2,330	99	101.7%	66	14	93.7%				62.3	0.3	20.0	0.8	C
140	SR-65 NB - Sunset Blvd WB On-ramp	Merge	2,395	94	101.5%	274	24	102.2%				62.5	0.3	22.0	0.8	C
141	SR-65 NB - Sunset Blvd to Twelve Bridges Dr	Basic	2,667	92	101.5%							62.5	0.2	23.1	0.7	C
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	2,657	95	101.1%				508	48	89.5%	61.9	0.3	23.3	0.8	C
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,146	82	104.2%							63.0	0.1	18.6	0.5	C
144	SR-65 NB - Twelve Bridges Dr On-ramp	Merge	2,147	81	104.2%	238	23	81.1%				62.1	0.4	19.6	0.5	B

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80 / SR-65 Interchange
Existing Conditions
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	SR-65 /Sterling Parkway	Signal	4,125	4,171	101.1%	18.0	2.6	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,055	970	91.9%	4.6	0.5	A
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,520	1,431	94.1%	3.0	0.3	A
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,112	2,131	100.9%	6.0	0.2	A
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,081	2,125	102.1%	9.3	0.4	A
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks	Signal	4,225	4,384	103.8%	32.8	3.3	C
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	2,891	2,954	102.2%	22.6	1.3	C
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	4,642	4,705	101.3%	7.9	0.6	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	4,337	4,496	103.7%	14.2	1.0	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	4,292	4,370	101.8%	32.0	2.0	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	5,088	5,350	105.1%	15.2	2.1	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	5,081	5,279	103.9%	19.3	1.6	B
13	Galleria Blvd/Antelope Creek Dr	Signal	4,480	4,526	101.0%	24.4	2.1	C
14	Galleria Blvd/Roseville Pkwy	Signal	6,853	7,146	104.3%	36.4	1.6	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,484	4,508	100.5%	17.4	2.1	B
16	Taylor Rd/East Roseville Pkwy	Signal	5,875	5,808	98.9%	28.3	3.5	C
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,080	5,030	99.0%	37.3	3.1	D
18	Wills Rd/Atlantic St	Signal	2,312	2,514	108.7%	12.3	1.2	B
19	I-80 WB Ramps/Atlantic St	Signal	3,239	3,595	111.0%	10.9	0.6	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	4,818	5,175	107.4%	60.6	11.0	E
21	North Sunrise Ave/Eureka Rd	Signal	4,692	4,869	103.8%	29.9	1.9	C
22	Harding Blvd/Wills Rd	Signal	2,793	3,018	108.0%	13.4	1.1	B
23	Harding Blvd/Douglas Blvd	Signal	3,536	3,596	101.7%	27.7	1.8	C
24	I-80 WB Ramps/Douglas Blvd	Signal	4,479	4,480	100.0%	16.7	1.8	B

Network Summary	
Total Demand Volume (veh/hr)	94,090
Total Volume Served (veh/hr)	96,629
Percent Served	102.7%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80 / SR 65 Interchange
Existing Conditions
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,030	5,060	100.6%	5.8	0.6	A
26	North Sunrise Ave/Douglas Blvd	Signal	5,999	6,144	102.4%	35.4	1.7	D
27	Pacific St/Woodside Dr	Signal	2,211	2,202	99.6%	6.1	1.1	A
28	Pacific St/Sunset Blvd	Signal	3,385	3,465	102.4%	28.9	2.5	C
29	Granite Dr/Rocklin Rd	Signal	2,870	2,919	101.7%	36.5	2.3	D
30	I-80 WB Ramps/Rocklin Rd	Signal	2,935	3,092	105.3%	16.9	1.0	B
31	I-80 EB Ramps/Rocklin Rd	Signal	2,844	2,993	105.2%	20.0	1.0	B
32	Aguilar Rd/Rocklin Rd	Signal	2,132	2,137	100.2%	13.2	9.2	B
253	Galleria Blvd/Berry St	Signal	2,522	2,726	108.1%	8.6	1.1	A

Network Summary	
Total Demand Volume (veh/hr)	29,928
Total Volume Served (veh/hr)	30,737
Percent Served	102.7%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

I-80/SR 65 Interchange Improvements

Vissim Model Results – Design Year Alternative 1 (Taylor Road Full Access Interchange)

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Network Statistics | **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	207,225	54
Travel Distance [mi]	All Vehicles	920,913	1,602
Travel Time [h]	All Vehicles	21,449	206.0
Average Speed [mph]	All Vehicles	42.9	0.4
Total Delay [h]	All Vehicles	5,563	200.7
Average Delay per Vehicle [s]	All Vehicles	94	3.4
VHD/VMT [min/mile]	All Vehicles	0.36	0.01
Number of Vehicles Served	HOV	34,560	27
Travel Distance [mi]	HOV	166,450	782
Travel Time [h]	HOV	3,557	21
Average Speed [mph]	HOV	46.8	0.2
Total Delay [h]	HOV	717	16
Average Delay per Vehicle [s]	HOV	73	2
VHD/VMT [min/mile]	HOV	0.26	0.01
Number of Vehicles Served	Truck	7,578	10
Travel Distance [mi]	Truck	42,203	298
Travel Time [h]	Truck	971	16
Average Speed [mph]	Truck	43.5	1
Total Delay [h]	Truck	251	13
Average Delay per Vehicle [s]	Truck	116	6
VHD/VMT [min/mile]	Truck	0.36	0.02

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	34,560	7,580	207,230
Demand Volume	35,620	8,200	209,100
Percent Demand Served	97.0%	92.4%	99.1%
Vehicle Miles of Travel	166,450	42,200	920,910
Person Miles of Travel	349,550	44,310	1,106,120
Vehicle Hours of Travel	3,560	970	21,450
Vehicle Hours of Delay	720	250	5,560
VHD % of VHT	20.2%	25.8%	25.9%
Average Delay per Vehicle (min)	1.25	1.98	1.61
Person Hours of Delay	1,510	260	6,360
Average Travel Speed	46.8	43.5	42.9

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	668	14	14:59	01:13	13.1
	I-80 at Auburn to SR-65 at Blue Oaks	32,856	1671	17	06:45	00:10	22.1
	I-80 at Sierra College to I-80 at Antelope	45,839	1225	16	12:26	00:25	16.8
	I-80 at Auburn to I-80 at Sierra College	36,732	783	13	06:40	00:02	25.0
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	485	8	08:45	00:04	22.4
	I-80 at Auburn to SR-65 at Blue Oaks	32,856	415	8	06:17	00:01	23.7
	I-80 at Sierra College to I-80 at Antelope	45,839	419	8	09:33	00:13	21.8
	I-80 at Auburn to I-80 at Sierra College	36,732	151	6	06:34	00:02	25.4

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Network Statistics | **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	300,414	340
Travel Distance [mi]	All Vehicles	1,113,998	1,642
Travel Time [h]	All Vehicles	29,967	370.8
Average Speed [mph]	All Vehicles	37.2	0.4
Total Delay [h]	All Vehicles	10,300	365.7
Average Delay per Vehicle [s]	All Vehicles	121	4.3
VHD/VMT [min/mile]	All Vehicles	0.55	0.02
Number of Vehicles Served	HOV	53,147	77
Travel Distance [mi]	HOV	218,075	755
Travel Time [h]	HOV	5,352	52
Average Speed [mph]	HOV	40.8	0.3
Total Delay [h]	HOV	1,546	46
Average Delay per Vehicle [s]	HOV	103	3
VHD/VMT [min/mile]	HOV	0.43	0.01
Number of Vehicles Served	Truck	5,471	13
Travel Distance [mi]	Truck	26,192	163
Travel Time [h]	Truck	669	15
Average Speed [mph]	Truck	39.1	1
Total Delay [h]	Truck	216	13
Average Delay per Vehicle [s]	Truck	139	8
VHD/VMT [min/mile]	Truck	0.49	0.03

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	53,150	5,470	300,410
Demand Volume	53,990	6,030	300,030
Percent Demand Served	98.4%	90.7%	100.1%
Vehicle Miles of Travel	218,070	26,190	1,114,000
Person Miles of Travel	457,960	27,500	1,355,200
Vehicle Hours of Travel	5,350	670	29,970
Vehicle Hours of Delay	1,550	220	10,300
VHD % of VHT	29.0%	32.8%	34.4%
Average Delay per Vehicle (min)	1.75	2.41	2.06
Person Hours of Delay	3,260	230	12,020
Average Travel Speed	40.8	39.1	37.2

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	680	10	12:28	01:11	15.7
	I-80 at Auburn to SR-65 at Blue Oaks	32,856	1468	11	07:52	00:45	19.0
	I-80 at Sierra College to I-80 at Antelope	45,839	648	11	11:37	00:54	17.9
	I-80 at Auburn to I-80 at Sierra College	36,732	936	11	06:41	00:02	25.0
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	286	7	08:38	00:09	22.7
	I-80 at Auburn to SR-65 at Blue Oaks	32,856	733	10	06:28	00:02	23.1
	I-80 at Sierra College to I-80 at Antelope	45,839	201	7	09:15	00:19	22.5
	I-80 at Auburn to I-80 at Sierra College	36,732	316	6	06:37	00:01	25.3

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,484	47	110.4%	1,247	31	111.4%				59.3	4.2	33.4	3.3	D
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,726	82	110.5%							55.2	4.0	40.0	3.3	E
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,718	104	110.4%				1,414	72	109.6%	60.3	0.9	30.6	1.0	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,304	140	110.5%				371	39	109.2%	62.1	1.1	25.9	1.5	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,932	129	110.6%							62.8	0.3	27.8	0.4	D
6	I-80 EB - Douglas Blvd On-ramp	Merge	6,933	135	110.6%	1,149	19	97.3%				59.8	1.9	34.5	1.9	D
7	I-80 EB - Eureka Rd Off-ramp	Diverge	8,082	128	108.5%				1,398	59	104.3%	58.9	1.6	36.6	1.2	E
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	6,685	149	109.4%							62.7	0.3	27.8	0.6	D
9	I-80 EB - Eureka Rd EB On-ramp	Merge	6,686	141	109.4%	198	26	104.4%				62.6	0.1	25.4	0.6	C
10	I-80 EB - Eureka Rd to SR-65	Weave	6,881	152	109.2%	1,105	47	105.3%	4,948	107	108.3%	62.0	0.4	23.4	0.5	C
11	I-80 EB - SR-65 Off-ramp to Taylor Rd Off-ramp	Basic	3,044	109	109.5%							63.7	0.1	16.3	0.6	B
12	I-80 EB - Taylor Rd Off-ramp	Diverge	3,044	109	109.5%				301	37	103.8%	63.9	0.1	16.1	0.7	B
13	I-80 EB - Taylor Rd Off to On-ramp	Basic	2,746	99	110.3%							63.9	0.1	16.0	0.6	B
18	I-80 EB - Taylor Rd On-ramp	Merge	2,748	97	110.4%	256	36	98.5%				63.8	0.1	17.6	0.6	B
19	I-80 EB - SR-65 On-ramp	Merge	3,006	109	109.3%	1,927	78	107.1%				61.5	0.2	30.2	0.5	D
20	I-80 EB - SR-65 to Rocklin Rd	Basic	4,933	123	108.4%							62.6	0.3	24.7	0.4	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,942	130	108.6%				1,542	67	107.1%	63.2	0.2	23.7	0.4	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,405	121	109.5%							63.1	0.4	22.0	0.4	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,410	121	109.7%	259	29	107.8%				58.6	1.0	23.1	0.7	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,676	129	109.7%							63.0	0.3	23.3	0.5	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,677	127	109.8%				743	65	110.9%	61.5	0.9	24.8	0.6	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,939	118	109.6%							63.1	0.5	19.6	0.5	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,941	119	109.7%	139	5	92.4%				62.5	0.2	17.8	0.5	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	3,083	120	108.9%	493	20	109.5%				62.1	0.3	19.7	0.6	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	5,374	37	105.8%				1,069	60	104.8%	52.7	4.2	32.8	3.2	D
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	4,301	71	105.9%							61.6	0.9	25.9	0.5	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	4,300	81	105.9%	50	4	84.0%				62.8	0.5	23.1	0.5	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	4,348	93	105.5%	319	12	102.9%				60.8	0.6	25.0	0.6	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,661	93	105.2%							61.9	0.7	27.9	0.7	D
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,658	83	105.2%				289	27	99.5%	60.7	1.1	28.4	1.1	D
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,364	87	105.4%							63.0	0.3	25.9	0.7	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,361	83	105.3%	1,039	48	98.9%				59.6	1.2	28.3	0.9	D
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,388	98	103.8%							60.5	0.7	31.6	0.8	D
47	I-80 WB - SR-65 Off-ramp	Diverge	5,381	97	103.7%				1,554	59	103.6%	63.3	0.3	24.1	0.3	C
48	I-80 WB - Taylor Rd Off-ramp	Diverge	3,825	85	103.6%				413	37	98.2%	63.3	0.3	19.7	0.5	B
49	I-80 WB - Taylor Rd Off to On-ramp	Basic	3,406	97	104.2%							63.7	0.1	18.3	0.7	C
50	I-80 WB - Taylor Rd On-ramp	Merge	3,403	106	104.1%	752	37	109.0%				62.3	1.0	20.6	0.7	C
60	I-80 WB - SR-65 to Atlantic St	Weave	4,154	100	104.9%	4,593	216	100.9%	388	45	104.7%	22.3	2.6	90.2	8.7	F
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	8,174	234	100.4%				1,093	84	98.5%	21.9	0.6	112.4	2.6	F
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	7,050	184	100.3%							23.6	0.5	109.3	2.7	F
64	I-80 WB - Atlantic St On-ramp	Merge	7,052	170	100.3%	933	34	107.2%				23.0	0.9	74.9	1.4	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,982	158	101.0%				991	72	94.4%	36.6	1.3	63.1	2.8	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	7,004	145	102.2%							29.8	1.3	87.4	3.7	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	7,004	141	102.2%	937	31	107.7%				23.5	0.5	112.9	1.9	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,932	127	102.8%	462	28	110.0%				28.8	0.3	76.7	1.0	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,394	101	103.1%							58.4	0.5	34.5	0.5	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,401	119	103.2%				1,023	66	95.6%	61.9	0.2	28.8	0.4	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	7,377	140	104.3%							62.1	0.1	34.1	0.5	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	7,381	132	104.4%	183	11	73.0%				62.8	0.1	27.2	0.4	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,565	141	103.4%	762	18	94.0%				62.9	0.2	25.8	0.5	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,331	130	102.5%							62.2	0.2	31.2	0.5	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,337	125	102.5%				456	38	87.6%	61.9	0.3	31.3	0.7	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	7,889	122	103.7%							62.4	0.3	30.1	0.4	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	7,890	121	103.7%	534	12	100.8%				61.6	0.7	29.0	0.5	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,429	124	103.6%	451	15	90.1%	91	15	82.8%	60.3	1.9	31.3	1.0	D
79	I-80 WB - Truck Scales Off to On-ramp	Basic	8,821	140	103.4%							48.1	9.8	46.9	9.8	F
80	I-80 WB - Truck Scales On-ramp	Merge	8,853	138	103.8%	92	12	83.2%				32.3	11.2	77.5	19.3	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	9,008	135	104.3%							41.4	5.6	56.1	6.6	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	9,015	132	104.3%				1,077	65	104.6%	52.5	6.3	36.4	5.0	E
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	7,971	170	104.7%							43.7	14.4	54.0	22.1	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	8,000	167	105.1%	807	18	102.2%				35.6	14.3	72.0	26.0	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	8,859	162	105.5%	777	29	94.7%				38.3	12.5	66.6	16.4	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
AM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,426	9	128.5%				73	17	104.1%	63.8	0.1	19.1	0.1	B
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	1,354	29	130.2%							63.6	0.2	18.5	0.3	C
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	1,354	33	130.2%	1,045	21	106.7%				48.0	8.1	25.7	5.1	C
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	2,399	71	118.8%	1,136	70	103.2%				9.5	1.1	133.3	16.0	F
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	3,529	102	113.1%							11.9	0.7	121.9	3.5	F
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	3,514	106	112.6%							15.1	0.9	112.4	3.0	F
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	3,493	108	108.1%	1,337	51	106.9%	851	62	106.4%	20.0	1.0	87.4	2.2	F
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,891	63	105.7%							20.5	0.7	94.9	1.9	F
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	3,878	59	105.4%	649	38	113.8%				29.9	0.3	73.0	0.8	F
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	4,507	75	106.0%							59.7	1.4	38.6	1.2	E
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	4,505	71	106.0%				766	47	109.5%	60.8	2.8	35.3	1.8	E
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	3,727	83	105.0%							52.3	15.3	42.4	19.5	E
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	3,714	83	104.6%	456	32	108.6%				44.1	17.1	53.6	22.3	F
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	4,155	99	104.6%	502	44	111.4%	746	54	103.6%	59.2	1.8	33.6	1.0	D
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,897	119	105.3%							62.2	0.3	32.3	0.8	D
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,896	120	105.3%	435	28	111.5%				57.6	3.6	36.4	2.7	E
104	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	4,327	117	105.8%	599	35	105.1%	888	68	108.3%	59.8	0.8	32.0	1.0	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	4,020	90	104.7%							56.7	8.6	37.2	7.2	E
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	4,019	92	104.7%	527	38	105.4%				48.7	7.8	43.1	8.8	E
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	4,547	106	104.8%	1,249	55	101.6%	746	44	105.0%	56.0	4.4	36.6	3.7	E
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	5,048	107	103.9%							62.0	0.3	36.7	0.8	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	5,047	108	103.9%	615	19	100.8%				60.1	2.4	28.7	1.4	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	5,658	104	103.4%	849	42	104.8%				53.8	9.9	38.0	12.5	E
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	6,505	119	103.6%							59.4	1.0	33.3	0.7	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	6,505	117	103.6%				1,346	61	101.9%	61.7	0.3	29.2	0.5	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	5,161	95	104.0%							62.6	0.2	27.3	0.5	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	5,161	90	104.0%	1,471	66	105.8%	4,723	108	103.8%	59.5	0.7	26.3	0.6	C
120	SR-65 SB to EB I-80 Connector	Basic	1,916	74	106.5%							56.0	0.2	20.0	0.6	C
121	SR-65 SB to WB I-80 Connector	Basic	3,716	163	100.7%							24.0	12.9	76.0	32.6	F
123	SR-65 NB from WB I-80 Connector	Basic	1,556	58	103.7%							56.4	0.1	16.3	0.6	B
125	SR-65 NB from EB I-80 Connector	Basic	4,360	94	108.2%							53.6	0.1	29.7	0.5	D
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,362	102	108.2%	2,145	69	105.2%	1,052	67	104.2%	59.6	0.7	26.5	0.6	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	5,449	116	107.7%							41.6	11.6	47.2	17.1	F
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	5,449	123	107.7%	523	36	98.8%				34.5	5.9	61.3	9.4	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	5,979	133	107.0%							48.9	5.0	44.4	5.9	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	5,980	134	107.0%				944	56	98.4%	52.8	4.4	39.6	4.7	E
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	5,038	106	108.8%							57.1	5.1	42.9	5.2	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	5,038	111	108.8%	297	28	99.1%	2,016	93	110.7%	61.3	0.9	30.9	0.6	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	3,325	87	106.9%							62.5	0.2	27.1	0.7	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	3,324	84	106.9%	559	35	99.9%				60.1	1.0	28.4	0.8	D
136	SR-65 NB - Blue Oaks Blvd to HOV Lane End	Basic	3,885	93	105.8%							62.5	0.5	29.9	0.7	D
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	3,885	90	105.9%							62.7	0.3	25.4	0.4	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	3,887	90	105.9%				1,395	73	106.5%	63.4	0.1	23.9	0.4	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	2,491	74	105.5%							63.5	0.2	20.8	0.6	C
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	2,491	75	105.6%	105	20	95.6%				62.9	0.4	21.4	0.8	C
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	2,595	86	105.1%	396	31	116.5%	795	54	98.1%	63.2	0.3	19.3	0.6	B
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	2,194	83	109.7%							63.5	0.2	19.3	0.7	C
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	2,197	82	109.8%	677	41	105.8%				59.5	0.8	22.5	0.6	C
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	2,871	80	108.7%	455	38	113.7%				61.2	0.7	26.3	0.8	C
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	3,328	107	109.5%							61.2	0.4	29.4	0.7	D
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	3,331	107	109.6%				723	51	99.0%	61.5	0.5	29.5	0.9	D
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,608	95	112.9%							62.9	0.1	24.5	0.5	C
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,608	92	112.9%	761	40	102.8%	1,268	68	116.3%	62.9	0.2	20.4	0.4	C
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	2,103	72	107.3%							63.7	0.2	19.3	0.7	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	2,103	76	107.3%				1,161	65	102.8%	64.2	0.1	15.2	0.4	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	940	58	113.3%							64.2	0.2	9.6	0.3	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	941	56	113.3%	70	6	100.1%				63.4	0.2	9.6	0.2	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,969	43	102.0%	972	23	96.2%				62.1	0.3	27.9	0.4	C
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,936	68	101.3%							61.7	0.3	32.8	0.5	D
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,923	96	101.2%				1,132	83	98.4%	55.7	7.2	36.7	10.2	E
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,758	146	101.2%				393	46	100.7%	59.9	7.4	30.2	19.6	D
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	7,368	152	101.2%							62.8	0.3	26.9	0.6	D
6	I-80 EB - Douglas Blvd On-ramp	Merge	7,366	158	101.2%	1,799	64	96.7%				59.5	5.4	35.2	4.8	E
7	I-80 EB - Eureka Rd Off-ramp	Diverge	9,169	176	100.3%				940	59	98.9%	59.6	3.3	37.7	3.2	E
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	8,231	174	100.5%							62.5	0.2	29.8	0.7	D
9	I-80 EB - Eureka Rd EB On-ramp	Merge	8,233	179	100.5%	322	21	103.7%				61.4	1.6	28.7	1.1	D
10	I-80 EB - Eureka Rd to SR-65	Weave	8,557	172	100.7%	1,391	51	95.9%	6,029	173	100.1%	60.2	1.2	27.1	1.0	C
11	I-80 EB - SR-65 Off-ramp to Taylor Rd Off-ramp	Basic	3,918	102	99.7%							63.5	0.1	17.7	0.5	B
12	I-80 EB - Taylor Rd Off-ramp	Diverge	3,917	102	99.7%				585	41	97.5%	63.6	0.3	16.7	0.5	B
13	I-80 EB - Taylor Rd Off to On-ramp	Basic	3,330	98	100.0%							63.7	0.3	16.7	0.5	B
18	I-80 EB - Taylor Rd On-ramp	Merge	3,329	93	100.0%	176	24	80.0%				63.9	0.1	17.8	0.6	B
19	I-80 EB - SR-65 On-ramp	Merge	3,504	94	98.7%	2,528	86	97.6%				59.3	0.8	33.0	0.9	D
20	I-80 EB - SR-65 to Rocklin Rd	Basic	6,031	123	98.2%							62.2	0.2	27.7	0.8	D
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	6,023	147	98.1%				1,435	72	98.3%	63.1	0.1	26.3	0.7	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	4,578	137	97.8%							63.0	0.3	26.6	0.9	D
24	I-80 EB - Rocklin Rd On-ramp	Merge	4,576	141	97.8%	262	15	100.9%				58.6	0.9	27.4	1.0	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	4,839	133	98.0%							62.9	0.2	27.8	0.8	D
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	4,836	134	97.9%				700	61	93.3%	61.3	0.7	29.2	1.0	D
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	4,130	108	98.6%							63.0	0.2	23.9	0.6	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	4,128	110	98.5%	334	8	98.3%				60.5	0.8	22.8	0.8	C
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	4,458	112	98.4%	854	22	101.6%				59.2	0.7	28.0	0.6	D
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,076	25	105.9%				750	52	105.6%	60.2	0.6	21.9	0.4	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,323	56	105.8%							63.3	0.4	20.5	0.3	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,323	57	105.8%	406	15	104.1%				62.2	0.3	19.3	0.4	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,729	64	105.6%	422	11	103.0%				60.7	0.7	22.4	0.5	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,147	66	105.2%							63.1	0.2	24.1	0.5	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,148	64	105.3%				304	40	101.5%	62.5	0.3	25.1	0.7	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,841	67	105.5%							63.4	0.2	22.6	0.4	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,839	69	105.5%	1,641	84	105.9%				57.8	1.6	29.5	1.2	D
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,476	121	105.5%							54.2	6.2	36.0	4.8	E
47	I-80 WB - SR-65 Off-ramp	Diverge	5,474	121	105.5%				2,025	82	103.9%	63.3	0.2	23.0	0.5	C
48	I-80 WB - Taylor Rd Off-ramp	Diverge	3,447	97	106.4%				329	34	106.0%	63.4	0.2	17.2	0.5	B
49	I-80 WB - Taylor Rd Off to On-ramp	Basic	3,116	97	106.4%							63.9	0.2	17.1	0.6	B
50	I-80 WB - Taylor Rd On-ramp	Merge	3,117	102	106.4%	650	45	98.5%				63.0	0.5	17.8	0.5	B
60	I-80 WB - SR-65 to Atlantic St	Weave	3,771	118	105.1%	4,158	130	99.5%	487	46	103.7%	50.3	9.1	39.0	14.3	E
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,328	237	100.4%				1,067	71	99.8%	27.1	14.6	90.7	39.2	F
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,173	221	99.1%							22.5	8.2	108.4	26.6	F
64	I-80 WB - Atlantic St On-ramp	Merge	6,118	225	98.2%	1,189	62	97.4%				19.0	1.2	84.4	3.9	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,211	177	96.8%				1,061	79	95.6%	29.5	1.7	76.7	3.2	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,090	144	96.1%							24.1	0.7	100.4	3.9	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,071	139	95.8%	1,310	50	97.0%				21.5	0.4	114.0	2.9	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,355	109	95.6%	657	26	90.1%				27.5	0.5	73.8	0.8	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,013	136	95.2%							60.1	0.4	32.1	0.7	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,013	125	95.2%				1,173	52	93.8%	62.4	0.1	27.9	0.6	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,838	133	95.4%							62.4	0.1	32.5	0.7	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,836	121	95.3%	195	11	92.8%				62.9	0.1	26.2	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,028	129	95.2%	599	16	106.9%				62.2	0.5	22.6	0.3	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,626	114	96.0%							62.4	0.2	28.1	0.3	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,622	118	96.0%				1,102	56	95.0%	60.8	2.8	29.9	1.8	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,515	124	96.1%							63.0	0.2	24.9	0.6	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,513	123	96.1%	346	10	98.8%				61.1	1.0	21.9	0.9	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	6,861	122	96.2%	529	12	99.9%	52	14	58.2%	62.4	0.3	24.3	0.6	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,339	111	96.9%							62.8	0.1	27.1	0.6	D
80	I-80 WB - Truck Scales On-ramp	Merge	7,335	112	96.9%	51	14	57.1%				62.5	0.1	26.9	0.7	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	7,386	112	96.4%							61.2	0.7	28.9	0.7	D
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	7,385	106	96.4%				1,191	75	95.3%	62.0	0.5	26.7	0.5	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	6,199	120	96.7%							63.0	0.3	23.8	0.5	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	6,200	126	96.7%	897	6	99.7%				57.2	1.5	25.7	1.3	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	7,096	121	97.1%	601	20	103.5%				61.3	1.5	28.6	0.7	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
PM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,128	10	101.6%				125	20	104.5%	64.4	0.2	10.1	0.0	B
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	1,002	26	101.2%							64.5	0.2	8.7	0.3	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	1,004	26	101.4%	691	20	100.1%				61.4	0.1	10.4	0.2	B
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,692	32	100.7%	645	14	94.9%				61.1	0.3	12.6	0.3	B
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,338	36	99.1%							63.2	0.5	21.4	0.4	C
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,340	36	99.1%							63.2	0.3	20.5	0.4	C
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,339	35	99.1%	1,447	62	100.5%	827	52	99.6%	60.8	0.4	22.1	0.5	C
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,964	85	99.8%							63.2	0.1	24.3	0.9	C
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,966	83	99.9%	584	47	95.8%				60.5	1.3	27.4	1.3	C
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,551	100	99.2%							62.3	0.3	29.3	1.0	D
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,550	105	99.2%				990	58	98.0%	62.7	0.2	26.3	0.8	C
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,557	99	99.5%							63.3	0.2	21.3	1.0	C
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,559	97	99.6%	469	32	104.2%				61.1	0.8	24.0	0.8	C
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	3,029	100	100.3%	726	39	99.4%	597	44	97.8%	61.8	0.2	25.3	0.9	C
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,162	99	100.7%							62.6	0.2	26.5	1.1	D
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,161	96	100.7%	561	36	105.8%				58.9	1.9	29.2	1.3	D
104	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	3,721	102	101.4%	1,001	48	101.1%	858	46	98.6%	61.5	0.4	28.8	1.0	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,858	123	101.8%							62.1	0.2	31.6	1.2	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,858	122	101.8%	337	25	88.6%				58.9	1.0	32.4	1.5	D
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	4,195	121	100.6%	1,350	55	97.8%	644	54	97.5%	59.5	1.9	32.4	1.9	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,901	129	100.2%							62.3	0.3	35.4	0.9	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,900	135	100.2%	456	38	99.2%				61.8	0.2	27.6	0.6	C
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	5,357	149	100.1%	1,103	51	98.5%				60.5	0.7	30.5	0.8	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	6,462	148	99.9%							59.3	1.2	33.1	1.1	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	6,462	148	99.9%				1,548	80	99.9%	61.6	0.4	28.9	0.6	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,914	119	99.9%							62.5	0.2	27.7	0.5	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,918	124	100.0%	1,771	95	95.7%	4,148	139	99.2%	61.0	0.4	25.0	0.6	C
120	SR-65 SB to EB I-80 Connector	Basic	2,533	85	97.8%							54.9	0.4	24.8	0.9	C
121	SR-65 SB to WB I-80 Connector	Basic	3,434	121	96.2%							55.7	0.3	23.4	0.7	C
123	SR-65 NB from WB I-80 Connector	Basic	2,026	84	103.9%							54.6	3.0	21.4	1.3	C
125	SR-65 NB from EB I-80 Connector	Basic	4,912	145	100.0%							49.7	12.0	36.7	23.4	E
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,898	129	99.7%	3,137	102	102.5%	1,624	83	97.8%	46.3	14.3	44.4	19.7	E
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	6,322	115	100.2%							25.4	1.0	102.7	11.0	F
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	6,298	102	99.8%	1,043	69	94.0%				30.7	0.3	73.3	1.1	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	7,329	86	98.8%							53.5	1.1	38.1	1.4	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	7,328	86	98.8%				1,529	74	100.6%	58.5	1.0	33.4	1.3	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	5,794	105	98.2%							60.9	2.4	37.6	2.4	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	5,794	106	98.2%	610	37	100.0%	2,211	73	98.3%	61.3	0.7	32.2	0.5	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	4,199	127	98.6%							61.3	3.2	31.4	2.0	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	4,199	127	98.6%	619	57	95.2%				58.8	1.8	32.7	1.4	D
136	SR-65 NB - Blue Oaks Blvd to HOV Lane End	Basic	4,818	125	98.1%							62.2	0.6	33.2	1.0	D
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	4,816	131	98.1%							61.5	0.7	30.0	0.6	D
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	4,815	139	98.1%				1,168	73	98.9%	62.6	0.5	28.0	0.6	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	3,647	136	97.8%							62.6	0.1	29.5	0.7	D
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	3,646	135	97.7%	296	29	102.0%				61.7	0.4	30.7	0.7	D
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	3,948	137	98.2%	755	39	106.3%	1,233	71	100.2%	61.8	0.5	28.2	1.2	D
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	3,470	120	99.2%							62.8	0.1	27.9	1.2	D
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	3,471	123	99.2%	382	32	97.9%				60.2	1.8	30.3	1.2	D
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,850	134	99.0%	494	41	102.9%				55.1	4.7	36.8	3.7	E
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	4,339	141	99.3%							57.9	1.7	38.3	2.1	E
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	4,339	138	99.3%				720	43	102.9%	59.9	1.3	37.2	1.5	E
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	3,618	123	98.6%							62.4	0.1	31.0	1.1	D
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	3,614	119	98.5%	952	52	97.1%	1,499	76	97.4%	62.4	0.2	27.1	0.9	C
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	3,064	104	98.5%							63.2	0.1	24.6	1.1	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	3,065	103	98.5%				1,863	80	98.0%	63.8	0.2	19.2	0.8	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	1,198	73	99.0%							64.3	0.2	9.9	0.6	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	1,196	72	98.9%	126	9	97.1%				63.1	0.3	10.1	0.6	B

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	3,745	4,157	111.0%	16.2	1.0	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	2,085	2,270	108.9%	17.2	3.7	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	2,130	2,270	106.6%	32.0	6.7	C
4	SR-65 SB Ramps/Sunset Blvd	Signal	3,335	3,578	107.3%	12.6	0.8	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	3,715	4,047	108.9%	11.9	0.6	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	5,430	5,650	104.0%	45.1	4.6	D
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,400	3,639	107.0%	10.3	1.2	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	4,450	5,055	113.6%	16.9	13.1	B
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	3,425	3,454	100.8%	14.1	0.9	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	3,370	3,532	104.8%	27.7	1.7	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,580	3,740	104.5%	16.2	2.9	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,840	3,930	102.3%	23.5	1.7	C
13	Galleria Blvd/Antelope Creek Dr	Signal	2,415	2,388	98.9%	9.7	1.3	A
14	Galleria Blvd/Roseville Pkwy	Signal	5,316	5,676	106.8%	44.5	4.2	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,425	3,640	106.3%	6.7	1.7	A
16	Taylor Rd/East Roseville Pkwy	Signal	5,335	5,652	105.9%	60.8	10.6	E
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,015	5,285	105.4%	37.3	4.9	D
18	Wills Rd/Atlantic St	Signal	2,190	2,391	109.2%	25.3	16.0	C
19	I-80 WB Ramps/Atlantic St	Signal	3,615	3,803	105.2%	43.2	12.9	D
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,305	5,562	104.8%	31.9	4.0	C
21	North Sunrise Ave/Eureka Rd	Signal	5,125	5,346	104.3%	38.2	2.9	D
22	Harding Blvd/Wills Rd	Signal	2,140	2,264	105.8%	15.5	4.4	B
23	Harding Blvd/Douglas Blvd	Signal	2,770	2,950	106.5%	27.5	5.5	C
24	I-80 WB Ramps/Douglas Blvd	Signal	3,780	3,996	105.7%	31.6	4.2	C

Network Summary	
Total Demand Volume (veh/hr)	88,936
Total Volume Served (veh/hr)	94,272
Percent Served	106.0%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	4,170	4,505	108.0%	14.8	7.3	B
26	North Sunrise Ave/Douglas Blvd	Signal	4,555	4,835	106.1%	36.7	2.0	D
27	Pacific St/Woodside Dr	Signal	2,215	2,430	109.7%	7.4	0.7	A
28	Pacific St/Sunset Blvd	Signal	3,480	3,823	109.9%	27.1	1.9	C
29	Granite Dr/Rocklin Rd	Signal	2,851	2,963	103.9%	26.9	2.5	C
30	I-80 WB Ramps/Rocklin Rd	Signal	3,035	3,154	103.9%	22.5	1.5	C
31	I-80 EB Ramps/Rocklin Rd	Signal	3,105	3,354	108.0%	25.0	2.4	C
32	Aguilar Rd/Rocklin Rd	Signal	2,335	2,532	108.4%	10.0	0.8	A
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	3,460	3,841	111.0%	12.3	1.6	B
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,365	2,569	108.6%	22.1	4.3	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	3,850	4,182	108.6%	17.0	1.0	B
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	3,825	4,063	106.2%	13.7	0.3	B
37	Taylor Rd/I-80 Ramps	Signal	2,895	3,062	105.8%	20.6	1.5	C
40	Galleria Blvd/Berry St	Signal	2,090	2,197	105.1%	10.4	1.6	B

Network Summary	
Total Demand Volume (veh/hr)	44,231
Total Volume Served (veh/hr)	47,509
Percent Served	107.4%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	66	6	322	134	NO
	Through						
	Right Turn	1500	67	6	322	134	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	24	9	138	29	NO
	Through						
	Right Turn	1500	24	9	138	29	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	73	5	241	35	NO
	Through						
	Right Turn	1330	75	5	243	35	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	61	1	235	39	NO
	Through						
	Right Turn	1400	25	5	165	30	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	36	14	218	114	MAX
	Through	2260	123	16	499	231	NO
	Right Turn	200	8	5	225	231	MAX

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	43	15	245	35	NO
	Through						
	Right Turn	1100	43	15	245	35	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	25	7	147	23	NO
	Through						
	Right Turn	1130	28	7	150	23	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	43	6	185	38	NO
	Through						
	Right Turn	1420	42	6	185	38	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	4	1	53	12	NO
WB	Left Turn						
	Through						
	Right Turn	1170	14	1	143	44	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	53	1	268	38	NO
WB	Left Turn						
	Through						
	Right Turn	1780	2	0	50	6	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 1 (Full Taylor)**
Queue Length **AM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	74	8	356	324	MAX
	Through	1700	90	17	580	315	NO
	Right Turn	1700	10	6	287	297	NO
SB	Left Turn	550	46	19	184	32	NO
	Through						
	Right Turn	550	26	4	135	29	NO
EB	Left Turn	1120	39	4	121	27	NO
	Through	1120	97	3	639	123	NO
	Right Turn	810	8	3	246	75	NO
WB	Left Turn						
	Through	1370	106	28	570	73	NO
	Right Turn	280	1	1	48	18	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	66	66	369	67	NO
	Through	1530	66	66	369	67	NO
	Right Turn	730	66	67	369	67	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	5	10	166	524	NO
SB	Left Turn						
	Through						
	Right Turn	1250	40	49	376	316	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	22	6	166	52	NO
	Through						
	Right Turn	1230	30	8	186	52	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	53	3	248	38	NO
	Through						
	Right Turn	1080	38	6	256	45	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	48	15	314	35	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	57	14	312	70	NO
	Through						
	Right Turn	1650	57	14	312	70	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	63	10	319	54	NO
	Through						
	Right Turn	1620	63	10	319	54	NO

Intersection 37 **Taylor Rd/I-80 Ramps** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	700	53	9	324	68	NO
	Through						
	Right Turn	700	4	1	67	16	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	4,665	4,632	99.3%	21.3	1.1	C
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	2,210	2,172	98.3%	15.0	1.2	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	2,335	2,316	99.2%	18.7	1.4	B
4	SR-65 SB Ramps/Sunset Blvd	Signal	4,225	4,309	102.0%	10.2	0.5	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	4,295	4,439	103.4%	11.8	1.0	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	7,035	6,889	97.9%	165.4	30.3	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	4,225	4,230	100.1%	84.9	31.8	F
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	6,115	6,449	105.5%	8.5	1.2	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	5,305	5,328	100.4%	10.0	0.6	A
10	Stanford Ranch Rd/Five Star Blvd	Signal	5,260	5,177	98.4%	55.8	9.2	E
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	6,035	5,942	98.5%	26.4	14.2	C
12	SR-65 SB Ramps/Galleria Blvd	Signal	6,225	6,027	96.8%	23.9	1.5	C
13	Galleria Blvd/Antelope Creek Dr	Signal	4,215	3,804	90.2%	22.6	2.5	C
14	Galleria Blvd/Roseville Pkwy	Signal	8,125	7,655	94.2%	91.0	8.7	F
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,796	4,504	93.9%	76.7	22.5	E
16	Taylor Rd/East Roseville Pkwy	Signal	7,130	6,980	97.9%	53.6	5.8	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	6,405	6,495	101.4%	46.0	11.1	D
18	Wills Rd/Atlantic St	Signal	3,350	3,411	101.8%	25.9	3.6	C
19	I-80 WB Ramps/Atlantic St	Signal	4,770	4,760	99.8%	15.3	4.5	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	6,495	6,409	98.7%	103.9	8.5	F
21	North Sunrise Ave/Eureka Rd	Signal	6,760	6,858	101.5%	99.3	17.9	F
22	Harding Blvd/Wills Rd	Signal	3,005	3,079	102.5%	19.4	1.4	B
23	Harding Blvd/Douglas Blvd	Signal	3,875	3,752	96.8%	80.9	19.6	F
24	I-80 WB Ramps/Douglas Blvd	Signal	4,640	4,526	97.5%	25.4	6.8	C

Network Summary	
Total Demand Volume (veh/hr)	121,496
Total Volume Served (veh/hr)	120,143
Percent Served	98.9%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 1 (Full Taylor)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,430	5,269	97.0%	29.8	19.7	C
26	North Sunrise Ave/Douglas Blvd	Signal	6,285	6,071	96.6%	157.7	12.1	F
27	Pacific St/Woodside Dr	Signal	3,350	3,336	99.6%	8.3	1.8	A
28	Pacific St/Sunset Blvd	Signal	5,310	5,331	100.4%	32.1	3.2	C
29	Granite Dr/Rocklin Rd	Signal	3,980	4,177	105.0%	82.8	22.6	F
30	I-80 WB Ramps/Rocklin Rd	Signal	3,800	3,958	104.1%	26.0	7.0	C
31	I-80 EB Ramps/Rocklin Rd	Signal	3,650	3,716	101.8%	22.8	3.7	C
32	Aguilar Rd/Rocklin Rd	Signal	2,940	3,001	102.1%	21.3	3.2	C
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	4,115	4,087	99.3%	10.3	0.9	B
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,580	2,586	100.2%	30.4	1.3	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	4,815	4,901	101.8%	23.6	3.2	C
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	4,465	4,498	100.7%	21.9	8.1	C
37	Taylor Rd/I-80 Ramps	Signal	3,805	3,803	99.9%	25.0	1.9	C
40	Galleria Blvd/Berry St	Signal	2,980	2,995	100.5%	11.0	1.1	B

Network Summary	
Total Demand Volume (veh/hr)	57,505
Total Volume Served (veh/hr)	57,729
Percent Served	100.4%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	68	7	316	43	NO
	Through						
	Right Turn	1500	69	7	317	43	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	24	10	134	54	NO
	Through						
	Right Turn	1500	24	10	134	54	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	59	8	203	19	NO
	Through						
	Right Turn	1330	61	8	205	19	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	62	3	241	39	NO
	Through						
	Right Turn	1400	15	3	118	35	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 1 (Full Taylor)**
Queue Length **PM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	108	46	663	418	MAX
	Through	2260	145	81	886	329	NO
	Right Turn	200	29	33	612	329	MAX

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	44	2	206	29	NO
	Through						
	Right Turn	1100	43	2	205	29	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	26	3	123	13	NO
	Through						
	Right Turn	1130	28	3	125	13	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	46	2	161	35	NO
	Through						
	Right Turn	1420	46	2	160	35	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 1 (Full Taylor)**
Queue Length **PM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	12	1	97	29	NO
WB	Left Turn						
	Through						
	Right Turn	1170	81	9	401	194	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	74	2	325	48	NO
WB	Left Turn						
	Through						
	Right Turn	1780	11	4	101	17	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 1 (Full Taylor)**
Queue Length **PM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	143	48	725	360	MAX
	Through	1700	31	14	168	31	NO
	Right Turn	1700	23	22	422	356	NO
SB	Left Turn	550	69	11	275	97	NO
	Through						
	Right Turn	550	62	14	333	108	NO
EB	Left Turn	1120	56	5	206	24	NO
	Through	1120	140	22	765	50	NO
	Right Turn	810	20	12	350	50	NO
WB	Left Turn						
	Through	1370	566	462	1526	19	MAX
	Right Turn	280	9	10	266	252	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	82	80	411	92	NO
	Through	1530	82	80	411	92	NO
	Right Turn	730	83	80	412	92	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	123	235	993	855	NO
SB	Left Turn						
	Through						
	Right Turn	1250	90	76	361	527	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	64	38	355	106	NO
	Through						
	Right Turn	1230	76	41	375	105	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	67	13	268	31	NO
	Through						
	Right Turn	1080	44	5	271	37	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	89	6	393	87	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	103	12	399	78	NO
	Through						
	Right Turn	1650	103	12	399	78	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	136	46	517	144	NO
	Through						
	Right Turn	1620	136	46	517	144	NO

Intersection 37 **Taylor Rd/I-80 Ramps** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	700	61	7	294	72	NO
	Through						
	Right Turn	700	28	10	216	69	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

I-80/SR 65 Interchange Improvements

Vissim Model Results – Design Year Alternative 2 (Collector-Distributor System Ramps)

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Design Year - Alt 2 (CD Roadway)**
Network Statistics **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	206,771	64
Travel Distance [mi]	All Vehicles	921,614	1,210
Travel Time [h]	All Vehicles	21,194	344.2
Average Speed [mph]	All Vehicles	43.5	0.7
Total Delay [h]	All Vehicles	5,312	336.9
Average Delay per Vehicle [s]	All Vehicles	90	5.7
VHD/VMT [min/mile]	All Vehicles	0.35	0.02
Number of Vehicles Served	HOV	34,570	44
Travel Distance [mi]	HOV	170,166	1,080
Travel Time [h]	HOV	3,580	38
Average Speed [mph]	HOV	47.5	0.4
Total Delay [h]	HOV	687	31
Average Delay per Vehicle [s]	HOV	70	3
VHD/VMT [min/mile]	HOV	0.24	0.01
Number of Vehicles Served	Truck	7,606	9
Travel Distance [mi]	Truck	42,020	280
Travel Time [h]	Truck	959	24
Average Speed [mph]	Truck	43.8	1
Total Delay [h]	Truck	242	20
Average Delay per Vehicle [s]	Truck	112	9
VHD/VMT [min/mile]	Truck	0.35	0.03

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	34,570	7,610	206,770
Demand Volume	35,670	8,240	208,760
Percent Demand Served	96.9%	92.4%	99.0%
Vehicle Miles of Travel	170,170	42,020	921,610
Person Miles of Travel	357,350	44,120	1,110,890
Vehicle Hours of Travel	3,580	960	21,190
Vehicle Hours of Delay	690	240	5,310
VHD % of VHT	19.3%	25.0%	25.1%
Average Delay per Vehicle (min)	1.20	1.89	1.54
Person Hours of Delay	1,450	250	6,080
Average Travel Speed	47.5	43.8	43.5

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	659	9	14:31	01:14	13.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,849	1652	18	06:42	00:09	22.3
	I-80 at Sierra College to I-80 at Antelope	45,844	1217	14	12:26	00:31	16.8
	I-80 at Auburn to I-80 at Sierra College	36,738	811	13	06:39	00:02	25.1
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	488	9	08:43	00:05	22.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,849	600	7	06:21	00:01	23.5
	I-80 at Sierra College to I-80 at Antelope	45,844	407	7	09:26	00:17	22.1
	I-80 at Auburn to I-80 at Sierra College	36,738	238	6	06:29	00:02	25.8

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Network Statistics | **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	300,020	254
Travel Distance [mi]	All Vehicles	1,109,609	955
Travel Time [h]	All Vehicles	30,791	155.6
Average Speed [mph]	All Vehicles	36.0	0.2
Total Delay [h]	All Vehicles	11,210	148.8
Average Delay per Vehicle [s]	All Vehicles	132	1.8
VHD/VMT [min/mile]	All Vehicles	0.61	0.01
Number of Vehicles Served	HOV	52,929	113
Travel Distance [mi]	HOV	216,334	556
Travel Time [h]	HOV	5,398	27
Average Speed [mph]	HOV	40.1	0.2
Total Delay [h]	HOV	1,626	22
Average Delay per Vehicle [s]	HOV	109	1
VHD/VMT [min/mile]	HOV	0.45	0.01
Number of Vehicles Served	Truck	8,063	38
Travel Distance [mi]	Truck	38,623	249
Travel Time [h]	Truck	1,022	15
Average Speed [mph]	Truck	37.8	0
Total Delay [h]	Truck	354	11
Average Delay per Vehicle [s]	Truck	155	5
VHD/VMT [min/mile]	Truck	0.55	0.01

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	52,930	8,060	300,020
Demand Volume	54,090	8,670	300,470
Percent Demand Served	97.9%	93.0%	99.9%
Vehicle Miles of Travel	216,330	38,620	1,109,610
Person Miles of Travel	454,300	40,550	1,349,510
Vehicle Hours of Travel	5,400	1,020	30,790
Vehicle Hours of Delay	1,630	350	11,210
VHD % of VHT	30.2%	34.3%	36.4%
Average Delay per Vehicle (min)	1.85	2.61	2.24
Person Hours of Delay	3,420	370	13,020
Average Travel Speed	40.1	37.8	36.0

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	685	13	12:05	00:39	16.2
	I-80 at Auburn to SR-65 at Blue Oaks	32,849	1462	15	09:38	00:39	15.5
	I-80 at Sierra College to I-80 at Antelope	45,844	633	10	11:33	00:29	18.1
	I-80 at Auburn to I-80 at Sierra College	36,738	916	13	06:43	00:02	24.9
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	288	8	08:38	00:07	22.7
	I-80 at Auburn to SR-65 at Blue Oaks	32,849	729	9	06:30	00:02	23.0
	I-80 at Sierra College to I-80 at Antelope	45,844	205	7	09:13	00:15	22.6
	I-80 at Auburn to I-80 at Sierra College	36,738	313	8	06:38	00:01	25.2

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,487	37	110.3%	1,250	28	111.6%				57.7	6.2	36.4	5.1	E
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,733	83	110.4%							58.8	1.9	36.7	1.4	E
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,722	107	110.3%				1,333	72	104.1%	60.4	1.4	29.3	1.0	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,388	107	111.4%				307	27	90.4%	62.4	0.4	26.0	0.5	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	7,081	116	112.6%							62.8	0.2	27.9	0.3	D
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	7,083	120	112.6%	1,146	22	96.3%	1,685	66	96.8%	62.4	0.1	25.9	0.4	C
7	I-80 EB CD - Eureka Rd to Taylor Rd/SR-65	Weave	629	45	104.8%	1,205	67	104.8%	894	50	105.1%	61.7	1.1	14.9	0.6	B
8	I-80 EB - Eureka Rd to SR-65	Basic	6,546	139	114.0%							61.7	0.7	30.2	0.8	D
9	I-80 EB - HOV Connector Off-ramp	Diverge	6,547	140	114.1%				766	40	139.2%	59.3	1.3	30.2	0.9	D
10	I-80 EB - SR-65 Off-ramp	Diverge	5,785	132	111.5%				3,233	98	108.1%	63.2	0.4	24.9	0.5	C
11	I-80 EB - SR-65 Off-ramp to Eureka Rd On-ramp	Basic	2,557	74	116.2%							64.2	0.2	17.2	0.5	B
17	I-80 EB - Eureka Rd On-ramp	Merge	2,559	76	116.3%	589	37	105.2%				62.9	0.2	16.9	0.5	B
18	I-80 EB - Eureka Rd On-ramp to SR-65 On-ramp	Basic	3,144	91	113.9%							63.9	0.2	18.5	0.5	C
19	I-80 EB - SR-65 On-ramp	Merge	3,145	93	113.9%	1,874	78	105.9%				60.8	0.5	30.2	0.8	D
20	I-80 EB - SR-65 to Rocklin Rd	Basic	5,019	114	110.8%							62.9	0.3	25.3	0.6	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	5,020	142	110.8%				1,570	78	107.5%	63.5	0.2	23.8	0.6	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,460	130	112.7%							63.5	0.4	22.8	0.9	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,464	125	112.8%	270	28	112.3%				58.9	0.9	23.2	1.0	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,738	133	112.9%							63.2	0.2	24.0	0.9	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,741	134	113.0%				741	59	109.0%	62.0	0.8	24.9	0.8	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	3,014	119	114.6%							63.4	0.5	20.4	0.8	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	3,014	121	114.6%	139	5	92.7%				62.7	0.3	18.1	0.7	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	3,155	125	113.5%	501	7	104.5%				62.0	0.3	20.4	0.8	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	5,379	26	105.9%				1,100	39	105.7%	53.9	1.4	31.9	0.7	D
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	4,277	62	105.9%							61.6	0.3	25.9	0.4	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	4,277	69	105.9%	50	3	83.2%				63.0	0.2	22.9	0.6	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	4,321	72	105.4%	326	14	105.0%				61.1	0.8	24.9	0.7	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,640	82	105.2%							62.2	0.2	27.8	0.5	D
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,642	86	105.3%				274	31	101.6%	60.7	1.0	28.6	0.8	D
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,360	98	105.3%							62.9	0.3	26.1	0.8	D
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,360	99	105.3%	980	46	101.0%				60.2	0.8	28.0	1.1	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,328	111	104.3%							60.7	1.4	31.2	1.2	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,320	114	104.1%							61.6	0.6	24.5	0.6	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,319	108	104.1%				1,649	63	103.7%	63.6	0.2	22.4	0.5	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,658	96	103.9%							63.7	0.1	20.1	0.6	C
60	I-80 WB - SR-65 to Atlantic St	Weave	3,653	98	103.8%	5,418	273	104.2%	440	33	100.0%	26.1	7.0	82.9	21.0	F
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	8,357	265	100.9%				1,181	108	98.4%	22.5	0.8	107.3	4.0	F
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	7,133	191	100.7%							24.2	0.8	104.3	2.4	F
64	I-80 WB - Atlantic St On-ramp	Merge	7,118	186	100.5%	913	56	107.4%				23.8	0.9	73.1	2.4	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	8,016	167	101.1%				1,063	83	97.5%	38.2	2.2	60.3	3.6	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,948	133	101.6%							29.4	0.8	88.3	3.1	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,951	121	101.6%	949	32	106.7%				24.0	0.6	112.8	2.3	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,902	117	102.2%	463	28	110.2%				28.4	0.5	76.2	1.4	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,365	109	102.6%							58.2	0.6	34.5	0.8	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,369	127	102.7%				1,027	62	96.0%	62.0	0.2	28.6	0.6	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	7,345	116	103.7%							62.2	0.1	33.9	0.5	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	7,348	118	103.8%	190	6	75.9%				62.9	0.1	27.2	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,537	127	102.8%	763	18	94.2%				62.8	0.2	25.9	0.6	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,309	125	102.1%							62.2	0.1	31.3	0.4	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,312	124	102.1%				452	39	86.8%	61.5	0.9	31.9	0.8	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	7,870	131	103.3%							62.3	0.4	30.4	0.4	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	7,872	131	103.3%	534	13	100.7%				61.4	1.2	29.5	0.8	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,413	134	103.2%	447	14	89.5%	90	16	81.4%	61.1	0.7	31.0	0.4	D
79	I-80 WB - Truck Scales Off to On-ramp	Basic	8,794	135	103.0%							54.2	8.1	40.3	7.0	E
80	I-80 WB - Truck Scales On-ramp	Merge	8,819	143	103.3%	90	16	81.8%				35.0	6.9	69.7	16.3	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	8,968	174	103.7%							40.7	3.5	56.9	5.8	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	8,979	170	103.8%				1,066	70	103.5%	55.2	6.4	35.0	5.8	E
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	7,943	152	104.2%							49.4	16.5	48.6	23.1	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	7,963	156	104.5%	810	18	102.6%				46.6	17.6	55.2	32.3	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	8,799	177	104.6%	779	21	95.0%				41.1	11.9	61.2	16.1	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
AM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,425	11	116.8%				72	19	103.0%	63.8	0.2	19.0	0.2	B
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	1,353	19	117.7%							63.6	0.2	18.5	0.2	C
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	1,354	21	117.8%	897	4	91.5%				55.8	2.9	20.3	1.1	C
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	2,251	33	105.7%	1,200	43	109.1%				12.6	3.6	96.8	28.1	F
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	3,454	120	106.9%							12.6	2.2	116.5	14.9	F
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	3,454	128	106.9%							15.7	2.6	109.4	11.2	F
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	3,455	133	107.0%	1,320	50	106.5%	845	59	108.4%	20.2	1.9	86.8	4.9	F
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,890	91	105.4%							20.0	0.8	96.1	2.6	F
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	3,876	76	105.0%	644	40	115.0%				29.4	0.4	73.7	0.7	F
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	4,501	70	105.9%							59.6	1.5	38.8	1.2	E
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	4,499	68	105.9%				767	37	109.6%	61.4	0.5	34.8	0.5	D
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	3,727	75	105.0%							60.7	3.0	32.6	1.7	D
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	3,723	78	104.9%	434	32	106.0%				53.0	12.3	41.9	14.6	E
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	4,147	84	93.4%	526	36	109.5%	741	54	103.0%	60.2	1.1	33.3	0.5	D
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,921	102	93.4%							51.3	14.0	40.2	15.6	E
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,920	102	93.3%	425	25	108.9%				56.3	8.7	37.4	9.5	E
104	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	4,339	105	94.5%	569	31	105.4%	866	53	106.9%	60.4	0.5	30.4	0.8	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	4,022	105	93.1%							62.3	0.4	31.4	0.8	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	4,021	109	93.1%	532	37	106.4%				53.4	3.1	37.1	3.7	E
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	4,546	106	94.3%	1,227	64	99.7%	742	51	104.5%	56.6	2.0	34.6	1.9	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	5,041	98	94.4%							61.8	0.6	35.6	0.7	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	5,041	97	94.4%	638	41	102.8%				61.0	0.7	28.1	0.6	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	5,676	97	95.2%	815	41	103.1%				53.0	7.8	36.1	7.2	E
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	6,483	115	96.0%							59.0	1.0	32.9	0.7	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	6,481	115	96.0%				1,352	72	102.4%	61.5	0.5	28.8	0.7	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	5,122	115	94.3%							62.6	0.2	27.0	0.5	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	5,120	122	94.3%	1,415	64	106.4%	4,680	163	103.8%	58.9	1.5	25.9	0.8	C
120	SR-65 SB to EB I-80 Connector	Basic	1,868	79	105.5%							51.8	0.6	27.3	1.1	D
121	SR-65 SB to WB I-80 Connector	Basic	3,688	206	101.0%							39.7	18.3	48.6	40.8	F
123	SR-65 NB from WB I-80 Connector	Basic	1,651	60	103.8%							53.0	0.2	18.0	0.8	C
124	SR-65 NB from EB I-80 Connector	Basic	3,233	97	108.1%							62.6	0.3	27.6	0.8	D
125	SR-65 NB - Eureka Rd On-ramp	Merge	3,233	96	108.1%	944	64	104.8%				48.9	0.1	30.7	0.8	D
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,172	106	107.2%	2,420	77	113.1%	959	66	97.8%	60.0	0.2	26.1	0.7	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	5,629	124	111.5%							42.2	14.0	47.2	15.4	F
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	5,633	123	111.6%	520	48	98.1%				37.6	8.5	57.5	10.1	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	6,151	141	110.2%							48.4	5.0	45.7	6.5	F
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	6,151	142	110.2%				917	56	95.6%	53.2	3.8	39.5	3.7	E
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	5,224	131	113.1%							59.2	2.3	41.2	2.1	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	5,227	128	113.1%	324	19	98.1%	1,920	90	106.1%	61.4	0.8	31.3	0.7	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	3,650	112	116.2%							61.9	1.9	27.8	1.6	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	3,649	112	116.2%	572	41	102.1%				58.4	3.5	30.2	2.8	D
136	SR-65 NB - Blue Oaks Blvd to HOV Lane End	Basic	4,219	109	114.0%							62.2	0.5	30.7	1.1	D
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	4,222	112	114.1%							62.1	0.3	27.4	0.7	D
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	4,224	110	114.2%				1,370	77	104.5%	62.7	0.1	26.2	0.5	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	2,860	91	119.7%							62.4	0.1	25.8	0.7	C
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	2,861	88	119.7%	129	14	99.2%				62.7	0.1	25.7	0.7	C
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	2,985	90	118.4%	393	30	112.3%	812	51	100.2%	62.2	0.2	23.9	0.7	C
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	2,570	88	124.8%							62.4	0.1	24.1	0.8	C
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	2,570	90	124.8%	508	34	105.9%				60.8	0.4	25.9	0.8	C
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,075	90	121.1%	472	33	115.2%				59.5	1.6	30.0	1.1	D
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	3,552	101	120.4%							59.7	0.8	33.5	0.9	D
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	3,556	103	120.5%				666	57	99.5%	61.3	0.3	32.6	0.7	D
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,899	82	127.1%							62.3	0.1	27.8	0.8	D
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,900	86	127.2%	768	54	105.2%	1,219	62	115.0%	62.5	0.2	23.3	0.7	C
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	2,449	87	125.6%							63.1	0.2	21.1	0.4	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	2,450	88	125.6%				1,197	72	105.9%	63.6	0.1	17.4	0.3	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	1,258	60	153.5%							63.1	0.1	13.2	0.4	B
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	1,262	64	153.8%	70	5	99.4%				62.3	0.3	13.2	0.4	B

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,974	44	102.1%	972	21	96.2%				61.2	1.5	28.8	1.1	D
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,944	61	101.4%							61.4	0.5	32.9	0.5	D
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,943	84	101.4%				1,146	70	99.7%	59.9	3.4	30.4	2.0	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,796	116	101.6%				393	39	100.9%	61.5	1.4	26.8	0.8	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	7,403	107	101.7%							62.4	0.7	27.1	0.4	D
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	7,401	113	101.7%	1,723	54	92.6%	1,703	86	101.4%	61.8	0.3	27.0	0.3	C
7	I-80 EB CD - Eureka Rd to Taylor Rd/SR-65	Weave	1,092	65	105.0%	1,411	57	92.8%	1,311	78	101.6%	53.9	16.2	27.6	23.7	C
8	I-80 EB - Eureka Rd to SR-65	Basic	7,432	114	99.6%							60.1	1.3	32.1	1.0	D
9	I-80 EB - HOV Connector Off-ramp	Diverge	7,428	118	99.6%				1,140	53	96.6%	53.5	2.6	34.9	2.0	D
10	I-80 EB - SR-65 Off-ramp	Diverge	6,278	104	100.0%				3,512	99	101.2%	61.5	0.7	25.0	0.5	C
11	I-80 EB - SR-65 Off-ramp to Eureka Rd On-ramp	Basic	2,762	87	98.3%							64.0	0.2	15.9	0.4	B
17	I-80 EB - Eureka Rd On-ramp	Merge	2,759	87	98.2%	716	53	100.9%				63.1	0.4	15.7	0.5	B
18	I-80 EB - Eureka Rd On-ramp to SR-65 On-ramp	Basic	3,472	100	98.6%							63.8	0.2	17.2	0.4	B
19	I-80 EB - SR-65 On-ramp	Merge	3,471	102	98.6%	2,540	69	98.1%				59.0	0.8	31.9	0.8	D
20	I-80 EB - SR-65 to Rocklin Rd	Basic	6,011	121	98.4%							62.4	0.4	26.8	0.4	D
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	5,985	136	97.9%				1,443	89	98.8%	63.1	0.2	25.8	0.4	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	4,535	109	97.5%							63.0	0.3	26.3	0.4	D
24	I-80 EB - Rocklin Rd On-ramp	Merge	4,530	112	97.4%	265	16	101.8%				59.0	1.0	26.8	0.7	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	4,789	120	97.5%							62.9	0.2	27.3	0.6	D
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	4,788	123	97.5%				706	50	92.9%	59.6	2.4	29.4	1.6	D
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	4,078	112	98.3%							62.8	0.6	23.5	0.6	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	4,075	112	98.2%	336	12	98.8%				60.3	0.9	22.3	0.8	C
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	4,407	111	98.1%	884	21	101.7%				57.9	1.8	28.1	1.5	D
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,075	25	105.8%				761	40	104.2%	59.5	1.0	22.1	0.5	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,312	60	106.1%							63.1	0.4	20.4	0.4	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,312	58	106.2%	397	14	104.3%				61.9	0.5	19.4	0.4	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,707	67	105.9%	416	11	104.0%				61.0	0.6	22.0	0.5	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,121	61	105.7%							63.0	0.2	23.7	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,119	59	105.6%				321	41	103.4%	62.4	0.3	24.7	0.4	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,797	73	105.8%							63.4	0.2	22.2	0.5	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,796	77	105.7%	1,630	82	105.2%				57.5	2.0	29.1	1.4	D
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,422	107	105.5%							52.6	9.4	36.7	8.2	E
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,412	110	105.3%							60.7	0.9	23.6	0.5	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,411	112	105.3%				2,150	74	103.8%	63.8	0.1	21.5	0.4	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,260	84	106.2%							63.8	0.1	18.4	0.7	C
60	I-80 WB - SR-65 to Atlantic St	Weave	3,262	83	106.3%	4,821	134	98.6%	602	36	103.8%	56.5	4.2	24.5	7.1	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,541	157	102.2%				1,153	63	101.1%	40.9	17.1	51.1	30.0	F
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,336	171	101.5%							26.0	8.8	87.2	27.9	F
64	I-80 WB - Atlantic St On-ramp	Merge	6,293	195	100.8%	1,169	69	95.1%				20.7	1.4	79.1	3.2	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,374	197	98.7%				1,115	71	97.8%	31.8	1.6	71.1	3.8	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,209	144	98.1%							24.8	0.6	96.6	2.0	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,183	139	97.7%	1,185	49	87.1%				21.6	0.3	111.1	2.0	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,312	122	95.1%	660	24	91.7%				26.8	0.5	74.9	0.7	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,972	173	94.8%							59.4	0.6	32.4	0.9	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,966	117	94.7%				1,189	73	95.1%	62.4	0.2	27.7	0.6	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,781	106	94.7%							62.4	0.2	32.4	0.7	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,785	107	94.8%	195	9	97.3%				62.9	0.1	25.9	0.4	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,980	110	94.8%	597	15	106.7%				62.4	0.5	22.1	0.5	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,579	105	95.7%							62.4	0.2	27.9	0.4	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,574	99	95.6%				1,108	54	95.5%	62.0	0.7	29.1	0.5	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,457	97	95.5%							62.7	0.5	24.8	0.5	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,456	96	95.5%	346	10	98.8%				61.3	0.9	21.7	0.6	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	6,801	100	95.7%	528	14	99.6%	74	18	82.1%	62.4	0.3	24.1	0.4	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,255	100	96.1%							62.8	0.1	26.8	0.4	D
80	I-80 WB - Truck Scales On-ramp	Merge	7,253	113	96.1%	72	18	80.0%				62.4	0.2	26.5	0.7	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	7,335	102	96.0%							61.3	0.5	28.6	0.5	D
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	7,333	98	96.0%				1,165	71	93.2%	62.1	0.3	26.4	0.5	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	6,167	103	96.5%							63.1	0.2	23.5	0.4	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	6,168	96	96.5%	897	5	99.7%				56.4	0.6	26.1	0.7	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	7,063	95	96.9%	598	20	103.1%				61.4	0.7	28.3	0.7	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
PM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,128	12	104.4%				121	24	100.9%	64.4	0.1	10.1	0.2	B
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	1,008	34	105.0%							64.4	0.2	8.8	0.3	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	1,009	32	105.1%	691	20	100.1%				61.2	0.2	10.5	0.2	B
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,700	37	103.0%	681	17	100.2%				60.4	0.2	13.3	0.3	B
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,385	47	102.4%							62.9	0.5	22.5	0.5	C
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,385	45	102.3%							63.0	0.4	21.6	0.2	C
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,384	48	102.3%	1,463	47	100.9%	844	54	101.7%	61.0	0.6	22.5	0.3	C
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,004	91	101.8%							63.0	0.3	24.7	0.5	C
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	3,003	87	101.8%	592	42	97.1%				60.2	0.9	27.8	0.6	C
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,602	87	101.2%							62.1	0.3	29.6	0.4	D
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,602	87	101.2%				993	59	99.3%	62.6	0.1	26.6	0.5	C
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,607	86	101.8%							63.2	0.1	21.5	0.4	C
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,608	84	101.9%	449	31	104.4%				61.2	0.5	24.0	0.6	C
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	3,059	96	102.3%	740	39	101.3%	600	49	99.9%	61.7	0.4	25.5	0.7	C
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,201	96	102.6%							62.6	0.2	26.5	0.8	D
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,201	94	102.6%	549	31	103.5%				59.3	2.8	29.2	1.6	D
104	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	3,747	93	102.7%	982	70	99.2%	842	47	97.9%	61.3	0.7	28.9	1.1	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,883	121	102.7%							62.2	0.2	31.7	1.0	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,884	121	102.8%	359	35	94.3%				58.9	1.9	32.6	1.6	D
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	4,244	126	102.0%	1,369	41	99.2%	657	48	99.5%	59.6	0.4	32.6	0.8	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,956	132	101.6%							61.9	0.6	36.1	0.6	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,958	131	101.6%	480	37	100.1%				61.6	0.3	28.3	0.6	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	5,438	133	101.5%	1,098	52	98.9%				59.5	1.5	31.8	1.0	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	6,534	152	101.0%							58.9	0.6	33.9	0.6	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	6,534	153	101.0%				1,574	71	100.9%	61.2	0.3	29.6	0.8	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,963	125	101.1%							62.4	0.2	27.9	0.6	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,962	124	101.0%	1,749	83	95.1%	4,167	126	100.2%	60.8	0.9	25.1	0.6	C
120	SR-65 SB to EB I-80 Connector	Basic	2,538	73	98.0%							49.3	0.9	35.3	1.3	E
121	SR-65 SB to WB I-80 Connector	Basic	3,447	119	97.1%							55.0	0.3	23.5	0.8	C
123	SR-65 NB from WB I-80 Connector	Basic	2,149	76	103.8%							46.9	3.3	25.0	2.0	C
124	SR-65 NB from EB I-80 Connector	Basic	3,508	98	101.1%							50.8	18.6	41.5	29.6	E
125	SR-65 NB - Eureka Rd On-ramp	Merge	3,499	97	100.8%	1,178	69	92.0%				26.7	14.8	77.9	36.4	F
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,615	145	97.2%	3,290	83	101.2%	1,586	104	96.1%	27.8	6.2	71.3	11.2	F
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	6,230	110	98.1%							24.8	0.5	111.8	1.5	F
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	6,227	106	98.1%	1,053	56	94.0%				29.6	0.6	74.8	1.4	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	7,277	87	97.4%							51.8	1.8	39.4	1.7	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	7,278	87	97.4%				1,557	71	99.8%	57.3	1.4	34.1	1.6	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	5,718	82	96.8%							61.5	0.6	36.9	0.7	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	5,722	84	96.8%	619	40	101.5%	2,186	88	96.7%	61.3	0.3	31.8	0.5	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	4,156	103	97.5%							62.0	0.3	30.4	0.7	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	4,158	99	97.6%	619	63	93.8%				58.6	2.2	32.5	1.7	D
136	SR-65 NB - Blue Oaks Blvd to HOV Lane End	Basic	4,778	135	97.1%							62.2	0.5	32.9	1.1	D
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	4,781	135	97.2%							61.7	0.4	29.5	0.7	D
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	4,780	142	97.2%				1,178	66	99.0%	62.8	0.2	27.4	0.5	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	3,602	117	96.6%							62.6	0.2	29.2	1.2	D
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	3,600	115	96.5%	361	19	106.3%				59.6	1.4	31.5	1.6	D
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	3,957	125	97.2%	759	44	108.4%	1,189	57	99.9%	61.5	0.4	28.9	1.0	D
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	3,530	111	98.6%							62.8	0.2	28.7	1.0	D
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	3,529	108	98.6%	275	28	98.1%				61.1	0.9	30.1	1.2	D
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,804	105	98.5%	503	43	102.7%				57.6	6.0	35.1	5.2	E
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	4,310	121	99.1%							59.0	1.2	37.5	1.6	E
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	4,310	119	99.1%				709	51	101.3%	58.7	5.4	37.3	4.2	E
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	3,598	98	98.6%							62.4	0.3	30.7	0.7	D
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	3,594	96	98.5%	948	50	96.7%	1,483	80	97.6%	62.3	0.2	26.9	0.6	C
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	3,058	111	98.3%							63.2	0.2	24.6	0.8	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	3,058	109	98.3%				1,862	87	98.0%	63.9	0.2	19.4	0.7	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	1,196	79	98.8%							64.4	0.2	10.0	0.6	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	1,195	78	98.7%	125	9	95.8%				63.1	0.3	10.2	0.6	B

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	3,740	4,128	110.4%	16.4	1.3	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	2,055	2,234	108.7%	15.7	1.6	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	2,080	2,208	106.2%	24.3	7.4	C
4	SR-65 SB Ramps/Sunset Blvd	Signal	3,335	3,570	107.0%	16.5	5.0	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	3,755	4,055	108.0%	11.0	0.7	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	5,420	5,653	104.3%	49.0	5.1	D
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,400	3,564	104.8%	10.9	0.9	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	4,435	4,528	102.1%	7.0	0.4	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	3,480	3,490	100.3%	15.3	0.8	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	3,310	3,433	103.7%	25.9	2.0	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,570	3,698	103.6%	25.0	4.3	C
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,920	4,050	103.3%	34.4	2.7	C
13	Galleria Blvd/Antelope Creek Dr	Signal	2,556	2,552	99.8%	8.2	1.6	A
14	Galleria Blvd/Roseville Pkwy	Signal	5,431	5,769	106.2%	44.6	1.8	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,520	3,686	104.7%	6.8	2.4	A
16	Taylor Rd/East Roseville Pkwy	Signal	4,960	5,292	106.7%	62.0	11.3	E
17	North Sunrise Ave/East Roseville Pkwy	Signal	4,850	5,187	106.9%	31.2	3.0	C
18	Wills Rd/Atlantic St	Signal	2,250	2,417	107.4%	15.9	3.0	B
19	I-80 WB Ramps/Atlantic St	Signal	3,755	3,910	104.1%	25.3	3.4	C
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,445	5,524	101.4%	29.3	5.5	C
21	North Sunrise Ave/Eureka Rd	Signal	5,130	5,262	102.6%	37.0	3.1	D
22	Harding Blvd/Wills Rd	Signal	2,150	2,273	105.7%	15.2	1.9	B
23	Harding Blvd/Douglas Blvd	Signal	2,705	2,872	106.2%	29.3	7.8	C
24	I-80 WB Ramps/Douglas Blvd	Signal	3,850	4,012	104.2%	36.5	4.8	D

Network Summary	
Total Demand Volume (veh/hr)	89,102
Total Volume Served (veh/hr)	93,367
Percent Served	104.8%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		LOS	Worst Movement
			Demand	Served		Average	Std. Dev.		
25	I-80 EB Ramps/Douglas Blvd	Signal	4,215	4,394	104.3%	21.4	11.0	C	
26	North Sunrise Ave/Douglas Blvd	Signal	4,565	4,767	104.4%	39.8	4.2	D	
27	Pacific St/Woodside Dr	Signal	2,290	2,523	110.2%	7.7	1.0	A	
28	Pacific St/Sunset Blvd	Signal	3,530	3,893	110.3%	28.5	1.3	C	
29	Granite Dr/Rocklin Rd	Signal	2,911	2,996	102.9%	25.1	1.7	C	
30	I-80 WB Ramps/Rocklin Rd	Signal	3,000	3,129	104.3%	21.2	1.8	C	
31	I-80 EB Ramps/Rocklin Rd	Signal	3,120	3,374	108.1%	23.7	1.3	C	
32	Aguilar Rd/Rocklin Rd	Signal	2,305	2,492	108.1%	10.7	1.3	B	
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	3,450	3,829	111.0%	11.7	1.6	B	
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,400	2,616	109.0%	23.0	2.9	C	
35	SR-65 SB Ramps/Placer Pkwy	Signal	3,755	4,103	109.3%	18.5	1.8	B	
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	3,720	3,968	106.7%	13.9	0.7	B	
37	Taylor Rd/I-80 WB On-ramp-Cattlemens Drwy	Side-street Stop	2,415	2,605	107.9%	49.3	94.4	E	SB RT
38	Taylor Rd/I-80 EB Off-ramp	Side-street Stop	830	883	106.4%	4.6	0.7	A	WB RT
40	Galleria Blvd/Berry St	Signal	2,080	2,192	105.4%	10.1	1.8	B	

Network Summary	
Total Demand Volume (veh/hr)	44,586
Total Volume Served (veh/hr)	47,763
Percent Served	107.1%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.
3. For Side-street Stop and Uncontrolled intersections, the delay for the highest movement is reported.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	51	5	243	43	NO
	Through						
	Right Turn	1500	52	5	244	43	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	16	4	104	20	NO
	Through						
	Right Turn	1500	16	4	104	20	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	64	3	220	19	NO
	Through						
	Right Turn	1330	66	3	222	19	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	52	2	217	22	NO
	Through						
	Right Turn	1400	22	5	146	48	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	36	15	234	112	MAX
	Through	2260	113	14	458	100	NO
	Right Turn	200	4	3	178	100	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	39	13	207	43	NO
	Through						
	Right Turn	1100	38	13	206	43	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	25	6	128	22	NO
	Through						
	Right Turn	1130	28	5	130	22	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	42	7	163	18	NO
	Through						
	Right Turn	1420	41	7	163	18	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	8	3	73	17	NO
WB	Left Turn						
	Through						
	Right Turn	1170	34	2	194	41	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	64	5	292	43	NO
WB	Left Turn						
	Through						
	Right Turn	1780	2	1	54	13	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	7	16	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	105	49	532	523	MAX
	Through	1700	98	21	645	505	NO
	Right Turn	1700	41	46	530	687	NO
SB	Left Turn	550	38	10	149	31	NO
	Through						
	Right Turn	550	26	5	142	37	NO
EB	Left Turn	1120	36	3	114	14	NO
	Through	1120	100	7	661	92	NO
	Right Turn	810	9	3	248	93	NO
WB	Left Turn						
	Through	1370	84	14	578	178	NO
	Right Turn	280	0	0	45	24	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	70	70	369	87	NO
	Through	1530	70	70	369	87	NO
	Right Turn	730	70	70	369	87	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,400	0	0	5	17	NO
SB	Left Turn						
	Through						
	Right Turn	1,250	68	107	641	343	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	21	2	148	51	NO
	Through						
	Right Turn	1,230	28	4	168	51	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,080	53	4	253	35	NO
	Through						
	Right Turn	1,080	38	4	258	42	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1,940	2	2	47	17	NO
	Through						
	Right Turn	1,940	45	14	257	59	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,650	57	18	333	64	NO
	Through						
	Right Turn	1,650	57	18	333	64	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,620	63	11	326	64	NO
	Through						
	Right Turn	1,620	63	11	326	64	NO

Intersection 38 **Taylor Rd/I-80 EB Off-ramp** **Unsignalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn						
	Through						
	Right Turn	1,000	0	0	18	28	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	4,670	4,638	99.3%	24.5	1.3	C
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	2,215	2,189	98.8%	15.6	1.1	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	2,315	2,286	98.7%	18.3	1.6	B
4	SR-65 SB Ramps/Sunset Blvd	Signal	4,260	4,325	101.5%	20.0	34.1	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	4,350	4,487	103.1%	26.8	16.2	C
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks	Signal	7,035	6,903	98.1%	163.7	26.1	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	4,245	4,217	99.3%	69.2	29.5	E
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	6,115	6,115	100.0%	9.0	1.4	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	5,355	5,361	100.1%	12.0	0.9	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	5,140	4,997	97.2%	55.1	8.8	E
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	6,030	5,904	97.9%	22.2	2.2	C
12	SR-65 SB Ramps/Galleria Blvd	Signal	6,345	6,170	97.2%	22.9	1.9	C
13	Galleria Blvd/Antelope Creek Dr	Signal	4,345	3,925	90.3%	24.2	1.3	C
14	Galleria Blvd/Roseville Pkwy	Signal	8,125	7,401	91.1%	130.6	31.6	F
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,730	4,286	90.6%	71.9	25.4	E
16	Taylor Rd/East Roseville Pkwy	Signal	6,815	6,437	94.5%	52.5	6.3	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	6,375	6,316	99.1%	47.4	7.5	D
18	Wills Rd/Atlantic St	Signal	3,360	3,426	102.0%	29.3	4.9	C
19	I-80 WB Ramps/Atlantic St	Signal	4,855	4,869	100.3%	17.7	9.7	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	6,510	6,400	98.3%	103.2	12.7	F
21	North Sunrise Ave/Eureka Rd	Signal	6,755	6,840	101.3%	131.7	31.1	F
22	Harding Blvd/Wills Rd	Signal	3,000	3,050	101.7%	16.5	2.0	B
23	Harding Blvd/Douglas Blvd	Signal	3,890	3,754	96.5%	79.6	18.1	E
24	I-80 WB Ramps/Douglas Blvd	Signal	4,680	4,409	94.2%	21.0	8.5	C

Network Summary	
Total Demand Volume (veh/hr)	121,515
Total Volume Served (veh/hr)	118,704
Percent Served	97.7%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 2 (CD Roadway)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	GEH	Delay (sec/veh)		LOS	Worst Movement
			Demand	Served			Average	Std. Dev.		
25	I-80 EB Ramps/Douglas Blvd	Signal	5,435	5,077	93.4%	4.9	12.0	10.3	B	
26	North Sunrise Ave/Douglas Blvd	Signal	6,260	5,770	92.2%	6.3	239.7	10.0	F	
27	Pacific St/Woodside Dr	Signal	3,410	3,421	100.3%	0.2	9.2	0.7	A	
28	Pacific St/Sunset Blvd	Signal	5,385	5,437	101.0%	0.7	33.7	1.7	C	
29	Granite Dr/Rocklin Rd	Signal	4,030	4,243	105.3%	3.3	96.7	10.8	F	
30	I-80 WB Ramps/Rocklin Rd	Signal	3,810	3,999	105.0%	3.0	26.2	6.0	C	
31	I-80 EB Ramps/Rocklin Rd	Signal	3,670	3,758	102.4%	1.4	23.1	4.6	C	
32	Aguilar Rd/Rocklin Rd	Signal	2,975	3,019	101.5%	0.8	21.0	4.1	C	
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	4,125	4,100	99.4%	0.4	13.4	1.3	B	
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,610	2,620	100.4%	0.2	48.0	17.3	D	
35	SR-65 SB Ramps/Placer Pkwy	Signal	4,755	4,831	101.6%	1.1	27.0	2.5	C	
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	4,375	4,379	100.1%	0.1	22.3	4.9	C	
37	Taylor Rd/I-80 WB On-ramp-Cattlemens Drwy	Side-street Stop	3,625	3,627	100.0%	0.0	44.4	22.4	E	WB TH
38	Taylor Rd/I-80 EB Off-ramp	Side-street Stop	2,080	2,085	100.3%	0.1	8.5	6.4	A	WB RT
40	Galleria Blvd/Berry St	Signal	2,980	2,955	99.2%	0.5	11.2	1.4	B	

Network Summary	
Total Demand Volume (veh/hr)	59,525
Total Volume Served (veh/hr)	59,321
Percent Served	99.7%
GEH Statistic	0.8

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.
3. For Side-street Stop and Uncontrolled intersections, the delay for the highest movement is reported.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	67	8	330	122	NO
	Through						
	Right Turn	1,500	68	8	331	122	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	23	7	128	32	NO
	Through						
	Right Turn	1,500	23	7	128	32	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	63	12	210	75	NO
	Through						
	Right Turn	1,330	65	12	212	75	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,400	62	4	249	40	NO
	Through						
	Right Turn	1,400	14	3	107	32	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	82	44	605	349	MAX
	Through	2,260	138	80	774	306	NO
	Right Turn	200	22	35	494	306	MAX

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	43	3	200	39	NO
	Through						
	Right Turn	1,100	42	3	199	39	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	31	4	138	28	NO
	Through						
	Right Turn	1,130	33	4	140	28	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,420	46	1	168	23	NO
	Through						
	Right Turn	1,420	45	1	167	23	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1,800	17	1	112	20	NO
WB	Left Turn						
	Through						
	Right Turn	1,170	62	3	351	45	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1,130	75	3	314	19	NO
WB	Left Turn						
	Through						
	Right Turn	1,780	12	3	97	16	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,150	11	15	166	524	NO
SB	Left Turn						
	Through						
	Right Turn	1,430	0	0	38	57	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	78	22	426	257	MAX
	Through	1,700	33	16	227	94	NO
	Right Turn	1,700	3	4	150	232	NO
SB	Left Turn	550	46	17	179	54	NO
	Through						
	Right Turn	550	60	17	346	90	NO
EB	Left Turn	1,120	56	3	185	26	NO
	Through	1,120	162	25	827	114	NO
	Right Turn	810	27	15	414	110	NO
WB	Left Turn						
	Through	1,370	666	409	1,522	10	MAX
	Right Turn	280	10	10	187	162	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,530	91	88	409	83	NO
	Through	1,530	91	88	409	83	NO
	Right Turn	730	91	89	410	83	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 2 (CD Roadway)**
Queue Length **PM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	22	43	432	583	NO
SB	Left Turn						
	Through						
	Right Turn	1250	19	1	132	22	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	71	52	376	117	NO
	Through						
	Right Turn	1230	83	56	396	117	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	67	10	252	44	NO
	Through						
	Right Turn	1080	44	4	260	54	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	79	0	342	59	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	99	8	379	81	NO
	Through						
	Right Turn	1650	99	8	379	81	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	128	25	475	99	NO
	Through						
	Right Turn	1620	128	25	475	99	NO

Intersection 38 **Taylor Rd/I-80 EB Off-ramp** **Unsignalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn						
	Through						
	Right Turn	1100	0	0	53	42	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

I-80/SR 65 Interchange Improvements

Vissim Model Results – Design Year Alternative 3 (Taylor Road Interchange Eliminated)

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Network Statistics | **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	206,767	103
Travel Distance [mi]	All Vehicles	915,788	1,384
Travel Time [h]	All Vehicles	21,450	71.2
Average Speed [mph]	All Vehicles	42.7	0.1
Total Delay [h]	All Vehicles	5,658	55.5
Average Delay per Vehicle [s]	All Vehicles	96	1.0
VHD/VMT [min/mile]	All Vehicles	0.37	0.00
Number of Vehicles Served	HOV	34,555	30
Travel Distance [mi]	HOV	165,912	744
Travel Time [h]	HOV	3,598	20
Average Speed [mph]	HOV	46.1	0.1
Total Delay [h]	HOV	767	12
Average Delay per Vehicle [s]	HOV	78	1
VHD/VMT [min/mile]	HOV	0.28	0.00
Number of Vehicles Served	Truck	7,617	6
Travel Distance [mi]	Truck	41,910	360
Travel Time [h]	Truck	972	8
Average Speed [mph]	Truck	43.1	0
Total Delay [h]	Truck	256	4
Average Delay per Vehicle [s]	Truck	118	2
VHD/VMT [min/mile]	Truck	0.37	0.01

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	34,560	7,620	206,770
Demand Volume	35,730	8,240	209,100
Percent Demand Served	96.7%	92.5%	98.9%
Vehicle Miles of Travel	165,910	41,910	915,790
Person Miles of Travel	348,420	44,010	1,100,400
Vehicle Hours of Travel	3,600	970	21,450
Vehicle Hours of Delay	770	260	5,660
VHD % of VHT	21.4%	26.8%	26.4%
Average Delay per Vehicle (min)	1.34	2.05	1.64
Person Hours of Delay	1,620	270	6,520
Average Travel Speed	46.1	43.1	42.7

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	660	11	14:09	01:33	13.8
	I-80 at Auburn to SR-65 at Blue Oaks	32,855	1659	20	06:46	00:17	22.1
	I-80 at Sierra College to I-80 at Antelope	45,844	1226	14	12:32	00:49	16.6
	I-80 at Auburn to I-80 at Sierra College	36,738	808	13	06:45	00:13	24.7
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	486	11	08:44	00:05	22.4
	I-80 at Auburn to SR-65 at Blue Oaks	32,855	410	9	06:17	00:02	23.8
	I-80 at Sierra College to I-80 at Antelope	45,844	405	7	09:35	00:22	21.8
	I-80 at Auburn to I-80 at Sierra College	36,738	157	6	06:33	00:03	25.5

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Network Statistics | **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	300,688	222
Travel Distance [mi]	All Vehicles	1,110,482	1,878
Travel Time [h]	All Vehicles	30,680	279.0
Average Speed [mph]	All Vehicles	36.2	0.4
Total Delay [h]	All Vehicles	11,084	292.3
Average Delay per Vehicle [s]	All Vehicles	131	3.4
VHD/VMT [min/mile]	All Vehicles	0.60	0.02
Number of Vehicles Served	HOV	53,093	108
Travel Distance [mi]	HOV	218,022	737
Travel Time [h]	HOV	5,441	46
Average Speed [mph]	HOV	40.1	0.3
Total Delay [h]	HOV	1,639	46
Average Delay per Vehicle [s]	HOV	109	3
VHD/VMT [min/mile]	HOV	0.45	0.01
Number of Vehicles Served	Truck	154	15
Travel Distance [mi]	Truck	38,351	273
Travel Time [h]	Truck	1,009	13
Average Speed [mph]	Truck	38.0	1
Total Delay [h]	Truck	345	13
Average Delay per Vehicle [s]	Truck	150	6
VHD/VMT [min/mile]	Truck	0.54	0.02

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	53,090	150	300,690
Demand Volume	53,980	8,690	300,640
Percent Demand Served	98.4%	1.7%	100.0%
Vehicle Miles of Travel	218,020	38,350	1,110,480
Person Miles of Travel	457,850	40,270	1,352,230
Vehicle Hours of Travel	5,440	1,010	30,680
Vehicle Hours of Delay	1,640	340	11,080
VHD % of VHT	30.1%	33.7%	36.1%
Average Delay per Vehicle (min)	1.85	136.00	2.21
Person Hours of Delay	3,440	360	12,900
Average Travel Speed	40.1	38.0	36.2

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	684	12	12:23	00:52	15.8
	I-80 at Auburn to SR-65 at Blue Oaks	32,855	1467	14	09:07	00:50	16.4
	I-80 at Sierra College to I-80 at Antelope	45,844	651	10	11:56	00:43	17.5
	I-80 at Auburn to I-80 at Sierra College	36,738	909	15	06:41	00:02	25.0
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,090	289	7	08:43	00:07	22.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,855	729	11	06:29	00:02	23.1
	I-80 at Sierra College to I-80 at Antelope	45,844	191	6	09:18	00:24	22.4
	I-80 at Auburn to I-80 at Sierra College	36,738	317	7	06:37	00:01	25.3

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,478	42	110.5%	1,243	30	111.0%				59.6	5.1	33.1	4.1	D
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,721	90	110.5%							55.7	3.0	39.4	2.1	E
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,714	151	110.4%				1,403	82	109.6%	56.3	7.2	33.0	7.2	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,308	166	110.6%				367	68	104.9%	55.2	11.8	35.7	25.3	E
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,938	170	110.8%							62.7	0.2	28.1	0.7	D
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	6,939	162	110.9%	1,149	26	99.1%	1,574	67	104.2%	62.4	0.2	26.2	0.6	C
7	I-80 EB CD - Eureka Rd to SR-65	Weave	220	20	104.9%	1,275	46	104.5%	612	47	105.5%	60.5	1.0	13.1	0.4	B
8	I-80 EB - Eureka Rd to SR-65	Basic	6,523	170	110.4%							60.8	0.7	31.2	0.8	D
9	I-80 EB - HOV Connector Off-ramp	Diverge	6,524	169	110.4%				598	34	108.7%	58.4	1.3	31.7	1.1	D
10	I-80 EB - SR-65 Off-ramp	Diverge	5,931	168	110.7%				3,483	107	109.5%	63.4	0.3	25.4	0.6	C
11	I-80 EB - SR-65 Off-ramp to Eureka Rd On-ramp	Basic	2,449	110	112.3%							64.0	0.1	16.0	0.6	B
17	I-80 EB - Eureka Rd On-ramp	Merge	2,450	106	112.4%	612	48	105.5%				63.0	0.3	15.5	0.7	B
18	I-80 EB - Eureka Rd On-ramp to SR-65 On-ramp	Basic	3,066	120	111.1%							63.7	0.1	17.3	0.6	B
19	I-80 EB - SR-65 On-ramp	Merge	3,065	119	111.0%	1,960	82	106.5%				60.2	0.4	30.1	0.9	D
20	I-80 EB - SR-65 to Rocklin Rd	Basic	5,025	125	109.2%							62.7	0.3	25.3	0.7	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	5,031	165	109.4%				1,579	73	107.4%	63.1	0.3	24.0	0.7	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,463	130	110.6%							63.0	0.5	22.7	0.9	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,465	134	110.7%	192	24	100.8%				60.6	0.7	22.8	1.1	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,663	137	110.3%							63.0	0.2	23.3	1.0	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,665	137	110.4%				753	67	110.7%	59.9	5.5	25.7	3.1	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,918	122	110.5%							63.1	0.7	19.4	0.7	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,918	124	110.5%	139	6	92.5%				62.5	0.6	17.9	0.7	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	3,058	121	109.6%	500	8	106.3%				61.7	0.2	20.3	0.9	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	5,374	27	105.8%				1,102	50	105.9%	52.6	3.8	32.8	2.4	D
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	4,270	66	105.7%							61.3	0.7	26.1	0.4	D
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	4,270	72	105.7%	50	3	83.7%				62.6	0.6	23.1	0.6	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	4,317	85	105.3%	320	12	103.1%				61.2	0.9	24.7	0.7	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,629	88	105.0%							62.4	0.3	27.6	0.4	D
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,629	80	105.0%				326	29	101.9%	60.4	1.6	28.7	1.0	D
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,299	90	105.1%							62.8	0.3	25.5	0.5	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,300	92	105.1%	1,178	17	98.1%				58.5	2.1	29.4	1.3	D
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,472	107	103.4%							60.3	1.1	31.9	0.9	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,461	111	103.2%							61.3	0.3	25.5	0.6	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,460	108	103.2%				1,542	69	103.5%	63.4	0.2	23.3	0.6	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,912	112	102.9%							63.5	0.2	21.1	0.8	C
60	I-80 WB - SR-65 to Atlantic St	Weave	3,909	117	102.9%	4,674	174	103.4%	369	40	102.5%	28.9	8.7	78.1	19.4	F
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	8,016	202	100.7%				1,138	81	98.1%	22.0	0.6	110.6	4.2	F
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,819	145	100.3%							23.3	0.5	112.1	2.9	F
64	I-80 WB - Atlantic St On-ramp	Merge	6,796	149	99.9%	1,118	51	105.4%				22.6	0.8	76.6	1.7	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,899	158	100.5%				987	62	94.9%	36.7	1.6	63.5	3.5	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,912	133	101.3%							29.6	1.0	86.8	3.9	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,912	132	101.4%	977	28	107.4%				23.6	0.3	112.2	1.7	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,891	131	102.1%	471	24	112.1%				28.2	0.4	75.9	1.1	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,362	109	102.6%							58.4	0.6	34.4	0.9	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,364	135	102.6%				1,009	60	95.2%	62.0	0.1	28.6	0.7	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	7,354	145	103.7%							62.2	0.1	33.8	0.7	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	7,351	148	103.7%	188	6	75.1%				62.7	0.1	27.1	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,541	148	102.7%	756	19	93.4%				62.9	0.2	25.7	0.4	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,307	141	101.9%							62.2	0.1	31.3	0.6	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,316	148	102.0%				450	41	86.5%	61.1	1.9	31.9	1.5	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	7,876	138	103.2%							62.2	0.5	30.3	0.6	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	7,875	144	103.2%	535	12	100.9%				61.9	0.3	29.3	0.8	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,410	140	103.1%	448	14	89.6%	91	18	82.6%	61.0	0.8	30.9	0.8	D
79	I-80 WB - Truck Scales Off to On-ramp	Basic	8,784	144	102.7%							56.5	8.8	38.6	8.9	E
80	I-80 WB - Truck Scales On-ramp	Merge	8,803	135	103.0%	92	16	83.5%				38.6	11.1	63.3	18.8	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	8,954	158	103.4%							41.9	6.8	55.5	8.3	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	8,966	160	103.5%				1,078	76	104.7%	52.5	7.7	36.8	7.7	E
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	7,928	159	103.9%							37.1	14.0	65.5	21.6	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	7,958	164	104.3%	809	17	102.4%				32.1	11.9	80.3	23.2	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	8,827	167	104.8%	779	26	95.0%				35.6	9.4	70.6	12.0	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
AM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,425	9	112.2%				75	20	106.9%	63.8	0.2	19.0	0.2	B
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	1,351	30	112.6%							63.6	0.2	18.4	0.3	C
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	1,351	33	112.6%	897	4	91.6%				55.0	5.1	20.7	2.3	C
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	2,249	40	103.2%	1,198	44	108.9%				11.8	4.3	103.6	27.9	F
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	3,450	118	105.2%							12.6	3.6	116.9	18.7	F
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	3,450	127	105.2%							15.8	3.7	108.9	14.8	F
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	3,448	142	105.1%	1,339	62	107.1%	843	69	106.7%	20.1	1.5	87.1	4.2	F
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,892	103	104.1%							20.3	1.0	95.6	2.7	F
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	3,881	102	103.8%	644	34	114.9%				29.9	0.5	73.1	1.1	F
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	4,505	91	104.8%							59.1	4.4	39.0	4.6	E
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	4,500	88	104.7%				767	51	109.5%	61.5	0.5	35.2	0.6	E
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	3,728	80	103.6%							61.9	1.3	32.0	0.8	D
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	3,723	84	103.4%	445	34	108.4%				52.0	12.3	42.9	14.2	E
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	4,157	89	103.7%	520	35	110.6%	736	55	102.2%	60.1	1.2	33.5	0.9	D
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,931	99	104.5%							58.3	4.8	35.3	4.8	E
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,929	97	104.5%	410	20	108.0%				57.6	6.5	36.1	5.3	E
104	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	4,338	103	104.8%	575	23	106.5%	878	56	107.0%	60.0	1.4	30.7	1.5	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	4,016	101	104.0%							62.5	0.1	31.3	0.5	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	4,013	101	104.0%	533	41	106.6%				54.8	2.5	36.0	1.6	E
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	4,544	92	104.2%	1,236	83	100.5%	745	51	104.9%	56.5	1.7	34.8	1.4	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	5,043	127	103.3%							61.6	0.7	36.4	1.1	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	5,043	124	103.3%	623	48	102.0%				61.0	0.8	28.6	0.7	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	5,664	130	103.2%	810	33	102.5%				56.7	5.7	34.5	4.2	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	6,461	137	102.9%							58.9	1.7	33.3	1.7	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	6,460	136	102.9%				1,317	78	101.3%	61.2	0.8	29.3	1.0	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	5,140	148	103.2%							62.4	0.2	27.6	0.7	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	5,138	152	103.2%	1,466	70	106.3%	4,667	124	103.3%	57.9	1.1	27.6	1.0	C
120	SR-65 SB to EB I-80 Connector	Basic	1,953	81	106.2%							50.6	0.9	30.1	1.5	D
121	SR-65 SB to WB I-80 Connector	Basic	3,689	127	100.8%							50.9	5.9	27.4	9.6	D
123	SR-65 NB from WB I-80 Connector	Basic	1,542	69	103.5%							53.2	0.3	16.5	0.9	B
124	SR-65 NB from EB I-80 Connector	Basic	3,483	107	109.5%							62.3	0.2	31.0	1.0	D
125	SR-65 NB - Eureka Rd On-ramp	Merge	4,081	110	128.3%	884	46	104.0%				48.7	0.1	32.8	0.7	D
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,360	114	108.2%	2,141	79	105.0%	1,076	74	102.5%	59.9	0.2	26.3	0.5	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	5,419	126	107.9%							42.2	13.9	46.6	16.5	F
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	5,420	133	108.0%	520	38	98.2%				34.6	7.1	60.6	9.6	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	5,942	137	107.1%							48.7	4.5	45.1	4.5	F
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	5,943	135	107.1%				943	68	97.2%	53.0	3.7	39.6	3.7	E
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	5,008	118	109.3%							58.3	4.1	42.0	4.1	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	5,010	116	109.4%	333	24	97.8%	2,021	85	111.6%	61.6	1.1	30.9	0.8	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	3,325	78	106.9%							62.6	0.3	26.8	0.7	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	3,325	82	106.9%	564	40	100.6%				60.2	1.0	28.3	0.6	D
136	SR-65 NB - Blue Oaks Blvd to HOV Lane End	Basic	3,885	91	105.9%							62.6	0.3	29.8	0.6	D
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	3,883	95	105.8%							62.9	0.2	25.4	0.3	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	3,883	101	105.8%				1,409	74	107.6%	63.5	0.1	24.0	0.4	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	2,472	86	104.8%							63.5	0.2	20.6	0.8	C
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	2,474	86	104.8%	130	22	99.6%				62.8	0.6	21.3	0.9	C
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	2,602	96	104.5%	411	31	114.1%	778	50	96.0%	63.2	0.4	19.8	0.7	B
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	2,235	89	109.5%							63.6	0.2	18.9	0.6	C
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	2,234	93	109.5%	512	34	106.7%				61.3	0.5	21.7	0.8	C
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	2,745	101	108.9%	466	30	113.7%				62.2	0.4	24.9	0.9	C
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	3,209	100	109.5%							62.3	0.3	27.6	0.9	D
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	3,211	98	109.6%				630	51	95.5%	62.1	0.2	28.3	0.9	D
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,589	84	114.1%							63.1	0.2	23.3	0.6	C
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,591	86	114.1%	767	57	105.0%	1,226	60	115.6%	63.1	0.2	20.4	0.6	C
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	2,128	85	109.7%							63.6	0.2	19.8	0.8	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	2,128	83	109.7%				1,168	64	103.4%	64.1	0.2	15.6	0.5	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	957	61	118.2%							64.3	0.2	9.5	0.3	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	958	63	118.3%	70	5	99.9%				63.6	0.2	9.7	0.4	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,809	189	101.8%	969	51	95.9%				58.4	12.3	36.1	35.5	E
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,765	316	101.0%							58.3	12.3	37.5	26.1	E
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,757	380	100.9%				1,139	102	99.1%	57.0	11.3	36.5	22.2	E
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,611	340	101.1%				398	67	102.1%	56.9	11.6	38.6	31.6	E
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	7,208	341	100.9%							62.1	2.3	26.5	2.3	D
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	7,207	352	100.9%	1,721	61	95.6%	1,190	83	99.1%	62.0	0.4	26.3	1.0	C
7	I-80 EB CD - Eureka Rd to SR-65	Weave	315	29	104.9%	1,557	65	94.4%	724	45	100.6%	57.9	8.6	18.2	5.6	B
8	I-80 EB - Eureka Rd to SR-65	Basic	7,728	307	99.8%							59.3	1.5	32.7	1.9	D
9	I-80 EB - HOV Connector Off-ramp	Diverge	7,732	309	99.9%				1,161	61	98.4%	54.4	2.2	35.9	3.0	E
10	I-80 EB - SR-65 Off-ramp	Diverge	6,577	289	100.3%				3,823	185	101.7%	61.2	4.0	27.6	3.3	C
11	I-80 EB - SR-65 Off-ramp to Eureka Rd On-ramp	Basic	2,749	149	98.2%							63.9	0.2	16.7	0.9	B
17	I-80 EB - Eureka Rd On-ramp	Merge	2,747	145	98.1%	729	45	101.3%				63.1	0.1	16.2	0.5	B
18	I-80 EB - Eureka Rd On-ramp to SR-65 On-ramp	Basic	3,476	150	98.8%							63.7	0.2	17.8	0.7	B
19	I-80 EB - SR-65 On-ramp	Merge	3,476	147	98.7%	2,545	94	97.5%				58.6	0.9	32.6	0.5	D
20	I-80 EB - SR-65 to Rocklin Rd	Basic	6,021	155	98.2%							62.4	0.3	27.5	0.6	D
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	6,011	144	98.1%				1,454	80	98.9%	63.0	0.2	26.5	0.5	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	4,545	124	97.5%							62.8	0.3	27.0	0.7	D
24	I-80 EB - Rocklin Rd On-ramp	Merge	4,541	128	97.4%	258	17	99.4%				59.0	0.3	27.5	0.7	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	4,791	120	97.4%							62.6	0.4	28.0	0.7	D
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	4,787	127	97.3%				709	53	90.9%	59.6	3.1	30.3	1.7	D
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	4,070	122	98.3%							62.7	0.4	23.7	0.7	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	4,068	121	98.3%	336	12	98.8%				59.9	1.0	22.7	1.2	C
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	4,403	115	98.3%	883	25	101.5%				58.5	1.5	28.2	1.7	D
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,077	25	105.9%				759	46	104.0%	59.5	0.8	22.0	0.3	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,310	61	106.1%							63.1	0.4	20.4	0.4	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,309	69	106.1%	426	9	104.0%				61.8	0.6	19.5	0.6	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,734	66	105.8%	453	16	103.0%				60.8	1.0	22.3	0.4	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,188	62	105.5%							63.0	0.2	24.1	0.3	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,188	59	105.5%				320	36	103.3%	62.1	0.7	25.1	0.5	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,865	72	105.6%							63.3	0.3	22.5	0.4	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,867	75	105.7%	1,720	89	104.9%				56.9	1.5	30.2	1.5	D
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,583	100	105.3%							50.6	9.3	39.6	8.6	E
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,568	114	105.1%							60.8	0.7	24.4	0.6	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,568	118	105.1%				2,076	73	104.3%	63.7	0.1	22.3	0.4	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,493	102	105.5%							63.8	0.1	19.7	0.4	C
60	I-80 WB - SR-65 to Atlantic St	Weave	3,489	98	105.4%	4,281	111	99.6%	500	38	106.5%	56.7	9.0	28.1	13.4	D
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,250	147	101.5%				1,118	70	101.6%	48.7	16.5	39.3	32.3	E
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,089	156	100.8%							31.2	15.1	76.7	34.0	F
64	I-80 WB - Atlantic St On-ramp	Merge	6,055	176	100.2%	1,280	32	96.3%				25.2	11.8	61.4	15.9	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,252	209	98.4%				1,109	63	99.0%	34.3	9.8	69.5	13.9	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,082	166	97.3%							25.5	5.1	96.7	14.4	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,053	170	96.9%	1,318	41	96.9%				21.5	0.6	114.1	3.2	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,306	136	96.0%	698	17	87.3%				27.3	0.4	73.3	1.1	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,004	195	95.2%							59.8	0.8	32.4	1.2	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,986	126	95.0%				1,183	56	95.4%	62.3	0.3	27.8	0.9	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,806	125	94.9%							62.4	0.2	32.4	1.0	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,806	119	94.9%	194	12	97.0%				62.9	0.1	26.1	0.8	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,998	127	95.0%	608	16	106.6%				62.3	0.4	22.2	0.7	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,605	132	95.8%							62.3	0.3	28.0	0.6	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,602	141	95.7%				1,082	51	94.1%	62.0	0.8	28.8	0.7	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,517	131	96.0%							62.6	0.4	24.9	0.6	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,517	134	96.0%	345	8	98.6%				61.4	0.6	22.0	0.9	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	6,864	124	96.1%	528	14	99.5%	73	19	81.6%	62.4	0.3	24.1	0.5	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,315	125	96.5%							62.9	0.1	26.9	0.4	D
80	I-80 WB - Truck Scales On-ramp	Merge	7,314	129	96.5%	74	18	81.7%				62.5	0.2	27.2	0.6	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	7,392	132	96.4%							61.2	0.8	28.9	0.5	D
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	7,393	133	96.4%				1,178	78	94.2%	61.3	1.6	27.0	1.0	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	6,223	164	96.9%							62.7	0.6	23.9	0.8	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	6,226	155	97.0%	897	5	99.7%				56.4	1.4	26.3	1.2	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	7,127	142	97.4%	597	20	102.9%				61.7	1.0	28.3	0.7	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
PM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,127	10	99.8%				122	26	101.5%	64.4	0.2	10.1	0.1	B
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	1,006	32	99.6%							64.4	0.2	8.7	0.2	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	1,007	28	99.7%	689	19	99.8%				61.1	0.3	10.4	0.2	B
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,696	37	99.7%	679	18	99.9%				60.3	0.4	13.4	0.4	B
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,376	46	99.8%							63.1	0.3	22.6	0.5	C
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,376	48	99.8%							63.1	0.2	21.7	0.5	C
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,377	49	100.3%	1,462	36	101.5%	850	50	103.6%	60.7	0.7	22.8	0.5	C
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,989	81	100.0%							63.1	0.2	24.7	0.7	C
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,990	77	100.0%	587	46	96.2%				60.7	0.6	27.6	0.7	C
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,581	80	99.5%							62.3	0.3	29.6	0.9	D
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,582	80	99.5%				984	52	97.4%	62.7	0.2	26.6	0.9	C
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,592	98	100.1%							63.2	0.2	21.4	1.0	C
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,592	97	100.1%	457	35	106.2%				60.3	1.8	24.3	1.5	C
101	SR-65 SB - Sunset Blvd Off-ramp	Weave	3,052	112	81.4%	726	47		588	52	98.1%	61.7	0.4	25.3	1.2	C
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,190	107	101.3%							59.1	1.4	22.4	1.3	C
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,190	110	101.3%	554	45	106.4%				59.9	1.3	29.0	1.4	D
104	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	3,741	108	101.9%	1,009	51	101.9%	860	56	100.0%	61.4	0.6	28.9	1.2	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,884	107	102.2%							62.3	0.1	31.6	1.0	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,887	108	102.3%	358	39	94.2%				59.5	0.4	32.3	1.0	D
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	4,241	115	101.5%	1,359	63	98.5%	646	52	97.8%	59.4	1.1	32.7	1.2	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,956	137	101.1%							62.1	0.3	36.0	1.0	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,956	134	101.1%	488	42	101.7%				61.6	0.4	28.2	0.9	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	5,443	144	101.2%	1,097	43	98.8%				58.5	3.8	31.8	3.1	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	6,537	150	100.7%							59.0	1.2	33.7	1.0	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	6,537	152	100.7%				1,552	69	100.1%	61.2	0.5	29.6	0.9	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,982	123	100.9%							62.5	0.3	28.0	0.5	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,988	125	101.0%	1,857	63	94.3%	4,288	103	99.0%	60.7	0.5	25.5	0.6	C
120	SR-65 SB to EB I-80 Connector	Basic	2,556	93	97.9%							48.3	1.9	36.9	3.0	E
121	SR-65 SB to WB I-80 Connector	Basic	3,534	97	95.5%							53.4	5.6	24.4	7.1	C
123	SR-65 NB from WB I-80 Connector	Basic	2,077	73	104.4%							48.2	2.5	23.8	1.7	C
124	SR-65 NB from EB I-80 Connector	Basic	3,826	189	101.8%							51.6	14.8	38.9	21.9	E
125	SR-65 NB - Eureka Rd On-ramp	Merge	4,988	208	132.6%	1,141	60	92.7%				28.4	14.3	71.4	30.6	F
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,930	236	98.8%	3,234	88	102.0%	1,766	112	97.6%	31.8	10.8	64.9	15.2	F
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	6,289	148	99.0%							26.1	1.1	105.7	11.4	F
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	6,289	142	99.0%	999	55	90.0%				31.1	0.9	72.3	1.2	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	7,283	119	97.6%							52.5	1.7	39.1	2.2	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	7,283	119	97.6%				1,548	58	99.3%	57.3	0.8	34.2	0.9	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	5,737	96	97.2%							61.3	0.8	37.3	1.0	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	5,734	93	97.2%	615	44	99.2%	2,226	81	98.5%	61.2	0.9	31.8	0.6	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	4,130	103	96.9%							62.0	0.4	30.1	0.7	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	4,130	101	96.9%	633	51	95.9%				58.1	2.2	32.5	1.5	D
136	SR-65 NB - Blue Oaks Blvd to HOV Lane End	Basic	4,761	123	96.8%							62.2	0.4	32.7	1.0	D
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	4,755	121	96.7%							61.9	0.6	29.2	0.8	D
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	4,754	120	96.6%				1,190	60	98.4%	62.8	0.3	27.3	0.6	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	3,564	98	96.1%							62.6	0.2	29.4	0.7	D
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	3,563	100	96.0%	348	30	102.3%				60.1	2.4	31.4	1.7	D
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	3,906	114	96.4%	794	40	105.9%	1,189	57	99.1%	61.6	0.4	28.9	1.0	D
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	3,515	115	97.6%							62.6	0.2	29.0	0.9	D
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	3,515	115	97.6%	280	33	99.9%				59.1	4.2	31.8	3.0	D
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,793	107	97.7%	492	34	100.4%				51.7	10.2	41.0	10.3	E
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	4,277	109	97.9%							56.9	2.6	39.1	2.4	E
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	4,276	110	97.8%				710	44	101.4%	58.6	2.5	38.1	1.6	E
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	3,566	112	97.2%							62.2	0.3	31.2	1.1	D
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	3,562	106	97.1%	938	40	95.7%	1,477	85	97.2%	62.3	0.3	27.2	0.7	C
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	3,019	100	96.4%							63.1	0.2	24.4	0.7	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	3,018	101	96.4%				1,844	81	97.0%	63.8	0.1	19.3	0.4	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	1,171	63	95.2%							64.3	0.1	9.9	0.6	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	1,172	64	95.2%	125	9	95.8%				63.1	0.2	10.1	0.5	B

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	3,740	4,153	111.0%	15.9	1.4	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	2,035	2,236	109.9%	16.0	1.2	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	2,070	2,165	104.6%	27.1	4.8	C
4	SR-65 SB Ramps/Sunset Blvd	Signal	3,340	3,566	106.8%	15.4	3.4	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	3,775	4,099	108.6%	11.6	1.0	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	5,425	5,664	104.4%	49.6	6.3	D
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,395	3,631	107.0%	11.9	0.7	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	4,440	4,552	102.5%	7.0	0.5	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	3,495	3,517	100.6%	15.3	0.4	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	3,370	3,530	104.8%	28.3	1.4	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,625	3,775	104.1%	19.0	3.2	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,880	3,955	101.9%	25.0	1.6	C
13	Galleria Blvd/Antelope Creek Dr	Signal	2,476	2,425	97.9%	9.4	1.7	A
14	Galleria Blvd/Roseville Pkwy	Signal	5,321	5,654	106.3%	46.0	2.3	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,400	3,573	105.1%	7.0	2.8	A
16	Taylor Rd/East Roseville Pkwy	Signal	5,475	5,811	106.1%	94.8	21.9	F
17	North Sunrise Ave/East Roseville Pkwy	Signal	4,840	5,152	106.5%	32.4	3.8	C
18	Wills Rd/Atlantic St	Signal	2,250	2,424	107.7%	22.7	11.3	C
19	I-80 WB Ramps/Atlantic St	Signal	3,925	4,099	104.4%	38.3	10.9	D
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,940	6,185	104.1%	42.2	4.7	D
21	North Sunrise Ave/Eureka Rd	Signal	5,180	5,413	104.5%	39.2	6.0	D
22	Harding Blvd/Wills Rd	Signal	2,160	2,287	105.9%	15.0	6.2	B
23	Harding Blvd/Douglas Blvd	Signal	2,675	2,921	109.2%	29.6	4.9	C
24	I-80 WB Ramps/Douglas Blvd	Signal	3,810	4,024	105.6%	39.8	6.1	D

Network Summary	
Total Demand Volume (veh/hr)	90,042
Total Volume Served (veh/hr)	94,814
Percent Served	105.3%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	4,200	4,550	108.3%	25.6	15.8	C
26	North Sunrise Ave/Douglas Blvd	Signal	4,595	4,865	105.9%	46.9	7.8	D
27	Pacific St/Woodside Dr	Signal	1,965	2,134	108.6%	7.4	1.2	A
28	Pacific St/Sunset Blvd	Signal	3,235	3,536	109.3%	21.8	1.2	C
29	Granite Dr/Rocklin Rd	Signal	3,201	3,330	104.0%	42.0	24.4	D
30	I-80 WB Ramps/Rocklin Rd	Signal	3,235	3,325	102.8%	46.0	8.9	D
31	I-80 EB Ramps/Rocklin Rd	Signal	3,045	3,265	107.2%	23.3	1.1	C
32	Aguilar Rd/Rocklin Rd	Signal	2,295	2,493	108.6%	9.9	0.9	A
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	3,450	3,845	111.4%	12.0	2.6	B
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,390	2,602	108.9%	23.3	4.9	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	3,775	4,095	108.5%	17.2	1.0	B
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	3,725	3,947	106.0%	13.7	0.7	B
40	Galleria Blvd/Berry St	Signal	2,060	2,170	105.4%	9.9	1.4	A

Network Summary	
Total Demand Volume (veh/hr)	41,171
Total Volume Served (veh/hr)	44,155
Percent Served	107.2%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Queue Length | **AM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	55	4	265	44	NO
	Through						
	Right Turn	1500	55	4	265	44	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	16	3	88	21	NO
	Through						
	Right Turn	1500	16	3	88	21	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	63	3	224	28	NO
	Through						
	Right Turn	1330	65	3	226	28	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	52	1	213	50	NO
	Through						
	Right Turn	1400	24	4	155	29	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Queue Length | **AM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	36	15	194	70	NO
	Through	2260	116	12	492	198	NO
	Right Turn	200	6	2	218	198	MAX

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	43	15	236	32	NO
	Through						
	Right Turn	1100	42	15	235	32	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	25	6	153	34	NO
	Through						
	Right Turn	1130	28	6	155	34	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	44	7	186	31	NO
	Through						
	Right Turn	1420	43	7	185	31	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Queue Length | **AM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	7	2	59	10	NO
WB	Left Turn						
	Through						
	Right Turn	1170	15	1	148	46	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	53	4	297	67	NO
WB	Left Turn						
	Through						
	Right Turn	1780	2	1	51	7	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	21	67	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 3 (No Taylor)**
Queue Length **AM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	54	10	262	230	MAX
	Through	1700	158	54	881	211	NO
	Right Turn	1700	35	35	578	222	NO
SB	Left Turn	550	47	14	172	30	NO
	Through						
	Right Turn	550	56	12	305	108	NO
EB	Left Turn	1120	36	4	141	28	NO
	Through	1120	154	44	811	145	NO
	Right Turn	810	24	17	413	140	NO
WB	Left Turn						
	Through	1370	157	56	751	103	NO
	Right Turn	280	1	0	36	12	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	71	72	369	65	NO
	Through	1530	71	72	369	65	NO
	Right Turn	730	71	72	370	65	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 3 (No Taylor)**
Queue Length **AM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	0	0	18	47	NO
SB	Left Turn						
	Through						
	Right Turn	1250	195	189	778	715	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	27	3	167	37	NO
	Through						
	Right Turn	1230	38	4	187	37	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	57	7	263	39	NO
	Through						
	Right Turn	1080	42	6	275	45	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 3 (No Taylor)**
Queue Length **AM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	45	14	315	103	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	53	10	299	26	NO
	Through						
	Right Turn	1650	53	10	299	26	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	60	9	310	55	NO
	Through						
	Right Turn	1620	60	9	310	55	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	4,670	4,619	98.9%	24.4	1.1	C
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	2,210	2,205	99.8%	15.3	1.9	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	2,320	2,288	98.6%	18.4	2.0	B
4	SR-65 SB Ramps/Sunset Blvd	Signal	4,260	4,335	101.8%	9.2	0.6	A
5	SR-65 NB Ramps/Sunset Blvd	Signal	4,390	4,521	103.0%	20.4	6.9	C
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	7,040	6,922	98.3%	174.7	31.5	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	4,250	4,258	100.2%	79.8	39.5	E
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	6,135	6,405	104.4%	9.4	1.2	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	5,370	5,357	99.8%	11.6	0.5	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	5,295	5,167	97.6%	59.2	6.3	E
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	6,185	6,013	97.2%	22.1	0.7	C
12	SR-65 SB Ramps/Galleria Blvd	Signal	6,435	6,167	95.8%	24.6	1.8	C
13	Galleria Blvd/Antelope Creek Dr	Signal	4,320	3,866	89.5%	23.5	1.2	C
14	Galleria Blvd/Roseville Pkwy	Signal	8,105	7,585	93.6%	102.1	24.4	F
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,645	4,301	92.6%	40.4	13.2	D
16	Taylor Rd/East Roseville Pkwy	Signal	7,480	7,042	94.1%	70.5	5.6	E
17	North Sunrise Ave/East Roseville Pkwy	Signal	6,460	6,413	99.3%	77.8	20.9	E
18	Wills Rd/Atlantic St	Signal	3,335	3,365	100.9%	39.7	21.0	D
19	I-80 WB Ramps/Atlantic St	Signal	4,925	4,915	99.8%	33.9	12.7	C
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	6,980	6,831	97.9%	104.4	10.0	F
21	North Sunrise Ave/Eureka Rd	Signal	6,660	6,773	101.7%	112.9	24.2	F
22	Harding Blvd/Wills Rd	Signal	2,985	3,034	101.6%	22.2	12.0	C
23	Harding Blvd/Douglas Blvd	Signal	3,975	3,768	94.8%	111.3	11.5	F
24	I-80 WB Ramps/Douglas Blvd	Signal	4,695	4,571	97.4%	40.0	14.9	D

Network Summary	
Total Demand Volume (veh/hr)	123,125
Total Volume Served (veh/hr)	120,717
Percent Served	98.0%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 3 (No Taylor)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,435	5,233	96.3%	30.4	34.3	C
26	North Sunrise Ave/Douglas Blvd	Signal	6,300	5,974	94.8%	166.4	34.9	F
27	Pacific St/Woodside Dr	Signal	3,005	2,936	97.7%	8.3	1.2	A
28	Pacific St/Sunset Blvd	Signal	5,030	5,017	99.7%	28.9	1.6	C
29	Granite Dr/Rocklin Rd	Signal	4,240	4,418	104.2%	105.3	6.0	F
30	I-80 WB Ramps/Rocklin Rd	Signal	3,930	4,103	104.4%	31.6	14.2	C
31	I-80 EB Ramps/Rocklin Rd	Signal	3,625	3,713	102.4%	20.6	3.7	C
32	Aguilar Rd/Rocklin Rd	Signal	2,925	2,977	101.8%	19.4	2.2	B
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	4,120	4,082	99.1%	13.5	0.6	B
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,605	2,614	100.4%	41.1	17.4	D
35	SR-65 SB Ramps/Placer Pkwy	Signal	4,760	4,822	101.3%	24.5	2.1	C
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	4,375	4,399	100.6%	22.0	3.8	C
40	Galleria Blvd/Berry St	Signal	2,950	2,971	100.7%	20.7	29.8	C

Network Summary	
Total Demand Volume (veh/hr)	53,300
Total Volume Served (veh/hr)	53,259
Percent Served	99.9%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	66	9	299	43	NO
	Through						
	Right Turn	1500	67	9	299	43	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	23	9	125	33	NO
	Through						
	Right Turn	1500	23	9	125	33	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	57	5	201	31	NO
	Through						
	Right Turn	1330	58	5	203	31	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	62	3	243	37	NO
	Through						
	Right Turn	1400	15	3	106	16	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	85	24	478	365	MAX
	Through	2260	161	101	956	332	NO
	Right Turn	200	39	52	682	332	MAX

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	44	2	200	30	NO
	Through						
	Right Turn	1100	44	2	199	30	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	30	4	140	35	NO
	Through						
	Right Turn	1130	33	4	142	35	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	45	2	183	35	NO
	Through						
	Right Turn	1420	45	2	182	35	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	16	2	109	26	NO
WB	Left Turn						
	Through						
	Right Turn	1170	72	1	383	63	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	74	4	340	30	NO
WB	Left Turn						
	Through						
	Right Turn	1780	11	3	104	25	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	22	69	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 3 (No Taylor)**
Queue Length **PM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	172	169	988	213	MAX
	Through	1700	158	134	962	231	NO
	Right Turn	1700	54	90	684	213	NO
SB	Left Turn	550	54	10	183	53	NO
	Through						
	Right Turn	550	108	27	545	118	NO
EB	Left Turn	1120	60	4	196	32	NO
	Through	1120	156	19	762	55	NO
	Right Turn	810	28	10	359	70	NO
WB	Left Turn						
	Through	1370	620	442	1524	16	MAX
	Right Turn	280	11	12	257	321	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	106	103	438	96	NO
	Through	1530	106	103	438	96	NO
	Right Turn	730	106	103	438	96	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Design Year - Alt 3 (No Taylor)**
Queue Length **PM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	0	0	18	48	NO
SB	Left Turn						
	Through						
	Right Turn	1250	280	119	664	664	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	101	83	427	120	NO
	Through						
	Right Turn	1230	115	86	447	120	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	64	10	249	34	NO
	Through						
	Right Turn	1080	43	2	265	34	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Design Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	81	6	382	78	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	94	11	395	54	NO
	Through						
	Right Turn	1650	94	11	395	54	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	121	17	479	69	NO
	Through						
	Right Turn	1620	121	17	479	69	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

I-80/SR 65 Interchange Improvements

Vissim Model Results – Design Year Alternative 5 (No Build)

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Design Year - Alt 5 (No Build)**
Network Statistics | **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	200,648	1,375
Travel Distance [mi]	All Vehicles	831,276	6,316
Travel Time [h]	All Vehicles	26,466	385.6
Average Speed [mph]	All Vehicles	31.4	0.6
Total Delay [h]	All Vehicles	12,038	468.4
Average Delay per Vehicle [s]	All Vehicles	207.8	8.6
VHD/VMT [min/mile]	All Vehicles	0.87	0.04
Number of Vehicles Served	HOVs	33,102	303
Travel Distance [mi]	HOVs	155,142	1,677
Travel Time [h]	HOVs	4,290	86.6
Average Speed [mph]	HOVs	36.2	0.9
Total Delay [h]	HOVs	1,644	99.6
Average Delay per Vehicle [s]	HOVs	172.2	11.0
VHD/VMT [min/mile]	HOVs	0.64	0.04
Number of Vehicles Served	Trucks	7,728	60
Travel Distance [mi]	Trucks	42,255	460
Travel Time [h]	Trucks	1,432	24.1
Average Speed [mph]	Trucks	29.5	0.8
Total Delay [h]	Trucks	708	30.2
Average Delay per Vehicle [s]	Trucks	311.4	13.4
VHD/VMT [min/mile]	Trucks	1.01	0.05

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	33,100	7,730	200,650
Demand Volume	35,595	8,802	210,465
Percent Demand Served	93.0%	87.8%	95.3%
Vehicle Miles of Travel	155,140	42,250	831,280
Person Miles of Travel	325,800	44,370	1,004,060
Vehicle Hours of Travel	4,290	1,430	26,470
Vehicle Hours of Delay	1,640	710	12,040
VHD % of VHT	38.2%	49.7%	45.5%
Average Delay per Vehicle (min)	2.97	5.51	3.60
Person Hours of Delay	3,440	750	13,880
Average Travel Speed	36.2	29.5	31.4

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,105	602	14	09:29	00:32	20.6
	I-80 at Auburn to SR-65 at Blue Oaks	32,840	1354	17	18:41	00:58	8.0
	I-80 at Sierra College to I-80 at Antelope	45,829	965	16	08:30	00:06	24.5
	I-80 at Auburn to I-80 at Sierra College	36,738	637	10	15:49	01:09	10.6
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,105	432	11	08:31	00:10	23.0
	I-80 at Auburn to SR-65 at Blue Oaks	32,840	361	8	11:45	00:28	12.7
	I-80 at Sierra College to I-80 at Antelope	45,829	410	9	08:20	00:03	25.0
	I-80 at Auburn to I-80 at Sierra College	36,738	152	5	08:23	00:30	19.9

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Design Year - Alt 5 (No Build)**
Network Statistics **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	259,415	1,186
Travel Distance [mi]	All Vehicles	863,406	2,403
Travel Time [h]	All Vehicles	43,427	420.8
Average Speed [mph]	All Vehicles	19.9	0.2
Total Delay [h]	All Vehicles	28,067	437.9
Average Delay per Vehicle [s]	All Vehicles	375.7	6.5
VHD/VMT [min/mile]	All Vehicles	1.95	0.03
Number of Vehicles Served	HOVs	46,991	364
Travel Distance [mi]	HOVs	187,869	1,225
Travel Time [h]	HOVs	7,622	187.9
Average Speed [mph]	HOVs	24.7	0.5
Total Delay [h]	HOVs	4,355	175.2
Average Delay per Vehicle [s]	HOVs	323.3	12.3
VHD/VMT [min/mile]	HOVs	1.39	0.05
Number of Vehicles Served	Trucks	5,308	98
Travel Distance [mi]	Trucks	23,395	607
Travel Time [h]	Trucks	1,328	85.5
Average Speed [mph]	Trucks	17.7	0.7
Total Delay [h]	Trucks	917	75.5
Average Delay per Vehicle [s]	Trucks	589.3	37.0
VHD/VMT [min/mile]	Trucks	2.35	0.14

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	46,990	5,310	259,410
Demand Volume	53,496	6,723	303,572
Percent Demand Served	87.8%	79.0%	85.5%
Vehicle Miles of Travel	187,870	23,390	863,410
Person Miles of Travel	394,520	24,560	1,071,230
Vehicle Hours of Travel	7,620	1,330	43,430
Vehicle Hours of Delay	4,350	920	28,070
VHD % of VHT	57.1%	69.2%	64.6%
Average Delay per Vehicle (min)	5.55	10.40	6.49
Person Hours of Delay	9,140	970	32,910
Average Travel Speed	24.7	17.7	19.9

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,105	605	13	11:47	03:36	16.6
	I-80 at Auburn to SR-65 at Blue Oaks	32,840	528	15	45:38	02:52	3.3
	I-80 at Sierra College to I-80 at Antelope	45,829	357	7	12:32	02:00	16.6
	I-80 at Auburn to I-80 at Sierra College	36,737	381	16	42:07	02:51	4.0
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,105	255	9	10:54	02:56	18.0
	I-80 at Auburn to SR-65 at Blue Oaks	32,840	637	11	15:38	01:41	9.5
	I-80 at Sierra College to I-80 at Antelope	45,829	197	6	10:50	01:03	19.2
	I-80 at Auburn to I-80 at Sierra College	36,737	289	8	13:40	01:51	12.2

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,239	129	109.8%	1,029	44	100.9%				45.5	17.3	55.3	42.2	F
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,143	276	107.0%							30.5	12.1	78.3	27.0	F
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,085	318	106.2%				1,500	139	114.5%	28.4	9.6	71.1	18.3	F
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	6,522	289	103.5%				482	91	87.6%	21.5	4.2	126.7	25.2	F
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	5,930	229	103.1%							21.5	2.6	116.8	23.9	F
6	I-80 EB - Douglas Blvd On-ramp	Merge	5,862	198	101.9%	581	48	57.0%				12.2	0.5	152.5	6.4	F
7	I-80 EB - Eureka Rd Off-ramp	Diverge	6,263	222	92.5%				1,137	76	92.5%	15.1	1.1	114.1	4.7	F
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	4,963	177	89.6%							16.7	0.4	137.9	3.3	F
9	I-80 EB - Eureka Rd EB On-ramp	Merge	4,902	180	88.5%	312	13	107.4%				14.0	0.6	131.8	3.0	F
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	5,101	190	87.5%	546	31	97.4%	299	38	52.5%	14.3	0.4	130.6	1.9	F
11	I-80 EB - Taylor Rd to SR-65	Basic	5,129	214	88.1%							12.5	1.1	123.0	3.4	F
17	I-80 EB - SR-65 Off-ramp	Diverge	5,085	227	87.4%				2,534	66	87.7%	14.5	2.1	86.2	12.5	F
18	I-80 EB - SR-65 Off to On-ramp	Basic	2,479	184	84.6%							63.5	0.3	14.3	1.1	B
19	I-80 EB - SR-65 On-ramp	Merge	2,482	187	84.7%	1,604	82	101.5%				62.1	0.5	19.8	0.7	B
21	I-80 EB - SR-65 to Rocklin Rd	Basic	4,093	213	90.8%							63.4	0.1	18.8	0.8	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,097	210	90.8%				1,324	81	93.3%	63.4	0.2	18.5	1.0	B
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	2,777	154	89.9%							63.7	0.2	16.5	0.9	B
24	I-80 EB - Rocklin Rd On-ramp	Merge	2,781	151	90.0%	266	30	88.6%				59.5	0.8	17.7	0.8	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,054	144	90.1%							63.5	0.2	18.2	0.9	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,054	146	90.1%				750	59	110.3%	61.2	3.6	20.1	1.2	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,313	129	85.3%							63.5	0.5	14.7	0.9	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,314	130	85.4%	134	6	103.2%				62.8	0.2	13.7	0.6	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	2,449	122	86.2%	437	14	97.0%				61.1	0.6	15.4	0.5	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	5,377	19	105.2%				1,174	66	112.8%	51.3	2.6	32.9	1.5	D
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	4,201	69	103.2%							60.3	0.9	25.6	0.4	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	4,201	67	103.2%	48	3	80.5%				62.6	0.4	22.0	0.3	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	4,250	62	102.9%	324	12	104.6%				55.0	2.0	25.6	1.2	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,568	74	102.9%							62.8	0.3	25.7	0.3	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,568	74	102.9%				306	26	101.9%	62.5	0.5	25.5	0.6	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,266	78	103.0%							62.9	0.3	23.9	0.3	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,266	85	103.0%	1,011	48	101.1%				53.0	2.7	30.7	2.3	D
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,272	97	102.6%							61.8	1.0	29.3	1.1	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,266	98	102.4%							61.5	0.8	23.2	0.5	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,265	98	102.4%				1,708	64	111.6%	60.9	4.7	27.4	10.8	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,552	69	98.4%							63.7	0.1	19.5	0.4	C
50	I-80 WB - SR-65 On-ramp	Merge	3,551	67	98.4%	3,478	136	92.0%				62.1	0.3	27.2	0.6	C
60	I-80 WB - Taylor Rd On-ramp	Merge	7,030	153	95.1%	657	22	96.7%				60.1	1.6	32.0	1.2	D
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	7,685	159	95.2%				427	39	106.8%	54.5	12.8	41.9	22.4	E
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,258	180	94.6%				1,226	69	112.5%	43.3	7.1	53.4	9.5	F
63	I-80 WB - Atlantic St Off to On-ramp	Basic	6,031	188	91.7%							61.2	0.8	23.9	0.5	C
64	I-80 WB - Atlantic St On-ramp	Merge	6,029	185	91.6%	958	52	101.9%				53.3	4.0	27.5	2.1	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	6,990	189	92.9%				961	67	97.0%	54.6	4.3	20.9	1.3	C
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,031	175	92.4%							60.8	1.1	31.8	0.8	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,036	174	92.4%	781	37	100.2%				62.3	0.3	25.4	0.6	C
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	6,824	179	93.4%	390	19	95.2%				58.1	2.9	22.6	1.7	C
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,224	178	93.6%							61.6	0.6	28.0	0.7	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,229	184	93.6%				851	56	95.6%	62.1	0.8	20.3	0.6	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,386	184	93.5%							62.2	0.2	31.7	0.8	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,390	185	93.6%	212	5	81.4%				63.0	0.1	25.1	0.7	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,606	173	93.2%	896	7	90.5%				62.9	0.5	23.0	0.4	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,513	169	93.0%							62.5	0.3	27.8	0.5	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,517	174	93.0%				440	30	91.7%	62.3	0.6	27.6	0.6	C
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	7,082	177	93.2%							62.7	0.4	26.6	0.7	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	7,085	180	93.2%	513	12	96.7%				56.5	2.1	29.7	1.5	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	7,604	173	93.5%	446	19	89.1%	99	19	110.4%	60.1	0.7	28.2	0.5	D
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,964	172	93.3%							62.4	0.5	30.2	0.5	D
80	I-80 WB - Truck Scales On-ramp	Merge	7,974	158	93.4%	101	19	111.9%				57.0	6.1	34.8	5.7	D
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	8,109	155	94.0%							52.6	3.0	38.8	2.2	E
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	8,120	158	94.1%				1,078	59	104.7%	59.7	1.5	29.1	0.9	D
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	7,055	163	92.8%							62.6	0.4	28.1	0.5	D
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	7,058	162	92.9%	788	10	98.5%				58.1	1.2	27.9	1.1	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	7,854	180	93.5%	795	39	97.0%				53.7	8.6	39.5	8.3	E

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR 65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,388	12	120.7%				78	20	111.0%	64.1	0.1	14.3	0.1	B
157	SR 65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	1,312	25	121.5%							63.9	0.1	13.8	0.3	B
158	SR 65 SB - Ferrari Ranch Rd WB On-ramp	Merge	1,313	28	121.6%	997	10	106.1%				61.0	0.2	18.2	0.3	B
159	SR 65 SB - Ferrari Ranch Rd EB On-ramp	Merge	2,309	32	114.3%	1,042	23	96.5%				59.4	0.2	24.2	0.3	C
160	SR 65 SB - Ferrari Ranch Rd to Lane Drop	Basic	3,354	41	108.2%							60.8	1.1	33.4	0.8	D
161	SR 65 SB - Lane Drop to Lincoln Blvd	Basic	3,357	46	108.3%							61.8	0.9	32.8	0.7	D
97	SR 65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	3,359	48	104.6%	1,143	23	89.3%	848	49	106.0%	45.2	9.0	36.7	8.9	E
98	SR 65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,661	70	99.2%							28.7	6.0	67.2	14.2	F
99	SR 65 SB - Twelve Bridges Dr On-ramp	Merge	3,663	78	99.3%	640	22	110.4%				33.6	2.6	61.3	6.4	F
100	SR 65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	4,304	79	100.8%							60.0	2.0	37.7	1.9	E
145	SR 65 SB - Placer Pkwy Off-ramp	Diverge	4,305	77	119.6%				747	57	105.1%	61.8	0.5	33.4	0.8	D
146	SR 65 SB - Placer Pkwy Off to On-ramp	Basic	3,562	81	123.2%							62.6	0.1	29.7	0.5	D
147	SR 65 SB - Placer Pkwy WB On-ramp	Merge	3,559	79	123.1%	480	37	117.1%				62.4	0.2	27.6	0.4	C
148	SR 65 SB - Placer Pkwy EB On-ramp	Merge	4,037	82	122.3%	499	28	101.9%				61.1	0.4	30.0	0.6	D
101	SR 65 SB - Sunset Blvd Off-ramp	Diverge	4,536	72	121.9%				772	48	102.9%	61.6	0.4	29.1	0.7	D
102	SR 65 SB - Sunset Blvd Off to On-ramp	Basic	3,766	89	126.8%							60.4	2.2	32.0	1.9	D
103	SR 65 SB - Sunset Blvd WB On-ramp	Merge	3,766	88	126.8%	395	63	106.6%				46.7	4.3	42.7	4.5	E
104	SR 65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	4,158	113	124.5%	501	25	92.7%	780	58	104.0%	60.3	1.1	27.1	0.9	C
107	SR 65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,884	104	124.1%							60.4	1.1	29.5	0.8	D
108	SR 65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,883	104	124.1%	422	56	91.8%				52.7	3.6	33.6	3.5	D
109	SR 65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	4,305	98	119.9%	1,051	22	91.4%	886	57	112.2%	59.7	1.4	29.5	1.1	D
110	SR 65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,470	108	113.2%							62.4	0.3	32.2	0.8	D
111	SR 65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,472	108	113.2%	521	30	93.0%				57.8	9.2	27.7	10.3	C
112	SR 65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,995	108	110.8%	618	36	99.7%				48.6	15.6	44.3	25.9	E
113	SR 65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,615	120	109.5%							45.3	15.0	49.5	21.3	F
114	SR 65 SB - Galleria Blvd Off-ramp	Diverge	5,615	120	109.4%				1,376	71	94.9%	42.0	12.0	54.9	19.6	F
115	SR 65 SB - Galleria Off to On-ramp	Basic	4,240	132	115.2%							30.2	3.7	80.1	12.9	F
117	SR 65 SB - Galleria Blvd On-ramp	Merge	4,244	141	115.3%	806	98	85.8%				31.5	1.5	77.5	7.8	F
118	SR 65 SB - I-80 WB Off-ramp	Diverge	5,067	143	109.7%				3,473	123	91.9%	54.9	1.5	32.6	1.2	D
125	SR 65 NB - I-80 WB On-ramp	Merge	2,514	55	58.1%	1,707	63	111.5%				36.0	9.6	56.8	17.4	F
126	SR 65 NB - I-80 to Stanford Ranch Rd	Basic	4,219	76	72.0%							59.3	1.8	34.9	1.2	D
127	SR 65 NB - Stanford Ranch Rd Off-ramp	Diverge	4,219	76	72.0%				683	46	93.6%	61.1	0.7	30.8	0.6	D
128	SR 65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,536	88	68.9%							62.9	0.2	27.1	0.6	D
129	SR 65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Weave	3,534	86	68.9%	1,068	42	92.1%	584	60	91.3%	60.6	0.5	29.6	0.7	D
132	SR 65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	4,018	87	71.1%							62.4	0.2	30.6	0.6	D
133	SR 65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	4,018	86	71.1%	348	18	93.9%	1,482	58	95.0%	62.7	0.2	24.6	0.4	C
134	SR 65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,881	75	64.6%							63.2	0.2	22.2	0.7	C
135	SR 65 NB - Blue Oaks Blvd On-ramp	Merge	2,879	71	64.5%	530	32	91.4%				57.8	1.3	25.7	0.9	C
136	SR 65 NB - Blue Oaks Blvd to HOV Lane End	Basic	3,405	82	67.6%							62.6	0.5	26.5	0.7	D
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	3,405	77	70.1%							63.1	0.2	22.3	0.3	C
137	SR 65 NB - Sunset Blvd Off-ramp	Diverge	3,407	76	67.6%				1,321	67	107.4%	59.5	13.2	26.3	16.4	C
138	SR 65 NB - Sunset Blvd Off to On-ramp	Basic	2,082	68	54.7%							63.8	0.1	16.9	0.5	B
139	SR 65 NB - Sunset Blvd EB On-ramp	Merge	2,085	65	54.7%	109	19	109.3%				62.3	0.9	17.6	0.6	B
140	SR 65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	2,191	71	56.0%	290	21	90.6%	673	45	81.0%	63.6	0.1	16.3	0.7	B
141	SR 65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	1,809	67	53.2%							63.8	0.2	15.3	0.4	B
149	SR 65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	1,809	67	53.1%	652	45	98.8%				51.8	2.5	22.3	1.5	C
150	SR 65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	2,460	84	60.4%	439	29	109.6%				62.1	0.7	24.2	1.0	C
151	SR 65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	2,896	92	64.8%							62.6	0.5	25.1	0.9	C
142	SR 65 NB - Twelve Bridges Dr Off-ramp	Diverge	2,895	95	65.5%				597	50	85.3%	62.1	0.6	25.9	1.0	C
143	SR 65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,302	74	61.9%							63.4	0.2	19.8	0.6	C
144	SR 65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,303	75	61.9%	766	7	102.1%	1,150	51	101.8%	63.0	0.2	18.8	0.5	B
152	SR 65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	1,915	64	62.6%							64.0	0.1	16.4	0.6	B
153	SR 65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,915	66	62.6%				1,088	58	98.9%	63.8	0.1	16.8	0.6	B
154	SR 65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	825	56	42.1%							64.6	0.2	7.3	0.4	A
155	SR 65 NB - Ferrari Ranch Rd On-ramp	Merge	827	59	42.2%	65	5	93.3%				63.5	0.2	7.3	0.4	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	4,363	308	57.1%	433	81	46.1%				19.9	6.9	163.8	4.5	F
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	4,866	364	56.7%							11.7	2.5	153.6	6.9	F
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	4,927	321	57.4%				718	114	60.8%	13.1	1.0	107.4	4.5	F
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	4,250	284	57.4%				290	64	66.0%	15.7	1.6	180.3	7.1	F
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	3,970	273	57.0%							17.8	3.2	170.8	4.5	F
6	I-80 EB - Douglas Blvd On-ramp	Merge	3,985	289	57.3%	399	42	27.3%				9.4	0.9	180.7	3.7	F
7	I-80 EB - Eureka Rd Off-ramp	Diverge	4,403	318	52.3%				564	83	56.4%	13.5	2.9	149.3	5.5	F
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	3,876	257	52.2%							18.8	3.0	141.3	4.4	F
9	I-80 EB - Eureka Rd EB On-ramp	Merge	3,882	247	52.3%	320	25	96.9%				13.4	1.4	96.3	9.5	F
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	4,204	225	54.2%	857	76	78.6%	361	55	40.5%	10.2	1.7	141.6	5.0	F
11	I-80 EB - Taylor Rd to SR-65	Basic	4,706	184	59.2%							8.4	0.4	133.3	1.9	F
17	I-80 EB - SR-65 Off-ramp	Diverge	4,710	183	59.2%				2,643	80	61.0%	21.6	2.7	65.5	10.1	F
18	I-80 EB - SR-65 Off to On-ramp	Basic	2,044	142	56.5%							64.1	0.2	9.7	0.9	A
19	I-80 EB - SR-65 On-ramp	Merge	2,044	140	56.5%	1,863	78	85.9%				61.9	0.5	20.9	1.1	C
21	I-80 EB - SR-65 to Rocklin Rd	Basic	3,900	161	67.4%							63.6	0.2	18.3	0.7	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	3,903	164	67.4%				869	73	63.9%	63.6	0.2	15.3	0.8	B
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,033	130	68.5%							63.7	0.2	17.2	0.8	B
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,031	130	68.4%	142	55	52.7%				61.5	0.9	17.4	0.8	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,172	124	67.5%							63.7	0.1	17.6	1.0	B
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,173	125	67.5%				425	43	65.4%	63.0	0.5	18.8	1.2	B
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,744	123	67.8%							63.6	0.4	16.3	1.1	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,745	123	67.8%	334	9	98.1%				61.2	0.4	15.8	0.8	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	3,078	128	70.1%	903	24	103.8%				56.2	1.5	22.2	1.2	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,076	22	104.8%				822	43	112.6%	59.4	0.7	21.7	0.4	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,249	44	102.8%							63.2	0.2	19.9	0.2	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,249	49	102.8%	410	11	102.5%				61.2	0.4	18.4	0.3	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,661	48	102.8%	402	8	100.6%				60.0	0.8	20.7	0.3	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,061	57	102.6%							63.4	0.1	22.2	0.3	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,061	61	102.6%				393	37	122.9%	59.4	10.6	26.0	10.7	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,661	71	100.6%							42.4	16.7	38.6	30.0	E
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,638	81	100.0%	1,145	251	74.8%				17.3	13.1	116.8	43.5	F
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,648	297	89.9%							14.0	3.3	113.2	17.5	F
47	I-80 WB - HOV Lane Start to SR-65	Basic	4,591	290	88.8%							31.0	1.5	60.2	1.8	F
48	I-80 WB - SR-65 Off-ramp	Diverge	4,583	280	88.6%				1,873	115	92.3%	38.1	1.7	113.9	3.1	F
49	I-80 WB - SR-65 Off to On-ramp	Basic	2,686	201	85.6%							63.8	0.5	16.6	1.0	B
50	I-80 WB - SR-65 On-ramp	Merge	2,690	201	85.7%	2,987	164	83.7%				48.6	21.4	41.5	35.8	E
60	I-80 WB - Taylor Rd On-ramp	Merge	5,665	384	84.4%	510	29	85.0%				44.8	22.8	61.4	55.8	F
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	6,159	494	84.3%				538	71	96.0%	43.1	25.5	71.6	63.3	F
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	5,605	507	83.0%				863	103	84.6%	42.7	24.1	61.3	47.6	F
63	I-80 WB - Atlantic St Off to On-ramp	Basic	4,715	554	82.3%							34.8	24.8	77.2	58.9	F
64	I-80 WB - Atlantic St On-ramp	Merge	4,696	631	82.0%	994	175	74.2%				26.4	20.3	99.7	59.7	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	5,670	854	80.2%				1,008	142	90.8%	29.5	17.9	107.6	62.7	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	4,661	735	78.2%							57.4	3.5	26.4	5.2	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	4,658	734	78.2%	391	109	31.5%				62.3	0.6	20.4	3.4	C
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	5,046	736	70.1%	424	84	58.0%				61.4	0.9	15.4	3.0	B
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	5,460	753	68.8%							63.0	0.5	21.4	3.1	C
70	I-80 WB - Riverside Ave Off-ramp	Diverge	5,456	748	68.8%				1,005	148	90.6%	63.0	0.4	16.3	3.0	B
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	4,442	608	65.1%							63.1	0.4	22.9	3.7	C
72	I-80 WB - Riverside Ave NB On-ramp	Merge	4,439	607	65.1%	197	10	94.0%				63.5	0.3	18.6	2.9	B
73	I-80 WB - Riverside Ave SB On-ramp	Merge	4,635	611	65.9%	850	12	97.7%				62.8	0.7	17.6	2.3	B
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	5,474	609	69.3%							63.0	0.6	21.8	3.0	C
75	I-80 WB - Antelope Rd Off-ramp	Diverge	5,470	615	69.2%				1,106	141	97.8%	62.7	0.9	24.4	3.1	C
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	4,364	483	64.5%							63.3	0.8	17.6	2.6	B
77	I-80 WB - Antelope Rd WB On-ramp	Merge	4,366	479	64.5%	341	11	97.5%				61.8	0.7	16.1	1.9	B
78	I-80 WB - Antelope Rd to Truck Scales	Weave	4,706	476	66.1%	531	23	100.2%	59	14	98.0%	63.2	0.4	17.4	2.3	B
79	I-80 WB - Truck Scales Off to On-ramp	Basic	5,174	484	68.2%							63.6	0.3	19.1	2.5	C
80	I-80 WB - Truck Scales On-ramp	Merge	5,172	477	68.1%	57	13	95.3%				63.4	0.3	19.7	1.5	B
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	5,230	471	68.4%							62.6	0.6	20.6	2.6	C
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	5,228	477	68.3%				1,088	111	87.0%	63.1	0.4	19.8	2.1	B
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	4,143	395	64.7%							63.8	0.3	16.5	1.3	B
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	4,144	396	64.7%	920	22	102.2%				60.0	0.7	18.2	1.0	B
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	5,067	385	69.4%	582	9	100.3%				63.0	0.5	21.7	1.0	C

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	1,147	11	99.7%				142	20	118.6%	64.4	0.2	9.7	0.1	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	1,005	26	97.6%							64.5	0.3	8.2	0.3	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	1,006	25	97.6%	682	22	100.3%				61.4	0.3	12.0	0.3	B
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,689	33	98.8%	678	26	101.2%				60.6	0.2	15.5	0.4	B
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,368	50	99.5%							63.3	1.3	20.4	0.7	C
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,368	51	99.5%							63.6	0.7	20.2	0.5	C
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,370	49	99.6%	1,186	16	82.4%	877	46	106.9%	60.4	0.6	20.8	0.3	C
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,679	54	89.3%							63.5	0.3	21.9	0.5	C
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,679	54	89.3%	545	41	90.9%				60.8	0.6	25.3	0.7	C
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,226	74	89.6%							62.8	0.2	26.8	0.7	D
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,226	76	89.6%				934	61	91.6%	63.0	0.1	24.1	0.7	C
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,288	77	88.7%							63.5	0.2	18.6	0.6	C
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,288	77	88.7%	391	35	91.0%				62.9	0.2	18.1	0.7	B
148	SR-65 SB - Placer Pkwy EB On-ramp	Merge	2,680	90	89.0%	669	45	94.2%				61.7	0.2	20.7	0.9	C
101	SR-65 SB - Sunset Blvd Off-ramp	Diverge	3,348	94	90.0%				578	38	94.7%	62.8	0.2	21.9	0.8	C
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	2,770	84	89.1%							62.9	0.2	22.4	0.9	C
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	2,769	81	89.0%	741	57	114.0%				50.5	3.7	32.4	4.8	D
104	SR 65 SB - Sunset Blvd to Blue Oaks Blvd	Weave	3,503	102	93.2%	806	40	93.7%	818	56	94.1%	62.2	0.3	24.0	0.6	C
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,482	105	92.9%							62.1	0.6	25.9	0.5	C
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,482	106	92.8%	366	28	96.2%				56.8	1.0	27.9	0.8	C
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,843	113	93.1%	1,014	70	74.0%	731	62	97.5%	61.0	0.3	26.3	0.7	C
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,119	117	86.7%							62.8	0.2	29.2	0.9	D
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,119	114	86.7%	332	27	79.0%				62.1	0.3	22.3	0.6	C
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,452	118	86.1%	1,012	50	95.5%				59.1	1.5	28.8	0.8	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,461	122	87.7%							60.5	1.1	32.0	0.9	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,461	122	87.7%				1,411	78	86.6%	60.2	7.6	32.7	8.4	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,046	99	88.0%							56.9	10.6	38.5	15.0	E
117	SR-65 SB - Galleria Blvd On-ramp	Merge	4,040	109	87.8%	828	66	72.6%				50.7	9.0	39.5	9.7	E
118	SR-65 SB - I-80 WB Off-ramp	Diverge	4,866	123	84.8%				2,994	108	83.9%	57.4	12.1	30.6	13.1	D
125	SR-65 NB - I-80 WB On-ramp	Merge	2,543	79	58.7%	1,857	124	91.5%				27.1	0.5	83.6	1.5	F
126	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,397	85	69.1%							60.0	1.8	36.0	2.0	E
127	SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	4,397	85	69.1%				804	56	56.2%	61.0	1.3	32.4	1.1	D
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,594	85	72.9%							63.2	0.1	27.1	0.6	D
129	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Weave	3,593	86	72.9%	1,453	57	91.9%	842	55	83.4%	60.8	0.4	29.8	0.7	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	4,203	93	76.4%							62.7	0.2	30.2	0.7	D
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	4,200	92	76.4%	741	49	102.9%	1,847	93	91.0%	62.7	0.1	25.2	0.5	C
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	3,095	88	73.9%							63.5	0.1	21.3	0.7	C
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	3,095	84	73.9%	331	42	49.5%				60.4	0.7	23.1	0.9	C
136	SR-65 NB - Blue Oaks Blvd to HOV Lane End	Basic	3,424	101	70.5%							63.2	0.2	24.3	0.9	C
162	SR-65 NB - HOV Lane End to Sunset Blvd	Basic	3,422	99	70.4%							63.1	0.2	22.2	0.7	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	3,423	100	70.4%				931	60	82.4%	63.6	0.1	21.0	0.5	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	2,492	91	66.8%							63.5	0.2	20.4	1.0	C
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	2,491	89	66.8%	257	22	102.6%				62.2	0.5	21.4	1.1	C
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	2,746	96	69.0%	712	46	101.7%	994	66	78.3%	63.2	0.2	20.5	0.7	C
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	2,459	91	72.1%							63.6	0.2	20.0	0.8	C
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	2,459	91	72.1%	588	25	103.1%				55.4	1.5	25.2	1.2	C
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,047	88	76.6%	487	13	110.7%				62.1	0.4	28.7	0.8	D
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	3,533	90	79.9%							62.6	0.2	29.9	0.8	D
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	3,532	87	79.9%				529	36	67.8%	62.1	0.5	30.4	0.8	D
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	3,001	91	82.5%							62.9	0.4	25.8	0.7	C
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,997	90	82.3%	1,021	14	102.1%	1,307	57	82.7%	62.8	0.3	23.8	0.5	C
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	2,709	67	88.5%							63.8	0.1	21.4	0.4	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	2,707	66	88.5%				1,653	48	88.8%	63.5	0.2	21.1	0.4	C
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	1,055	55	87.9%							64.4	0.1	9.1	0.5	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	1,055	53	87.9%	117	5	97.3%				63.2	0.2	9.1	0.5	A

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Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Parkway	Signal	3,834	3,899	101.7%	88.0	12.7	F
2	SR 65 SB Ramps/Twelve Bridges Dr	Signal	2,106	2,271	107.8%	56.6	21.7	E
3	SR 65 NB Ramps/Twelve Bridges Dr	Signal	2,223	2,219	99.8%	50.6	8.5	D
4	SR 65 SB Ramps/Sunset Blvd	Signal	3,337	3,422	102.6%	29.4	19.3	C
5	SR 65 NB Ramps/Sunset Blvd	Signal	3,598	3,883	107.9%	56.3	73.6	E
6	SR 65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	6,004	5,015	83.5%	136.3	22.8	F
7	SR 65 NB Ramps/Blue Oaks Blvd	Signal	3,280	3,152	96.1%	115.5	19.8	F
8	SR 65 SB Ramps/Pleasant Grove Blvd	Signal	4,220	4,370	103.6%	12.3	8.6	B
9	SR 65 NB Ramps/Pleasant Grove Blvd	Signal	3,324	3,345	100.6%	30.4	12.9	C
10	Stanford Ranch Road/Five Star Blvd	Signal	3,228	2,901	89.9%	150.9	45.4	F
11	SR 65 NB Ramps/Stanford Ranch Rd	Signal	3,873	3,615	93.3%	126.9	20.2	F
12	SR 65 SB Ramps/Galleria Blvd	Signal	4,427	4,189	94.6%	37.7	18.3	D
13	Galleria Blvd/Antelope Creek Dr	Signal	3,438	3,327	96.8%	10.8	1.8	B
14	Galleria Blvd/Roseville Pkwy	Signal	6,731	6,923	102.9%	39.3	3.0	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,357	4,290	98.5%	10.2	2.4	B
16	Taylor Road/East Roseville Pkwy	Signal	5,810	5,918	101.9%	98.2	16.4	F
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,411	5,456	100.8%	29.7	3.0	C
18	Wills Rd/Atlantic St	Signal	2,499	2,605	104.3%	20.1	2.4	C
19	I-80 WB Ramps/Atlantic St	Signal	3,959	4,160	105.1%	12.0	6.9	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	6,193	5,181	83.7%	55.3	11.9	E
21	North Sunrise Ave/Eureka Rd	Signal	4,583	4,750	103.6%	29.2	2.0	C
22	Harding Blvd/Wills Rd	Signal	2,662	2,812	105.6%	17.7	2.4	B
23	Harding Blvd/Douglas Blvd	Signal	3,363	3,120	92.8%	24.8	2.2	C
24	I-80 WB Ramps/Douglas Blvd	Signal	3,849	3,825	99.4%	49.7	12.5	D

Network Summary	
Total Demand Volume (veh/hr)	96,309
Total Volume Served (veh/hr)	94,648
Percent Served	98.3%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	4,176	4,335	103.8%	35.1	33.3	D
26	North Sunrise Ave/Douglas Blvd	Signal	4,608	4,911	106.6%	34.5	7.9	C
27	Pacific St/Woodside Dr	Signal	2,619	2,539	96.9%	12.1	12.3	B
28	Pacific St/Sunset Blvd	Signal	4,029	4,140	102.8%	32.3	2.2	C
29	Granite Dr/Rocklin Rd	Roundabout	3,112	3,046	97.9%	29.1	31.6	D
30	I-80 WB Ramps/Rocklin Rd	Roundabout	3,153	3,078	97.6%	13.4	9.1	B
31	I-80 EB Ramps/Rocklin Rd	Roundabout	3,177	3,199	100.7%	6.2	1.4	A
32	Aguilar Rd/Rocklin Rd	Roundabout	2,359	2,528	107.2%	4.5	0.5	A
253	Galleria Blvd/Berry St	Signal	2,659	2,765	104.0%	15.4	3.0	B
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	3,526	3,502	99.3%	98.3	5.7	F
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,403	2,319	96.5%	93.0	4.5	F
35	SR 65 SB Ramps/Placer Pkwy	Signal	3,860	4,089	105.9%	35.1	8.6	D
36	SR 65 NB Ramps/Whitney Ranch Pkwy	Signal	3,799	3,879	102.1%	17.4	5.6	B

Network Summary	
Total Demand Volume (veh/hr)	43,480
Total Volume Served (veh/hr)	44,329
Percent Served	102.0%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	4,705	4,064	86.4%	94.3	2.6	F
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	2,236	2,261	101.1%	25.7	30.6	C
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	2,492	2,218	89.0%	77.2	21.7	E
4	SR-65 SB Ramps/Sunset Blvd	Signal	4,238	4,167	98.3%	23.4	9.8	C
5	SR-65 NB Ramps/Sunset Blvd	Signal	4,445	4,449	100.1%	23.4	24.5	C
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	7,081	5,090	71.9%	441.5	19.3	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	4,189	3,166	75.6%	115.2	10.6	F
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	6,352	6,323	99.5%	9.0	0.8	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	5,215	5,123	98.2%	10.4	0.6	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	4,967	4,297	86.5%	36.1	2.0	D
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	6,233	5,327	85.5%	35.6	10.5	D
12	SR-65 SB Ramps/Galleria Blvd	Signal	6,476	5,808	89.7%	28.5	17.9	C
13	Galleria Blvd/Antelope Creek Dr	Signal	4,957	4,271	86.2%	23.7	2.3	C
14	Galleria Blvd/Roseville Pkwy	Signal	9,326	6,768	72.6%	213.2	15.2	F
15	Creekside Ridge Dr/Roseville Pkwy	Signal	5,414	3,755	69.4%	23.9	5.9	C
16	Taylor Rd/East Roseville Pkwy	Signal	7,545	5,719	75.8%	48.2	3.6	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	6,475	5,026	77.6%	251.4	16.0	F
18	Wills Rd/Atlantic St	Signal	3,587	3,263	91.0%	49.0	31.8	D
19	I-80 WB Ramps/Atlantic St	Signal	5,165	4,410	85.4%	51.3	39.9	D
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	6,750	5,732	84.9%	91.9	21.9	F
21	North Sunrise Ave/Eureka Rd	Signal	6,472	6,039	93.3%	183.6	19.1	F
22	Harding Blvd/Wills Rd	Signal	3,601	3,217	89.3%	27.1	14.0	C
23	Harding Blvd/Douglas Blvd	Signal	4,006	2,460	61.4%	292.7	63.2	F
24	I-80 WB Ramps/Douglas Blvd	Signal	4,647	2,707	58.2%	236.6	48.7	F

Network Summary	
Total Demand Volume (veh/hr)	126,574
Total Volume Served (veh/hr)	105,660
Percent Served	83.5%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Design Year - Alt 5 (No Build)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,261	2,637	50.1%	123.6	27.8	F
26	North Sunrise Ave/Douglas Blvd	Signal	6,288	3,007	47.8%	390.6	81.5	F
27	Pacific St/Woodside Dr	Signal	3,576	2,796	78.2%	16.5	26.8	B
28	Pacific St/Sunset Blvd	Signal	5,977	5,389	90.2%	35.0	1.9	C
29	Granite Dr/Rocklin Rd	Roundabout	4,383	2,973	67.8%	298.5	90.3	F
30	I-80 WB Ramps/Rocklin Rd	Roundabout	3,994	3,026	75.8%	99.1	51.5	F
31	I-80 EB Ramps/Rocklin Rd	Roundabout	3,725	2,781	74.7%	35.9	21.5	E
32	Aguilar Rd/Rocklin Rd	Roundabout	2,975	2,416	81.2%	123.4	89.5	F
253	Galleria Blvd/Berry St	Signal	3,448	2,944	85.4%	20.2	29.7	C
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	4,128	3,530	85.5%	97.6	1.8	F
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	2,554	2,231	87.3%	101.2	1.6	F
35	SR-65 SB Ramps/Placer Pkwy	Signal	4,901	4,804	98.0%	28.0	11.4	C
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	4,553	4,412	96.9%	36.3	24.8	D

Network Summary	
Total Demand Volume (veh/hr)	55,763
Total Volume Served (veh/hr)	42,945
Percent Served	77.0%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

I-80/SR 65 Interchange Improvements

Vissim Model Results – Construction Year Alternative 1 (Taylor Road Full Access Interchange)

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Network Statistics | **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	168,987	26
Travel Distance [mi]	All Vehicles	794,081	1,325
Travel Time [h]	All Vehicles	16,987	122.5
Average Speed [mph]	All Vehicles	46.7	0.3
Total Delay [h]	All Vehicles	3,365	107.1
Average Delay per Vehicle [s]	All Vehicles	70	2.2
VHD/VMT [min/mile]	All Vehicles	0.25	0.01
Number of Vehicles Served	HOV	32,849	15
Travel Distance [mi]	HOV	164,392	414
Travel Time [h]	HOV	3,353	18
Average Speed [mph]	HOV	49.0	0.2
Total Delay [h]	HOV	562	15
Average Delay per Vehicle [s]	HOV	60	2
VHD/VMT [min/mile]	HOV	0.21	0.01
Number of Vehicles Served	Truck	7,706	12
Travel Distance [mi]	Truck	38,361	333
Travel Time [h]	Truck	836	9
Average Speed [mph]	Truck	45.9	0
Total Delay [h]	Truck	173	7
Average Delay per Vehicle [s]	Truck	79	3
VHD/VMT [min/mile]	Truck	0.27	0.01

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	32,850	7,710	168,990
Demand Volume	33,900	8,270	169,890
Percent Demand Served	96.9%	93.2%	99.5%
Vehicle Miles of Travel	164,390	38,360	794,080
Person Miles of Travel	345,220	40,280	976,830
Vehicle Hours of Travel	3,350	840	16,990
Vehicle Hours of Delay	560	170	3,360
VHD % of VHT	16.7%	20.2%	19.8%
Average Delay per Vehicle (min)	1.02	1.32	1.19
Person Hours of Delay	1,180	180	3,990
Average Travel Speed	49.0	45.9	46.7

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,094	751	15	08:56	00:17	21.9
	I-80 at Auburn to SR-65 at Blue Oaks	32,850	1514	16	06:28	00:09	23.1
	I-80 at Sierra College to I-80 at Antelope	45,839	1135	13	08:48	00:15	23.7
	I-80 at Auburn to I-80 at Sierra College	36,732	660	11	06:41	00:09	25.0
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,094	259	7	08:30	00:04	23.0
	I-80 at Auburn to SR-65 at Blue Oaks	32,850	398	7	06:20	00:02	23.5
	I-80 at Sierra College to I-80 at Antelope	45,839	505	6	08:26	00:05	24.7
	I-80 at Auburn to I-80 at Sierra College	36,732	229	7	06:34	00:02	25.4

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Network Statistics | **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	234,966	53
Travel Distance [mi]	All Vehicles	934,494	1,185
Travel Time [h]	All Vehicles	21,495	40.3
Average Speed [mph]	All Vehicles	43.5	0.1
Total Delay [h]	All Vehicles	5,075	37.3
Average Delay per Vehicle [s]	All Vehicles	77	0.6
VHD/VMT [min/mile]	All Vehicles	0.33	0.00
Number of Vehicles Served	HOV	46,863	36
Travel Distance [mi]	HOV	199,173	471
Travel Time [h]	HOV	4,409	9
Average Speed [mph]	HOV	45.2	0.1
Total Delay [h]	HOV	952	6
Average Delay per Vehicle [s]	HOV	72	0
VHD/VMT [min/mile]	HOV	0.29	0.00
Number of Vehicles Served	Truck	9,239	7
Travel Distance [mi]	Truck	37,417	160
Travel Time [h]	Truck	870	3
Average Speed [mph]	Truck	43.0	0
Total Delay [h]	Truck	208	1
Average Delay per Vehicle [s]	Truck	80	0
VHD/VMT [min/mile]	Truck	0.33	0.00

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	46,860	9,240	234,970
Demand Volume	47,310	9,720	233,220
Percent Demand Served	99.0%	95.1%	100.8%
Vehicle Miles of Travel	199,170	37,420	934,490
Person Miles of Travel	418,260	39,290	1,155,450
Vehicle Hours of Travel	4,410	870	21,500
Vehicle Hours of Delay	950	210	5,080
VHD % of VHT	21.5%	24.1%	23.6%
Average Delay per Vehicle (min)	1.22	1.36	1.30
Person Hours of Delay	2,000	220	6,140
Average Travel Speed	45.2	43.0	43.5

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,094	854	13	08:21	00:03	23.4
	I-80 at Auburn to SR-65 at Blue Oaks	32,850	1571	18	06:26	00:02	23.2
	I-80 at Sierra College to I-80 at Antelope	45,839	497	11	08:20	00:02	25.0
	I-80 at Auburn to I-80 at Sierra College	36,732	710	15	06:38	00:01	25.2
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,094	132	5	08:19	00:02	23.6
	I-80 at Auburn to SR-65 at Blue Oaks	32,850	506	8	06:23	00:02	23.4
	I-80 at Sierra College to I-80 at Antelope	45,839	206	6	08:13	00:02	25.4
	I-80 at Auburn to I-80 at Sierra College	36,732	289	10	06:35	00:01	25.4

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph) Avg.	St. Dev.	%	On-ramp Volume (vph) Avg.	St. Dev.	%	Off-ramp Volume (vph) Avg.	St. Dev.	%	Speed (mph) Avg.	St. Dev.	Density (vplpm) Avg.	St. Dev.	LOS
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,343	52	110.1%	1,105	26	111.6%				61.8	0.8	29.1	0.6	D
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,442	76	110.2%							58.4	2.4	35.6	2.0	E
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,430	87	110.1%				1,382	79	108.0%	60.6	1.4	29.8	0.8	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,044	64	110.4%				425	38	111.9%	62.0	1.4	24.4	1.2	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,618	68	110.3%							62.9	0.3	25.9	0.3	C
6	I-80 EB - Douglas Blvd On-ramp	Merge	6,618	71	110.3%	1,071	35	100.1%				58.7	4.0	35.3	4.8	E
7	I-80 EB - Eureka Rd Off-ramp	Diverge	7,691	91	108.8%				1,599	84	105.9%	58.1	3.6	37.5	4.5	E
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	6,083	114	109.4%							63.0	0.2	24.9	0.3	C
9	I-80 EB - Eureka Rd EB On-ramp	Merge	6,083	119	109.4%	182	31	107.2%				62.8	0.1	22.6	0.3	C
10	I-80 EB - Eureka Rd to SR-65	Weave	6,264	120	109.3%	810	47	106.6%	4,232	88	108.2%	62.9	0.2	20.0	0.2	C
11	I-80 EB - SR-65 Off-ramp to Taylor Rd Off-ramp	Basic	2,844	118	110.2%							63.7	0.3	15.2	0.7	B
12	I-80 EB - Taylor Rd Off-ramp	Diverge	2,844	117	110.2%				314	35	104.8%	63.9	0.1	14.7	0.6	B
13	I-80 EB - Taylor Rd Off to On-ramp	Basic	2,536	96	111.2%							64.0	0.1	14.6	0.5	B
18	I-80 EB - Taylor Rd On-ramp	Merge	2,536	99	111.2%	193	26	92.0%				64.0	0.1	15.9	0.6	B
19	I-80 EB - SR-65 On-ramp	Merge	2,731	107	109.7%	1,654	71	109.6%				62.2	0.3	26.6	0.7	C
20	I-80 EB - SR-65 to Rocklin Rd	Basic	4,385	115	109.6%							63.1	0.1	22.1	0.6	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,402	136	110.0%				1,353	86	107.4%	63.6	0.1	21.2	0.5	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,050	97	111.3%							63.6	0.2	19.2	0.6	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,054	97	111.5%	203	30	106.7%				60.8	0.9	19.8	0.7	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,261	103	111.3%							63.4	0.1	20.1	0.7	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,262	104	111.3%				437	32	109.4%	62.8	0.3	21.3	0.9	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,826	103	111.7%							63.6	0.2	18.2	0.7	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,830	106	111.8%	130	7	100.3%				62.7	0.3	17.1	0.7	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	2,962	106	111.3%	418	16	112.9%				62.2	0.3	18.9	0.7	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,803	21	105.8%				817	50	106.1%	56.7	1.8	27.6	0.8	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,983	62	105.7%							62.2	0.5	24.2	0.5	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,985	68	105.7%	50	4	82.8%				63.1	0.2	21.5	0.4	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	4,033	72	105.3%	304	9	104.8%				61.5	0.8	23.0	0.4	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,331	74	105.1%							62.5	0.4	25.8	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,328	71	105.0%				249	31	103.8%	61.7	0.4	26.5	0.3	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,074	82	105.0%							63.1	0.2	24.4	0.5	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,076	80	105.0%	887	51	98.6%				60.0	1.2	25.8	0.5	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,953	95	103.6%							61.3	0.5	28.4	0.4	D
47	I-80 WB - SR-65 Off-ramp	Diverge	4,953	90	103.6%				1,315	70	103.6%	63.4	0.3	22.3	0.4	C
48	I-80 WB - Taylor Rd Off-ramp	Diverge	3,633	92	103.5%				428	41	97.2%	63.2	0.3	19.4	0.5	B
49	I-80 WB - Taylor Rd Off to On-ramp	Basic	3,201	99	104.3%							63.7	0.1	17.3	0.3	B
50	I-80 WB - Taylor Rd On-ramp	Merge	3,197	102	104.1%	777	55	110.9%				62.2	0.4	20.3	0.6	C
60	I-80 WB - SR-65 to Atlantic St	Weave	3,969	120	105.3%	4,176	118	104.7%	307	29	99.0%	59.6	1.0	24.9	0.6	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,835	155	105.2%				920	61	107.0%	59.8	2.2	29.0	2.8	D
63	I-80 WB - Atlantic St Off to On-ramp	Basic	6,916	146	104.9%							57.4	6.4	33.7	5.5	D
64	I-80 WB - Atlantic St On-ramp	Merge	6,915	145	104.9%	883	36	109.0%				39.4	11.5	47.1	14.0	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,792	149	105.3%				1,033	54	104.4%	44.5	4.8	51.0	7.0	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,765	172	105.5%							39.1	10.2	63.5	17.8	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,767	185	105.6%	995	64	107.0%				25.8	3.4	98.7	15.7	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,762	196	105.7%	458	25	108.9%				28.3	0.7	77.1	1.5	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,219	189	105.9%							59.0	1.3	35.6	1.4	E
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,189	158	105.5%				771	50	97.6%	62.0	0.1	30.0	0.9	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	7,416	150	106.4%							62.1	0.1	35.0	0.6	E
72	I-80 WB - Riverside Ave NB On-ramp	Merge	7,416	154	106.4%	242	12	73.4%				62.7	0.1	28.1	0.5	D
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,660	147	104.9%	936	19	94.6%				62.5	0.3	27.1	0.8	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,601	157	103.7%							62.0	0.2	31.8	0.5	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,603	151	103.8%				385	32	96.2%	61.5	0.5	32.7	0.6	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	8,223	155	104.2%							62.2	0.3	30.8	0.4	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	8,225	155	104.2%	579	21	99.8%				61.1	1.0	30.9	1.0	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,807	154	104.0%	408	11	88.7%	91	21	90.9%	51.8	7.8	39.7	8.5	E
79	I-80 WB - Truck Scales Off to On-ramp	Basic	9,210	176	104.3%							35.8	10.3	70.1	17.6	F
80	I-80 WB - Truck Scales On-ramp	Merge	9,253	192	104.8%	92	17	91.8%				27.3	8.7	87.5	16.0	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	9,422	167	105.5%							35.5	4.5	66.7	8.1	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	9,433	166	105.6%				797	54	107.7%	35.2	2.8	56.0	5.1	F
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	8,726	154	106.5%							26.9	0.5	91.9	2.1	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	8,768	162	107.1%	860	18	102.3%				27.0	0.5	95.6	1.5	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	9,685	138	107.3%	878	27	95.4%				33.0	0.3	76.3	1.0	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
AM Peak Period

	Location	Facility Type	Mainline Volume (vph) Avg.	St. Dev.	%	On-ramp Volume (vph) Avg.	St. Dev.	%	Off-ramp Volume (vph) Avg.	St. Dev.	%	Speed (mph) Avg.	St. Dev.	Density (vplpm) Avg.	St. Dev.	LOS
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	526	6	116.9%				19	8	93.0%	64.6	0.2	7.2	0.1	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	509	16	118.5%							64.5	0.2	7.0	0.2	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	510	17	118.5%	889	22	107.1%				59.7	0.3	11.3	0.1	B
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,400	30	111.1%	832	15	109.5%				59.1	0.5	16.3	0.4	B
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,232	39	110.5%							61.9	1.2	26.5	0.8	D
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,233	45	110.5%							62.3	0.6	25.3	0.5	C
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,234	44	110.6%	1,278	53	105.6%	341	39	106.5%	58.3	2.0	26.7	0.9	C
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,169	73	108.9%							57.2	8.4	33.4	6.2	D
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	3,170	80	108.9%	657	39	113.2%				50.3	7.9	40.4	6.9	E
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,826	102	109.6%							60.3	0.8	36.0	0.9	E
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,825	99	109.6%				430	48	113.0%	61.6	0.9	32.9	0.8	D
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	3,396	88	109.2%							62.2	0.7	30.0	0.7	D
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	3,393	92	109.1%	350	27	106.0%				55.7	8.2	35.2	6.6	E
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	3,740	91	108.7%	148	21	105.4%	440	43	107.4%	60.6	0.9	30.8	0.9	D
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,441	110	108.6%							57.3	9.1	33.1	8.2	D
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,441	107	108.5%	361	27	112.7%				47.2	13.8	44.9	17.9	E
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,802	112	108.9%	452	24	105.0%				43.6	7.2	50.6	8.8	F
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	4,256	126	108.6%							54.2	3.3	42.3	3.2	E
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	4,257	123	108.6%				829	49	109.1%	58.7	3.4	38.8	2.4	E
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,426	104	108.4%							61.5	3.0	30.5	2.3	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,424	107	108.4%	412	40	105.6%				49.9	8.9	39.5	9.5	E
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,834	94	108.0%	1,135	52	102.3%	727	65	110.1%	50.3	6.5	40.1	6.5	E
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,241	106	106.0%							60.4	1.1	37.5	1.2	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,240	110	106.0%	660	39	104.8%				60.4	0.4	29.0	0.6	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,901	124	105.8%	741	37	104.4%				58.4	3.2	31.6	2.1	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,646	130	105.7%							60.4	0.9	33.0	0.8	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,647	129	105.7%				917	58	103.0%	62.2	0.4	28.0	0.6	C
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,736	112	106.4%							62.6	0.2	26.8	0.6	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,739	114	106.5%	1,071	51	102.0%	4,165	112	104.4%	60.5	0.5	24.3	0.4	C
120	SR-65 SB to EB I-80 Connector	Basic	1,645	68	108.9%							56.3	0.4	17.4	0.7	B
121	SR-65 SB to WB I-80 Connector	Basic	3,312	101	98.6%							55.3	0.4	23.2	0.4	C
123	SR-65 NB from WB I-80 Connector	Basic	1,316	73	103.7%							56.7	0.1	13.9	0.8	B
125	SR-65 NB from EB I-80 Connector	Basic	3,498	83	108.3%							54.1	0.1	23.9	0.4	C
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	3,501	87	108.4%	2,051	83	105.2%	1,073	65	104.1%	60.9	0.2	21.1	0.4	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	4,486	105	108.1%							62.5	0.4	23.1	0.5	C
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	4,486	115	108.1%	407	47	101.6%				55.9	4.0	11.2	1.7	B
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,894	125	107.6%							54.6	4.6	37.2	3.7	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,894	125	107.6%				898	57	99.8%	57.2	3.6	34.6	2.9	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,996	106	109.5%							61.2	0.7	37.0	0.8	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	4,000	99	109.6%	216	30	98.0%	1,904	79	111.4%	62.6	0.2	27.7	0.5	C
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,318	100	107.3%							63.5	0.2	20.3	1.0	C
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,319	100	107.4%	540	29	98.1%				59.9	0.9	22.9	1.1	C
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,860	111	105.5%							62.1	0.5	25.1	1.2	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,858	106	105.4%				1,214	73	104.7%	63.5	0.2	19.6	0.8	B
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	1,641	70	105.9%							63.7	0.2	15.0	0.6	B
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	1,641	70	105.9%	59	16	99.0%				63.6	0.2	14.8	0.6	B
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	1,702	77	105.7%	192	26	113.1%	325	38	98.5%	63.5	0.2	14.4	0.5	B
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	1,570	71	108.2%							63.6	0.2	14.4	0.5	B
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	1,571	74	108.3%	200	19	105.0%				63.1	0.2	14.8	0.6	B
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	1,771	74	108.0%	209	30	110.2%				62.8	0.3	16.3	0.5	B
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	1,978	77	108.1%							63.0	0.4	18.0	0.6	B
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	1,977	78	108.1%				404	44	96.3%	63.1	0.2	18.1	0.6	B
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	1,576	73	111.8%							63.6	0.2	15.1	0.5	B
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	1,578	71	111.9%	266	26	106.5%	867	46	114.1%	63.8	0.1	12.6	0.4	B
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	978	52	108.7%							64.0	0.2	10.8	0.6	A
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	979	52	108.7%				687	47	107.3%	64.4	0.1	8.9	0.5	A
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	292	32	112.4%							64.7	0.3	3.0	0.3	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	293	34	112.6%	15	3	74.5%				64.3	0.2	3.0	0.2	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,711	43	102.0%	980	21	96.1%				61.5	1.0	27.4	0.4	C
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,695	51	101.3%							60.9	0.7	32.2	0.4	D
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,689	68	101.3%				1,163	62	101.1%	61.5	0.9	28.8	0.6	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,529	84	101.3%				647	47	102.7%	62.0	1.2	25.0	0.8	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,881	93	101.2%							63.0	0.2	25.0	0.4	C
6	I-80 EB - Douglas Blvd On-ramp	Merge	6,885	87	101.2%	1,772	49	101.8%				60.5	1.1	32.6	1.0	D
7	I-80 EB - Eureka Rd Off-ramp	Diverge	8,659	115	101.4%				1,190	54	100.8%	60.3	0.9	35.2	0.9	E
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	7,467	118	101.5%							62.8	0.2	27.3	0.4	D
9	I-80 EB - Eureka Rd EB On-ramp	Merge	7,469	119	101.5%	241	31	104.9%				62.2	0.2	26.2	0.4	C
10	I-80 EB - Eureka Rd to SR-65	Weave	7,708	123	101.6%	1,269	68	99.1%	5,291	112	101.8%	61.5	0.5	23.8	0.6	C
11	I-80 EB - SR-65 Off-ramp to Taylor Rd Off-ramp	Basic	3,686	137	100.4%							63.5	0.1	16.6	0.8	B
12	I-80 EB - Taylor Rd Off-ramp	Diverge	3,685	136	100.4%				577	50	97.8%	63.9	0.2	15.8	0.7	B
13	I-80 EB - Taylor Rd Off to On-ramp	Basic	3,105	123	100.8%							63.8	0.3	15.4	0.6	B
18	I-80 EB - Taylor Rd On-ramp	Merge	3,104	123	100.8%	128	22	91.6%				64.1	0.1	16.5	0.7	B
19	I-80 EB - SR-65 On-ramp	Merge	3,231	121	100.3%	2,067	69	99.4%				61.8	0.4	28.2	0.6	D
20	I-80 EB - SR-65 to Rocklin Rd	Basic	5,299	120	100.0%							62.8	0.2	23.6	0.5	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	5,295	149	99.9%				1,353	61	99.5%	63.4	0.1	22.8	0.5	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,937	130	99.9%							63.4	0.2	21.7	0.6	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,936	125	99.9%	259	21	99.6%				60.5	0.5	22.3	0.5	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	4,193	131	99.8%							63.2	0.1	22.9	0.6	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	4,195	128	99.9%				316	33	98.6%	62.2	1.0	24.3	0.8	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	3,879	119	100.0%							63.3	0.2	21.8	0.7	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	3,878	122	100.0%	255	9	102.1%				61.3	0.4	20.8	0.7	C
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	4,134	136	100.1%	598	12	101.3%				60.9	0.4	24.1	0.8	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	3,601	23	105.9%				563	45	106.2%	61.1	0.5	19.0	0.2	B
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,034	59	105.7%							63.8	0.3	17.9	0.3	B
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,035	57	105.7%	150	7	99.9%				63.5	0.1	16.6	0.5	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,183	55	105.4%	251	8	100.6%				62.7	0.2	17.6	0.4	B
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	3,431	62	104.9%							63.4	0.1	19.7	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	3,429	64	104.9%				275	37	102.0%	63.0	0.2	20.6	0.4	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,148	60	104.9%							63.6	0.2	18.6	0.4	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,147	59	104.9%	1,463	67	102.3%				59.1	1.2	24.2	0.7	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,607	106	104.0%							61.6	0.5	26.7	0.7	D
47	I-80 WB - SR-65 Off-ramp	Diverge	4,602	100	103.9%				1,581	71	102.0%	63.7	0.1	20.1	0.3	C
48	I-80 WB - Taylor Rd Off-ramp	Diverge	3,018	86	104.8%				268	26	103.0%	63.7	0.4	15.6	0.7	B
49	I-80 WB - Taylor Rd Off to On-ramp	Basic	2,749	78	104.9%							64.0	0.2	14.8	0.5	B
50	I-80 WB - Taylor Rd On-ramp	Merge	2,748	79	104.9%	594	43	100.6%				62.8	0.5	16.2	0.6	B
60	I-80 WB - SR-65 to Atlantic St	Weave	3,340	82	104.1%	3,611	115	98.6%	369	44	97.1%	61.6	0.4	20.4	0.4	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	6,584	139	101.5%				904	55	101.5%	62.3	0.5	22.0	0.5	C
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	5,680	135	101.4%							62.2	0.3	26.0	0.6	D
64	I-80 WB - Atlantic St On-ramp	Merge	5,678	132	101.4%	1,188	56	100.7%				61.2	0.6	24.8	0.8	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	6,869	145	101.3%				1,061	64	99.2%	60.4	0.6	31.5	1.0	D
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	5,810	141	101.7%							62.8	0.4	29.1	0.7	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	5,807	146	101.7%	1,284	54	100.3%				61.4	0.1	26.2	0.5	C
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,092	159	101.5%	612	26	92.7%				56.0	4.9	25.9	2.8	C
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,705	115	100.7%							61.2	0.5	31.3	0.7	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,705	151	100.7%				999	54	100.9%	62.5	0.1	27.6	0.5	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,705	139	100.7%							62.5	0.1	32.1	0.6	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,705	144	100.7%	203	9	96.7%				62.9	0.1	25.7	0.5	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,909	146	100.6%	746	20	108.2%				61.7	0.7	23.3	0.8	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,650	144	101.2%							62.4	0.2	28.5	0.9	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,649	150	101.2%				951	76	101.1%	61.9	0.8	29.3	1.1	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,702	142	101.2%							62.8	0.4	25.6	0.8	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,698	137	101.2%	359	3	94.4%				60.1	1.3	23.5	1.0	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	7,058	129	100.8%	367	12	99.1%	64	14	106.5%	62.3	0.5	24.7	0.4	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,361	146	100.7%							62.7	0.3	27.1	0.4	D
80	I-80 WB - Truck Scales On-ramp	Merge	7,363	147	100.7%	64	14	106.0%				62.4	0.3	26.6	0.5	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	7,424	151	100.7%							61.5	0.7	28.6	0.4	D
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	7,429	148	100.8%				1,089	73	99.0%	62.0	0.4	26.4	0.6	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	6,334	146	101.0%							62.8	0.4	24.2	0.4	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	6,333	144	101.0%	898	4	99.8%				56.4	1.1	26.5	1.0	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	7,228	150	100.8%	660	22	103.1%				61.6	0.9	28.8	0.7	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
PM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	379	5	34.1%				30	13	98.3%	64.6	0.3	3.3	0.1	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	350	17	32.4%							64.7	0.3	3.0	0.1	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	350	18	32.4%	475	12	101.0%				60.1	0.3	5.2	0.1	A
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	825	25	53.3%	348	11	99.4%				61.1	0.2	6.9	0.2	A
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	1,173	33	61.7%							64.1	0.2	11.7	0.4	B
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	1,173	33	61.8%							64.2	0.2	11.1	0.4	B
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	1,174	33	98.6%	1,169	58	99.9%	262	26	97.0%	61.3	0.5	14.2	0.4	B
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,080	61	99.5%							63.5	0.4	17.1	0.4	B
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,080	58	99.5%	412	33	98.2%				61.3	0.5	19.2	0.4	B
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	2,491	65	99.2%							63.0	0.2	20.6	0.4	C
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	2,492	64	99.3%				460	39	97.9%	63.2	0.2	19.2	0.3	B
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,033	65	99.6%							63.4	0.2	16.8	0.5	B
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,035	65	99.8%	339	28	99.7%				62.2	0.3	18.4	0.5	B
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	2,376	72	99.8%	303	26	101.0%	245	30	98.1%	62.2	0.6	19.8	0.2	B
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	2,436	80	100.2%							62.9	0.3	20.5	0.3	C
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	2,434	83	100.2%	613	32	107.5%				60.1	0.9	24.4	0.5	C
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,044	92	101.5%	716	38	100.8%				56.0	4.8	33.8	3.8	D
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	3,756	111	101.2%							60.2	1.1	33.0	1.8	D
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	3,755	111	101.2%				735	54	96.7%	62.3	0.2	31.4	1.5	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,014	103	102.2%							63.0	0.2	25.4	0.8	C
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,015	105	102.2%	377	17	99.1%				59.8	0.7	27.2	1.0	C
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,393	110	101.9%	1,106	49	102.4%	569	49	98.1%	59.9	0.7	28.6	1.0	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	3,924	106	102.5%							62.0	0.4	32.6	1.1	D
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	3,923	106	102.4%	482	43	100.3%				61.3	0.4	25.6	0.7	C
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,401	109	102.1%	869	48	98.8%				60.6	1.6	27.0	0.9	C
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,272	124	101.6%							61.6	0.6	29.3	0.6	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,272	125	101.6%				1,032	69	102.2%	62.8	0.3	25.0	0.5	C
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,242	91	101.5%							63.0	0.2	24.3	0.8	C
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,245	93	101.5%	1,435	78	92.0%	3,609	116	98.6%	60.3	0.8	22.4	0.5	C
120	SR-65 SB to EB I-80 Connector	Basic	2,068	80	99.4%							56.1	0.3	18.7	0.8	C
121	SR-65 SB to WB I-80 Connector	Basic	3,025	98	90.6%							56.1	0.5	20.1	0.8	C
123	SR-65 NB from WB I-80 Connector	Basic	1,579	69	101.9%							56.4	0.2	16.6	0.7	B
125	SR-65 NB from EB I-80 Connector	Basic	4,276	106	101.6%							53.8	0.2	28.0	0.9	D
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,283	117	101.7%	2,592	93	102.1%	1,752	68	100.1%	59.9	0.3	24.3	0.6	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	5,123	107	102.5%							62.1	0.5	24.9	0.7	C
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	5,122	107	102.4%	787	39	92.6%				53.1	5.0	18.0	2.6	B
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	5,905	112	100.9%							54.3	3.1	38.4	2.9	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	5,905	110	100.9%				1,486	62	101.8%	57.1	2.2	34.9	1.8	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	4,415	87	100.6%							60.8	1.6	37.1	1.3	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	4,415	89	100.6%	587	41	101.2%	1,675	77	100.3%	61.9	0.5	30.2	0.7	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	3,327	85	100.8%							62.4	0.6	27.8	1.0	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	3,326	89	100.8%	706	45	105.3%				51.1	3.9	36.1	3.3	E
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	4,029	107	101.5%							61.0	0.6	34.0	1.4	D
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	4,029	109	101.5%				842	47	102.7%	62.7	0.2	28.9	0.9	D
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	3,185	94	101.1%							62.9	0.1	26.2	0.9	D
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	3,187	91	101.2%	57	18	94.3%				62.5	0.9	26.3	0.7	C
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	3,240	86	100.9%	359	34	105.5%	571	53	103.8%	62.2	0.3	25.2	0.9	C
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	3,028	97	100.9%							62.7	0.3	25.4	1.1	C
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	3,026	93	100.9%	235	29	98.0%				62.0	0.4	26.1	0.9	C
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,261	89	100.7%	255	27	98.2%				61.5	0.3	27.9	0.9	C
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	3,520	98	100.6%							61.3	0.3	30.1	1.0	D
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	3,519	97	100.6%				718	46	102.5%	61.3	0.3	30.4	1.0	D
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,795	90	99.8%							63.0	0.2	23.1	0.7	C
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,790	90	99.6%	294	26	91.9%	1,267	67	100.6%	63.2	0.1	18.7	0.5	B
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	1,815	79	97.6%							63.5	0.1	17.7	0.6	B
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,815	79	97.6%				1,393	60	98.8%	64.1	0.2	13.8	0.4	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	421	46	93.6%							64.7	0.2	3.7	0.6	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	421	44	93.6%	29	3	97.3%				64.0	0.2	3.8	0.5	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	2,445	2,691	110.1%	11.4	1.2	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,165	1,295	111.2%	11.8	1.4	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,300	1,383	106.4%	10.4	0.8	B
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,330	2,500	107.3%	10.8	1.3	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,505	2,698	107.7%	13.8	1.0	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks	Signal	4,645	4,857	104.6%	33.1	2.7	C
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,050	3,281	107.6%	11.5	1.2	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	3,905	4,460	114.2%	11.0	4.9	B
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	3,070	3,118	101.6%	14.0	0.6	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	2,900	3,011	103.8%	24.3	1.2	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,075	3,228	105.0%	6.6	0.9	A
12	SR-65 SB Ramps/Galleria Blvd	Signal	2,980	3,035	101.8%	19.6	1.3	B
13	Galleria Blvd/Antelope Creek Dr	Signal	1,945	1,940	99.7%	9.3	1.9	A
14	Galleria Blvd/Roseville Pkwy	Signal	4,196	4,525	107.8%	31.3	1.6	C
15	Creekside Ridge Dr/Roseville Pkwy	Signal	2,830	3,020	106.7%	6.2	1.1	A
16	Taylor Rd/East Roseville Pkwy	Signal	4,365	4,597	105.3%	46.6	7.6	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	4,150	4,400	106.0%	27.7	3.0	C
18	Wills Rd/Atlantic St	Signal	1,905	2,102	110.3%	18.9	15.3	B
19	I-80 WB Ramps/Atlantic St	Signal	3,015	3,263	108.2%	28.7	17.4	C
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	4,561	4,860	106.6%	25.5	3.5	C
21	North Sunrise Ave/Eureka Rd	Signal	4,370	4,635	106.1%	36.2	5.3	D
22	Harding Blvd/Wills Rd	Signal	1,730	1,863	107.7%	15.5	3.8	B
23	Harding Blvd/Douglas Blvd	Signal	2,625	2,875	109.5%	21.7	4.7	C
24	I-80 WB Ramps/Douglas Blvd	Signal	3,705	4,018	108.4%	11.8	1.0	B

Network Summary	
Total Demand Volume (veh/hr)	72,767
Total Volume Served (veh/hr)	77,655
Percent Served	106.7%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	4,070	4,412	108.4%	8.7	0.5	A
26	North Sunrise Ave/Douglas Blvd	Signal	4,385	4,699	107.2%	35.4	2.3	D
27	Pacific St/Woodside Dr	Signal	1,895	2,099	110.8%	7.0	0.4	A
28	Pacific St/Sunset Blvd	Signal	2,695	2,983	110.7%	21.5	1.4	C
29	Granite Dr/Rocklin Rd	Signal	2,146	2,238	104.3%	18.2	1.0	B
30	I-80 WB Ramps/Rocklin Rd	Signal	2,465	2,578	104.6%	29.2	3.3	C
31	I-80 EB Ramps/Rocklin Rd	Signal	2,590	2,815	108.7%	38.8	9.8	D
32	Aguilar Rd/Rocklin Rd	Signal	1,990	2,182	109.7%	19.5	13.2	B
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,390	2,617	109.5%	9.1	0.8	A
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,630	1,739	106.7%	26.1	2.5	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,680	1,839	109.5%	11.9	0.7	B
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,645	1,763	107.2%	8.9	1.1	A
37	Taylor Rd/I-80 Ramps	Signal	2,535	2,706	106.7%	21.0	1.5	C
40	Galleria Blvd/Berry St	Signal	1,590	1,696	106.7%	10.7	13.0	B

Network Summary	
Total Demand Volume (veh/hr)	33,706
Total Volume Served (veh/hr)	36,366
Percent Served	107.9%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	27	8	167	48	NO
	Through						
	Right Turn	1500	28	8	167	48	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	7	2	61	15	NO
	Through						
	Right Turn	1500	7	2	61	15	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	49	7	171	24	NO
	Through						
	Right Turn	1330	51	7	173	24	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	71	6	279	40	NO
	Through						
	Right Turn	1400	9	2	89	23	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	28	6	141	21	NO
	Through	2260	69	5	266	33	NO
	Right Turn	200	0	0	21	35	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	30	13	206	31	NO
	Through						
	Right Turn	1100	30	13	205	31	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	26	4	148	17	NO
	Through						
	Right Turn	1130	29	4	150	17	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	40	6	159	24	NO
	Through						
	Right Turn	1420	40	6	159	24	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	0	0	49	24	NO
WB	Left Turn						
	Through						
	Right Turn	1170	0	0	0	0	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	42	3	215	27	NO
WB	Left Turn						
	Through						
	Right Turn	1780	0	0	44	35	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	95	19	511	553	MAX
	Through	1700	68	5	378	337	NO
	Right Turn	1700	16	10	315	595	NO
SB	Left Turn	550	16	5	67	18	NO
	Through						
	Right Turn	550	22	2	111	29	NO
EB	Left Turn	1120	38	3	133	34	NO
	Through	1120	56	14	508	96	NO
	Right Turn	810	2	2	149	84	NO
WB	Left Turn						
	Through	1370	55	13	401	55	NO
	Right Turn	280	1	0	43	22	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	68	70	343	70	NO
	Through	1530	68	70	343	70	NO
	Right Turn	730	68	70	343	70	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Alt 1 (Full Taylor)**
Queue Length **AM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	0	0	35	76	NO
SB	Left Turn						
	Through						
	Right Turn	1250	15	3	123	22	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	19	11	183	74	NO
	Through						
	Right Turn	1230	27	14	204	74	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	57	7	258	62	NO
	Through						
	Right Turn	1080	35	12	271	65	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **AM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	21	6	158	24	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	27	10	210	38	NO
	Through						
	Right Turn	1650	27	10	210	38	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	32	4	151	31	NO
	Through						
	Right Turn	1620	32	4	151	31	NO

Intersection 37 **Taylor Rd/I-80 Ramps** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	700	54	25	389	35	NO
	Through						
	Right Turn	700	3	1	60	15	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	3,020	3,030	100.3%	12.4	1.2	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,055	1,023	97.0%	10.7	1.4	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,485	1,475	99.3%	12.0	0.9	B
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,670	2,779	104.1%	6.5	0.5	A
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,595	2,718	104.7%	11.5	0.8	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks	Signal	5,585	5,816	104.1%	39.3	5.7	D
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,850	4,063	105.5%	10.9	0.8	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	4,975	5,180	104.1%	6.1	0.5	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	4,555	4,600	101.0%	11.7	0.6	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	4,310	4,271	99.1%	42.5	4.7	D
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	5,245	5,157	98.3%	10.7	1.3	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	5,110	4,919	96.3%	16.7	1.2	B
13	Galleria Blvd/Antelope Creek Dr	Signal	3,815	3,537	92.7%	20.8	1.2	C
14	Galleria Blvd/Roseville Pkwy	Signal	6,545	6,494	99.2%	61.1	6.1	E
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,030	4,031	100.0%	18.0	2.6	B
16	Taylor Rd/East Roseville Pkwy	Signal	5,905	5,959	100.9%	48.4	6.1	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,560	5,682	102.2%	37.5	3.1	D
18	Wills Rd/Atlantic St	Signal	2,595	2,719	104.8%	22.7	3.7	C
19	I-80 WB Ramps/Atlantic St	Signal	3,835	3,951	103.0%	17.1	5.0	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,500	5,670	103.1%	62.9	13.4	E
21	North Sunrise Ave/Eureka Rd	Signal	5,805	6,066	104.5%	52.2	2.9	D
22	Harding Blvd/Wills Rd	Signal	2,635	2,743	104.1%	15.7	1.5	B
23	Harding Blvd/Douglas Blvd	Signal	3,600	3,593	99.8%	41.5	9.4	D
24	I-80 WB Ramps/Douglas Blvd	Signal	4,470	4,498	100.6%	15.9	2.9	B

Network Summary	
Total Demand Volume (veh/hr)	98,750
Total Volume Served (veh/hr)	99,973
Percent Served	101.2%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 1 (Full Taylor)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,115	5,187	101.4%	15.5	5.2	B
26	North Sunrise Ave/Douglas Blvd	Signal	5,705	5,793	101.5%	49.9	3.9	D
27	Pacific St/Woodside Dr	Signal	2,845	2,870	100.9%	7.9	1.4	A
28	Pacific St/Sunset Blvd	Signal	4,050	4,062	100.3%	38.9	9.1	D
29	Granite Dr/Rocklin Rd	Signal	3,220	3,309	102.8%	100.7	22.5	F
30	I-80 WB Ramps/Rocklin Rd	Signal	3,340	3,443	103.1%	40.4	4.6	D
31	I-80 EB Ramps/Rocklin Rd	Signal	3,085	3,164	102.6%	37.5	12.4	D
32	Aguilar Rd/Rocklin Rd	Signal	2,300	2,362	102.7%	16.7	3.5	B
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,880	2,886	100.2%	9.0	0.8	A
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,640	1,637	99.8%	30.4	2.7	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	2,040	2,070	101.5%	13.6	0.8	B
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	2,080	2,119	101.9%	12.6	0.7	B
37	Taylor Rd/I-80 Ramps	Signal	3,235	3,259	100.8%	21.6	1.1	C
40	Galleria Blvd/Berry St	Signal	2,485	2,529	101.8%	8.1	1.1	A

Network Summary	
Total Demand Volume (veh/hr)	44,020
Total Volume Served (veh/hr)	44,689
Percent Served	101.5%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	25	5	127	26	NO
	Through						
	Right Turn	1500	25	5	127	26	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	20	3	93	14	NO
	Through						
	Right Turn	1500	20	3	93	14	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	30	5	123	18	NO
	Through						
	Right Turn	1330	31	5	125	18	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	52	4	196	36	NO
	Through						
	Right Turn	1400	6	0	60	13	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	50	8	187	54	NO
	Through	2260	58	13	251	58	NO
	Right Turn	200	0	0	17	23	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	35	5	185	42	NO
	Through						
	Right Turn	1100	35	5	185	42	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	21	3	116	23	NO
	Through						
	Right Turn	1130	23	4	118	23	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	44	1	154	18	NO
	Through						
	Right Turn	1420	44	1	154	18	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	4	1	152	69	NO
WB	Left Turn						
	Through						
	Right Turn	1170	0	0	10	33	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	46	3	227	30	NO
WB	Left Turn						
	Through						
	Right Turn	1780	2	0	100	20	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	120	57	876	422	MAX
	Through	1700	55	16	402	269	NO
	Right Turn	1700	22	27	618	477	NO
SB	Left Turn	550	18	7	87	21	NO
	Through						
	Right Turn	550	37	12	229	61	NO
EB	Left Turn	1120	53	3	161	37	NO
	Through	1120	69	10	470	86	NO
	Right Turn	810	1	1	91	48	NO
WB	Left Turn						
	Through	1370	321	283	1259	175	NO
	Right Turn	280	4	4	144	119	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	75	78	351	78	NO
	Through	1530	75	78	351	78	NO
	Right Turn	730	76	78	352	78	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1250	30	1	209	95	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	37	12	195	83	NO
	Through						
	Right Turn	1230	49	13	216	83	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	134	32	392	107	NO
	Through						
	Right Turn	1080	90	29	398	112	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 1 (Full Taylor)**
Queue Length | **PM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	60	2	269	39	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	28	2	188	37	NO
	Through						
	Right Turn	1650	28	2	188	37	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	59	1	235	38	NO
	Through						
	Right Turn	1620	59	1	235	38	NO

Intersection 37 **Taylor Rd/I-80 Ramps** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	700	40	7	221	30	NO
	Through						
	Right Turn	700	21	5	170	37	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

I-80/SR 65 Interchange Improvements

Vissim Model Results – Construction Year Alternative 2 (Collector-Distributor System Ramps)

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Network Statistics | **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	167,770	47
Travel Distance [mi]	All Vehicles	788,247	1,344
Travel Time [h]	All Vehicles	16,803	66.2
Average Speed [mph]	All Vehicles	46.9	0.1
Total Delay [h]	All Vehicles	3,300	55.4
Average Delay per Vehicle [s]	All Vehicles	69	1.2
VHD/VMT [min/mile]	All Vehicles	0.25	0.00
Number of Vehicles Served	HOV	32,808	27
Travel Distance [mi]	HOV	163,945	488
Travel Time [h]	HOV	3,335	13
Average Speed [mph]	HOV	49.2	0.1
Total Delay [h]	HOV	556	8
Average Delay per Vehicle [s]	HOV	60	1
VHD/VMT [min/mile]	HOV	0.20	0.00
Number of Vehicles Served	Truck	7,661	10
Travel Distance [mi]	Truck	37,803	240
Travel Time [h]	Truck	821	7
Average Speed [mph]	Truck	46.0	0
Total Delay [h]	Truck	169	4
Average Delay per Vehicle [s]	Truck	78	2
VHD/VMT [min/mile]	Truck	0.27	0.01

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	32,810	7,660	167,770
Demand Volume	33,920	8,250	169,090
Percent Demand Served	96.7%	92.8%	99.2%
Vehicle Miles of Travel	163,940	37,800	788,250
Person Miles of Travel	344,280	39,690	970,480
Vehicle Hours of Travel	3,340	820	16,800
Vehicle Hours of Delay	560	170	3,300
VHD % of VHT	16.8%	20.7%	19.6%
Average Delay per Vehicle (min)	1.02	1.33	1.18
Person Hours of Delay	1,180	180	3,930
Average Travel Speed	49.2	46.0	46.9

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,094	757	14	08:45	00:13	22.4
	I-80 at Auburn to SR-65 at Blue Oaks	32,845	1519	16	06:30	00:11	23.0
	I-80 at Sierra College to I-80 at Antelope	45,844	1137	14	08:39	00:11	24.1
	I-80 at Auburn to I-80 at Sierra College	36,738	666	10	06:42	00:10	24.9
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,094	256	7	08:30	00:05	23.0
	I-80 at Auburn to SR-65 at Blue Oaks	32,845	418	9	06:21	00:03	23.5
	I-80 at Sierra College to I-80 at Antelope	45,844	504	6	08:24	00:04	24.8
	I-80 at Auburn to I-80 at Sierra College	36,738	228	7	06:34	00:02	25.5

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Construction Year - Alt 2 (CD Roadway)**
Network Statistics **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	235,227	61
Travel Distance [mi]	All Vehicles	931,461	773
Travel Time [h]	All Vehicles	21,294	51.9
Average Speed [mph]	All Vehicles	43.7	0.1
Total Delay [h]	All Vehicles	4,940	54.4
Average Delay per Vehicle [s]	All Vehicles	74	0.8
VHD/VMT [min/mile]	All Vehicles	0.32	0.00
Number of Vehicles Served	HOV	46,915	36
Travel Distance [mi]	HOV	199,159	556
Travel Time [h]	HOV	4,383	15
Average Speed [mph]	HOV	45.4	0.1
Total Delay [h]	HOV	931	11
Average Delay per Vehicle [s]	HOV	70	1
VHD/VMT [min/mile]	HOV	0.28	0.00
Number of Vehicles Served	Truck	9,202	12
Travel Distance [mi]	Truck	37,333	190
Travel Time [h]	Truck	863	5
Average Speed [mph]	Truck	43.3	0
Total Delay [h]	Truck	203	3
Average Delay per Vehicle [s]	Truck	78	1
VHD/VMT [min/mile]	Truck	0.33	0.00

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	46,920	9,200	235,230
Demand Volume	47,340	9,690	233,500
Percent Demand Served	99.1%	94.9%	100.7%
Vehicle Miles of Travel	199,160	37,330	931,460
Person Miles of Travel	418,230	39,200	1,152,400
Vehicle Hours of Travel	4,380	860	21,290
Vehicle Hours of Delay	930	200	4,940
VHD % of VHT	21.2%	23.3%	23.2%
Average Delay per Vehicle (min)	1.19	1.30	1.26
Person Hours of Delay	1,950	210	5,970
Average Travel Speed	45.4	43.3	43.7

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,094	861	12	08:21	00:02	23.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,845	1581	15	06:28	00:04	23.1
	I-80 at Sierra College to I-80 at Antelope	45,844	489	10	08:20	00:02	25.0
	I-80 at Auburn to I-80 at Sierra College	36,738	713	13	06:38	00:02	25.2
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,094	124	6	08:20	00:04	23.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,845	509	8	06:23	00:02	23.4
	I-80 at Sierra College to I-80 at Antelope	45,844	204	6	08:14	00:02	25.3
	I-80 at Auburn to I-80 at Sierra College	36,738	288	9	06:35	00:02	25.4

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,372	50	110.0%	1,108	25	111.9%				61.8	0.5	29.3	0.5	D
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,467	68	110.1%							57.6	2.1	36.2	1.7	E
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,459	82	110.0%				1,380	73	107.8%	60.4	1.2	29.7	1.3	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,074	83	110.4%				420	40	110.5%	61.8	1.3	24.3	1.4	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,657	71	110.4%							62.8	0.3	26.0	0.4	D
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	6,658	67	110.4%	1,078	43	100.7%	1,892	74	105.7%	62.6	0.2	23.6	0.3	C
7	I-80 EB CD - Eureka Rd to Taylor Rd/SR-65	Weave	430	39	102.3%	965	53	103.8%	771	52	104.1%	62.7	0.6	10.8	0.6	B
8	I-80 EB - Eureka Rd to SR-65	Basic	5,828	126	109.8%							62.4	0.2	27.4	0.6	D
9	I-80 EB - HOV Connector Off-ramp	Diverge	5,825	122	109.7%				757	50	108.1%	60.0	1.0	27.4	0.8	C
10	I-80 EB - SR-65 Off-ramp	Diverge	5,067	116	109.9%				2,823	84	109.4%	62.9	0.5	22.1	0.4	C
11	I-80 EB - SR-65 Off-ramp to Eureka Rd On-ramp	Basic	2,247	100	110.7%							64.1	0.2	13.2	0.5	B
17	I-80 EB - Eureka Rd On-ramp	Merge	2,251	96	110.9%	500	40	106.4%				63.1	0.4	13.6	0.4	B
18	I-80 EB - Eureka Rd On-ramp to SR-65 On-ramp	Basic	2,753	99	110.1%							64.0	0.2	14.8	0.4	B
19	I-80 EB - SR-65 On-ramp	Merge	2,753	99	110.1%	1,593	81	108.4%				61.6	0.4	25.7	0.6	C
20	I-80 EB - SR-65 to Rocklin Rd	Basic	4,346	118	109.5%							63.4	0.2	21.8	0.5	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,355	132	109.7%				1,407	93	107.4%	63.6	0.1	20.7	0.6	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	2,949	115	110.9%							63.6	0.1	18.6	0.7	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	2,951	116	110.9%	202	22	106.5%				61.6	0.5	18.8	0.8	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,162	110	110.9%							63.5	0.2	19.2	0.7	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,163	107	111.0%				452	40	110.1%	63.0	0.3	20.3	0.8	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,718	105	111.4%							63.7	0.2	17.5	0.6	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,720	108	111.5%	131	6	100.5%				62.6	0.4	16.5	0.5	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	2,853	100	111.0%	427	16	109.5%				62.2	0.4	18.1	0.6	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,760	27	105.8%				837	49	104.6%	57.8	1.9	26.6	0.9	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,921	69	106.0%							62.4	0.8	23.6	0.3	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,921	72	106.0%	50	4	83.2%				63.0	0.3	21.2	0.5	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,968	72	105.5%	299	10	103.0%				61.6	1.1	22.6	0.7	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,261	74	105.2%							62.5	0.3	25.4	0.6	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,257	80	105.1%				238	29	103.3%	61.9	0.4	26.0	0.5	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,013	93	105.0%							63.2	0.2	23.9	0.6	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,013	96	105.0%	815	51	99.3%				60.8	0.5	25.0	0.8	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,813	99	103.7%							61.9	0.4	27.3	0.7	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	4,811	89	103.7%							62.6	0.3	22.5	0.3	C
48	I-80 WB - SR-65 Off-ramp	Diverge	4,810	97	103.7%				1,396	78	104.9%	63.6	0.2	20.9	0.4	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,407	91	102.9%							63.7	0.2	18.7	0.3	C
60	I-80 WB - SR-65 to Atlantic St	Weave	3,403	97	102.8%	4,930	117	106.0%	340	35	99.9%	58.7	0.7	23.3	0.6	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,931	149	104.1%				1,052	64	107.3%	57.4	4.3	29.8	2.3	D
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,871	143	103.5%							59.7	0.8	32.5	0.7	D
64	I-80 WB - Atlantic St On-ramp	Merge	6,867	151	103.4%	868	46	109.9%				41.5	7.9	41.1	9.5	E
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,736	150	104.1%				1,074	62	101.3%	49.5	5.3	43.4	6.9	E
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,665	143	104.6%							45.6	12.6	52.5	19.9	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,667	133	104.7%	993	52	106.8%				29.4	7.1	85.5	22.7	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,659	138	104.9%	470	27	109.3%				28.4	0.6	75.9	1.7	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,129	192	105.2%							58.7	1.1	35.9	0.8	E
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,141	148	105.3%				771	56	98.9%	62.0	0.3	30.2	0.8	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	7,369	158	106.0%							62.1	0.1	35.3	0.7	E
72	I-80 WB - Riverside Ave NB On-ramp	Merge	7,370	155	106.0%	245	6	76.5%				62.7	0.1	28.1	0.5	D
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,618	150	104.8%	939	26	94.9%				62.5	0.7	27.3	0.8	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,559	172	103.6%							62.1	0.1	31.5	0.7	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,567	167	103.7%				339	25	91.6%	61.6	0.6	32.4	0.7	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	8,245	150	104.5%							62.2	0.4	30.8	0.6	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	8,247	151	104.5%	578	16	99.7%				60.4	1.5	31.2	1.5	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,833	134	104.3%	407	13	88.5%	87	18	87.3%	56.1	3.9	34.5	2.5	D
79	I-80 WB - Truck Scales Off to On-ramp	Basic	9,223	153	104.4%							38.0	9.8	64.2	15.4	F
80	I-80 WB - Truck Scales On-ramp	Merge	9,257	160	104.8%	88	17	87.7%				26.2	3.2	87.5	8.8	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	9,421	161	105.5%							35.5	4.1	66.2	8.1	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	9,434	162	105.6%				801	62	108.3%	37.5	6.5	53.0	9.8	F
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	8,714	149	106.4%							27.0	1.0	90.8	4.4	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	8,754	142	106.9%	861	18	102.5%				26.9	0.4	95.6	2.0	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	9,672	111	107.1%	877	20	95.3%				32.9	0.4	76.1	0.6	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
AM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	526	6	43.1%				19	8	93.0%	64.5	0.2	7.2	0.1	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	508	18	42.3%							64.4	0.2	7.0	0.2	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	509	19	42.4%	850	17	102.4%				60.1	0.5	10.0	0.2	A
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,360	28	67.0%	832	12	109.4%				58.9	0.8	15.3	0.4	B
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,193	35	78.6%							61.8	1.9	25.0	0.6	C
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,192	35	78.6%							62.4	0.4	23.6	0.4	C
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,193	39	108.6%	1,282	62	106.8%	336	31	104.9%	59.2	1.5	25.3	0.7	C
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,138	88	108.2%							62.1	0.4	29.2	1.0	D
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	3,137	93	108.2%	660	35	113.8%				56.7	2.4	34.5	2.2	D
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,796	86	109.1%							61.1	0.4	34.9	0.9	D
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,796	88	109.1%				428	41	112.5%	62.0	0.3	32.3	0.7	D
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	3,371	81	108.7%							62.4	0.3	29.5	0.6	D
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	3,369	81	108.7%	344	29	107.5%				56.4	7.7	34.0	6.8	D
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	3,707	93	108.4%	144	20	102.8%	438	43	106.8%	61.1	0.8	30.1	0.4	D
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,411	92	108.3%							57.1	10.3	33.3	9.8	D
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,410	93	108.3%	357	22	108.0%				52.0	14.6	40.5	17.1	E
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,766	103	108.2%	445	27	103.4%				49.8	8.9	44.9	10.5	E
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	4,208	119	107.6%							57.5	2.6	39.2	2.8	E
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	4,208	121	107.6%				811	54	108.1%	60.2	2.0	37.1	2.2	E
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,394	107	107.4%							62.3	1.2	29.3	1.1	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,390	107	107.3%	407	35	104.2%				53.3	7.6	35.1	6.6	E
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,800	122	107.0%	1,131	41	101.8%	706	55	106.9%	51.6	5.1	37.7	5.1	E
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,219	100	105.5%							61.2	0.7	36.9	0.9	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,216	101	105.4%	645	41	104.1%				60.2	0.3	29.1	0.6	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,863	104	105.3%	728	39	102.5%				58.1	4.4	32.1	3.0	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,586	112	104.8%							60.8	0.6	33.1	0.9	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,586	111	104.8%				915	49	100.6%	62.2	0.4	28.3	0.8	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,676	99	105.8%							62.5	0.2	27.0	0.5	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,682	99	105.9%	1,014	59	100.4%	4,115	99	103.9%	60.5	1.0	24.1	0.5	C
120	SR-65 SB to EB I-80 Connector	Basic	1,591	80	108.2%							52.7	0.8	23.3	1.2	C
121	SR-65 SB to WB I-80 Connector	Basic	3,263	87	98.0%							54.5	0.5	22.6	0.5	C
123	SR-65 NB from WB I-80 Connector	Basic	1,397	84	105.0%							53.3	0.2	15.7	0.8	B
124	SR-65 NB from EB I-80 Connector	Basic	2,823	84	109.4%							62.5	0.7	25.8	0.6	C
125	SR-65 NB - Eureka Rd On-ramp	Merge	2,823	84	109.4%	630	48	103.3%				49.2	0.1	26.5	0.6	C
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	3,447	100	108.1%	2,153	84	106.1%	1,132	71	105.7%	60.8	0.3	21.3	0.5	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	4,462	135	107.5%							62.5	0.5	23.1	0.8	C
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	4,464	134	107.6%	402	40	100.5%				58.4	2.8	10.2	1.2	B
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,869	140	107.0%							54.8	3.0	36.8	1.9	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,869	140	107.0%				886	67	99.5%	57.4	2.4	33.9	1.7	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,991	114	109.0%							60.6	2.8	37.5	2.4	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,996	112	109.2%	219	26	99.7%	1,895	80	110.8%	62.4	0.5	27.8	0.8	C
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,322	102	107.0%							63.6	0.2	20.2	1.0	C
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,321	103	107.0%	542	50	100.3%				60.7	0.3	22.5	1.1	C
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,860	124	105.5%							62.1	0.4	25.1	1.1	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,858	113	105.5%				1,217	73	104.9%	63.6	0.1	19.4	0.6	B
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	1,642	71	105.9%							63.8	0.1	14.4	0.3	B
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	1,643	72	106.0%	54	16	108.2%				63.8	0.2	14.1	0.2	B
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	1,699	72	106.2%	192	24	112.6%	319	39	96.6%	63.6	0.2	13.7	0.4	B
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	1,572	78	109.2%							63.7	0.1	13.7	0.5	B
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	1,573	78	109.2%	157	20	104.6%				63.2	0.2	14.2	0.5	B
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	1,729	78	108.7%	210	29	110.5%				62.7	0.4	15.8	0.5	B
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	1,937	80	108.8%							63.0	0.2	17.5	0.5	B
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	1,938	77	65.7%				380	39	97.5%	63.1	0.1	17.7	0.5	B
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	1,563	75	61.0%							63.6	0.2	14.9	0.4	B
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	1,566	77	61.2%	267	23	106.7%	851	45	112.0%	63.8	0.1	12.5	0.3	B
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	983	57	48.0%							64.0	0.1	10.9	0.5	A
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	983	56	48.0%				690	45	107.8%	64.4	0.1	8.8	0.4	A
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	293	35	20.8%							64.8	0.3	3.1	0.2	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	293	37	20.8%	15	2	75.5%				64.4	0.3	3.1	0.2	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,729	46	102.1%	975	18	96.5%				61.6	0.8	27.1	0.6	C
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,705	58	101.5%							61.2	1.1	32.1	0.9	D
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,700	86	101.4%				1,149	80	99.9%	61.3	1.3	28.9	0.9	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,549	98	101.6%				636	45	102.6%	62.7	0.5	24.9	0.6	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,913	107	101.5%							63.1	0.2	25.0	0.3	C
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	6,914	111	101.5%	1,747	45	101.0%	1,808	82	101.0%	62.4	0.2	24.8	0.4	C
7	I-80 EB CD - Eureka Rd to Taylor Rd/SR-65	Weave	857	60	102.0%	1,407	60	98.4%	1,280	71	101.6%	60.7	1.2	19.1	0.7	B
8	I-80 EB - Eureka Rd to SR-65	Basic	6,855	147	101.6%							61.5	1.2	30.3	0.9	D
9	I-80 EB - HOV Connector Off-ramp	Diverge	6,856	151	101.6%				1,098	58	102.6%	57.2	1.9	31.5	1.5	D
10	I-80 EB - SR-65 Off-ramp	Diverge	5,764	160	101.5%				3,231	125	103.2%	62.2	0.5	24.0	0.6	C
11	I-80 EB - SR-65 Off-ramp to Eureka Rd On-ramp	Basic	2,533	92	99.3%							64.1	0.1	13.9	0.5	B
17	I-80 EB - Eureka Rd On-ramp	Merge	2,530	90	99.2%	718	50	104.0%				62.5	0.5	14.7	0.7	B
18	I-80 EB - Eureka Rd On-ramp to SR-65 On-ramp	Basic	3,246	104	100.2%							63.9	0.1	15.9	0.6	B
19	I-80 EB - SR-65 On-ramp	Merge	3,246	105	100.2%	2,020	86	99.5%				61.4	0.3	27.5	0.8	C
20	I-80 EB - SR-65 to Rocklin Rd	Basic	5,266	128	99.9%							63.2	0.1	23.2	0.5	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	5,262	128	99.9%				1,367	73	99.8%	63.4	0.1	22.4	0.5	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,896	99	99.9%							63.4	0.2	21.5	0.4	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,893	100	99.8%	260	22	99.9%				60.8	0.6	21.5	0.5	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	4,156	101	99.9%							63.3	0.2	22.4	0.5	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	4,155	104	99.9%				327	41	99.0%	62.5	0.4	23.6	0.7	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	3,832	105	100.1%							63.3	0.2	21.6	0.5	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	3,831	105	100.0%	255	9	102.1%				61.2	0.6	20.5	0.7	C
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	4,086	111	100.1%	621	16	101.9%				60.8	0.4	23.5	0.7	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	3,586	23	105.8%				588	45	106.9%	61.1	0.5	18.9	0.2	B
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	2,994	64	105.4%							63.7	0.2	17.9	0.4	B
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	2,996	65	105.5%	132	5	101.3%				63.5	0.2	16.3	0.5	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,125	68	105.2%	252	8	100.8%				62.6	0.4	17.3	0.4	B
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	3,373	70	104.8%							63.5	0.2	19.3	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	3,373	75	104.7%				275	32	101.7%	63.1	0.2	20.3	0.7	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,093	67	104.9%							63.8	0.1	18.1	0.3	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,090	65	104.8%	1,441	69	103.6%				59.5	0.4	23.6	0.6	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,527	109	104.3%							62.2	0.3	25.4	0.6	C
47	I-80 WB - HOV Lane Start to SR-65	Basic	4,521	109	104.2%							62.8	0.3	20.4	0.5	C
48	I-80 WB - SR-65 Off-ramp	Diverge	4,520	111	104.1%				1,666	70	103.5%	63.9	0.1	18.8	0.5	B
49	I-80 WB - SR-65 Off to On-ramp	Basic	2,853	98	104.5%							64.0	0.2	16.2	0.5	B
60	I-80 WB - SR-65 to Atlantic St	Weave	2,851	97	104.4%	4,193	107	98.2%	421	45	105.3%	60.4	0.2	19.6	0.4	B
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	6,684	121	101.3%				971	54	100.1%	62.1	0.9	23.1	0.6	C
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	5,715	105	101.5%							62.6	0.1	26.3	0.6	D
64	I-80 WB - Atlantic St On-ramp	Merge	5,715	101	101.5%	1,156	58	98.8%				61.4	0.4	25.1	0.4	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	6,868	130	101.0%				1,096	69	99.6%	60.8	0.8	31.4	1.1	D
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	5,774	118	101.3%							62.8	0.4	29.3	0.5	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	5,772	116	101.3%	1,274	56	99.5%				61.4	0.1	26.4	0.4	C
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,045	139	100.9%	621	25	94.1%				58.1	3.1	24.9	1.7	C
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,667	115	100.3%							61.5	0.5	31.1	0.4	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,670	136	100.4%				992	85	100.2%	62.4	0.5	27.6	0.5	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,677	137	100.4%							62.5	0.1	32.0	0.6	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,676	136	100.4%	204	10	97.1%				63.0	0.1	25.7	0.5	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,879	137	100.3%	742	25	106.0%				61.7	0.8	23.3	0.8	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,609	131	100.6%							62.3	0.3	28.5	0.5	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,611	124	100.7%				952	56	101.3%	62.3	0.5	29.0	0.8	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,657	121	100.6%							62.8	0.3	25.8	0.5	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,659	123	100.6%	359	2	94.4%				60.2	1.1	23.6	0.8	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	7,023	133	100.3%	367	13	99.3%	66	12	110.3%	62.1	0.4	24.9	0.5	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,320	146	100.1%							62.7	0.2	26.9	0.6	D
80	I-80 WB - Truck Scales On-ramp	Merge	7,318	147	100.1%	66	15	110.2%				62.5	0.1	26.4	0.6	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	7,383	146	100.2%							61.7	0.3	28.3	0.4	D
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	7,383	148	100.2%				1,077	61	97.9%	62.0	0.6	26.3	0.4	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	6,305	146	100.6%							62.9	0.4	24.0	0.6	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	6,306	143	100.6%	898	5	99.8%				57.4	0.7	26.0	0.8	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	7,199	150	100.4%	658	26	102.9%				61.4	0.6	29.0	0.8	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
PM Peak Period

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	379	6	35.0%				29	11	96.7%	64.8	0.3	3.3	0.1	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	349	16	33.2%							64.9	0.3	3.0	0.2	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	349	17	33.2%	475	11	101.0%				60.3	0.2	5.2	0.1	A
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	824	24	54.2%	347	9	99.1%				61.2	0.2	6.8	0.2	A
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	1,170	32	62.6%							64.2	0.2	11.6	0.5	B
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	1,171	33	62.6%							64.3	0.2	11.0	0.4	B
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	1,171	33	99.2%	1,145	50	99.6%	269	32	96.1%	61.7	0.5	14.0	0.3	B
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,048	49	99.9%							63.7	0.2	16.9	0.4	B
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,048	47	99.9%	408	34	97.2%				62.1	0.3	18.6	0.5	B
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	2,456	72	99.4%							63.3	0.2	20.0	0.5	C
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	2,458	74	99.5%				441	42	97.9%	63.3	0.1	19.0	0.4	B
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,021	77	100.1%							63.4	0.1	16.7	0.6	B
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,023	77	100.1%	340	29	99.9%				62.3	0.4	18.3	0.7	B
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	2,363	87	100.1%	313	31	100.8%	247	33	98.9%	62.5	0.3	19.5	0.5	B
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	2,429	97	100.4%							63.1	0.2	20.2	0.6	C
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	2,430	98	100.4%	617	34	106.4%				60.4	0.8	24.0	0.8	C
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,046	106	101.5%	711	33	101.5%				58.0	1.7	32.6	1.3	D
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	3,753	118	101.4%							60.9	0.6	32.2	1.1	D
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	3,752	118	101.4%				735	41	96.7%	62.4	0.2	30.9	1.2	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,014	108	102.5%							62.9	0.2	25.4	1.2	C
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,014	109	102.5%	392	24	103.0%				59.4	0.8	27.4	1.3	C
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,407	109	102.6%	1,101	50	101.9%	561	43	96.8%	59.8	0.6	28.7	1.1	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	3,936	127	103.0%							61.9	0.7	32.7	1.4	D
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	3,935	128	103.0%	481	35	100.2%				61.5	0.3	25.7	0.9	C
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,411	129	102.6%	847	44	99.6%				61.1	1.0	26.4	1.1	C
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,253	130	102.0%							61.7	0.4	28.9	0.7	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,252	131	102.0%				1,016	77	100.6%	62.7	0.4	24.8	0.6	C
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,234	100	102.3%							62.9	0.1	24.2	0.4	C
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,233	100	102.2%	1,432	82	92.4%	3,649	109	99.7%	60.7	0.7	22.4	0.3	C
120	SR-65 SB to EB I-80 Connector	Basic	2,021	74	99.6%							52.4	0.4	25.6	1.2	C
121	SR-65 SB to WB I-80 Connector	Basic	3,075	104	91.8%							54.9	0.4	19.7	0.7	C
123	SR-65 NB from WB I-80 Connector	Basic	1,665	68	103.4%							53.0	0.2	17.5	0.9	B
124	SR-65 NB from EB I-80 Connector	Basic	3,233	129	103.3%							61.8	0.9	29.9	1.1	D
125	SR-65 NB - Eureka Rd On-ramp	Merge	3,236	129	103.4%	979	59	96.9%				49.0	0.1	30.6	0.6	D
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,216	123	101.8%	2,764	99	103.1%	1,763	71	100.7%	59.8	0.3	24.6	0.6	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	5,208	118	102.7%							62.2	0.3	25.3	0.6	C
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	5,209	109	102.7%	675	41	91.2%				54.1	3.1	17.8	1.6	B
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	5,881	122	101.2%							53.6	2.7	38.6	2.3	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	5,881	123	101.2%				1,459	80	102.7%	56.1	2.4	35.5	1.7	E
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	4,423	111	100.7%							60.7	2.5	37.4	1.8	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	4,422	110	100.7%	582	34	100.4%	1,683	68	99.6%	62.1	0.2	30.2	0.8	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	3,321	101	101.3%							61.8	2.2	28.1	1.4	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	3,321	103	101.3%	760	50	105.6%				51.8	9.9	37.8	10.8	E
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	4,082	114	102.1%							60.8	1.5	34.4	1.4	D
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	4,082	124	102.1%				856	43	103.1%	62.8	0.1	28.7	1.2	D
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	3,233	115	102.0%							62.8	0.2	26.2	1.0	D
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	3,230	118	101.9%	60	15	100.3%				62.9	0.3	26.1	1.0	C
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	3,288	122	101.8%	339	28	106.0%	537	41	103.2%	62.4	0.1	25.1	0.8	C
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	3,085	121	101.8%							62.7	0.2	25.3	1.0	C
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	3,085	124	101.8%	115	22	96.2%				62.4	0.3	25.5	1.0	C
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,200	126	101.6%	266	30	102.4%				61.2	1.1	27.0	0.9	C
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	3,463	136	101.6%							61.3	0.7	29.0	1.2	D
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	3,464	131	101.6%				720	49	100.0%	61.4	0.4	29.3	1.2	D
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,738	112	101.8%							63.0	0.1	23.0	0.7	C
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,734	109	101.6%	296	36	95.4%	1,187	81	101.5%	63.3	0.1	18.8	0.4	B
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	1,838	69	100.4%							63.5	0.2	18.3	0.7	C
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,838	68	100.5%				1,414	70	100.3%	64.0	0.1	14.1	0.4	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	425	31	101.1%							64.8	0.4	3.7	0.4	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	424	34	101.0%	29	3	97.7%				64.2	0.3	3.7	0.3	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	2,445	2,677	109.5%	10.9	0.7	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,160	1,287	111.0%	10.1	0.9	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,265	1,357	107.3%	9.6	0.8	A
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,340	2,500	106.8%	11.5	0.9	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,500	2,705	108.2%	12.8	0.8	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks	Signal	4,645	4,825	103.9%	33.4	3.3	C
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,055	3,283	107.5%	11.2	0.6	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	3,895	4,010	102.9%	6.5	0.5	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	3,060	3,106	101.5%	13.8	0.8	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	2,895	3,042	105.1%	24.5	1.7	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,120	3,263	104.6%	7.1	0.8	A
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,015	3,057	101.4%	18.6	0.7	B
13	Galleria Blvd/Antelope Creek Dr	Signal	1,990	1,979	99.4%	10.8	1.7	B
14	Galleria Blvd/Roseville Pkwy	Signal	4,226	4,519	106.9%	35.9	1.4	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	2,875	3,026	105.2%	5.3	2.3	A
16	Taylor Rd/East Roseville Pkwy	Signal	2,885	3,033	105.1%	45.7	5.1	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	3,845	4,140	107.7%	29.1	3.3	C
18	Wills Rd/Atlantic St	Signal	1,905	2,073	108.8%	15.5	2.1	B
19	I-80 WB Ramps/Atlantic St	Signal	3,115	3,373	108.3%	12.4	3.0	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	4,825	5,094	105.6%	28.0	7.5	C
21	North Sunrise Ave/Eureka Rd	Signal	4,460	4,719	105.8%	33.7	3.8	C
22	Harding Blvd/Wills Rd	Signal	1,755	1,878	107.0%	13.1	1.5	B
23	Harding Blvd/Douglas Blvd	Signal	2,650	2,889	109.0%	24.6	3.4	C
24	I-80 WB Ramps/Douglas Blvd	Signal	3,770	4,043	107.2%	12.1	2.0	B

Network Summary	
Total Demand Volume (veh/hr)	71,696
Total Volume Served (veh/hr)	75,874
Percent Served	105.8%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		LOS	Worst Movement
			Demand	Served		Average	Std. Dev.		
25	I-80 EB Ramps/Douglas Blvd	Signal	4,095	4,427	108.1%	8.3	0.7	A	
26	North Sunrise Ave/Douglas Blvd	Signal	4,410	4,703	106.6%	37.4	2.6	D	
27	Pacific St/Woodside Dr	Signal	1,905	2,076	109.0%	7.5	0.8	A	
28	Pacific St/Sunset Blvd	Signal	2,720	2,996	110.2%	21.7	2.0	C	
29	Granite Dr/Rocklin Rd	Signal	2,226	2,306	103.6%	19.4	1.6	B	
30	I-80 WB Ramps/Rocklin Rd	Signal	2,445	2,561	104.7%	24.5	2.2	C	
31	I-80 EB Ramps/Rocklin Rd	Signal	2,615	2,835	108.4%	26.1	2.9	C	
32	Aguilar Rd/Rocklin Rd	Signal	1,940	2,130	109.8%	11.3	2.3	B	
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,390	2,611	109.3%	8.7	0.8	A	
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,635	1,749	106.9%	26.0	3.0	C	
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,660	1,822	109.8%	11.7	0.7	B	
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,635	1,747	106.9%	8.2	1.0	A	
37	Taylor Rd/I-80 WB On-ramp-Cattlemens Drwy	Side-street Stop	2,020	2,198	108.8%	15.1	3.1	C	WB TH
38	Taylor Rd/I-80 EB Off-ramp	Side-street Stop	655	692	105.6%	4.2	0.5	A	WB RT
40	Galleria Blvd/Berry St	Signal	1,595	1,692	106.1%	8.6	1.6	A	

Network Summary	
Total Demand Volume (veh/hr)	33,946
Total Volume Served (veh/hr)	36,545
Percent Served	107.7%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.
3. For Side-street Stop and Uncontrolled intersections, the delay for the highest movement is reported.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	23	6	157	58	NO
	Through						
	Right Turn	1500	24	6	158	58	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	5	2	59	19	NO
	Through						
	Right Turn	1500	5	2	59	19	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	43	6	165	32	NO
	Through						
	Right Turn	1330	45	6	167	32	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	63	5	254	30	NO
	Through						
	Right Turn	1400	9	1	75	12	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	28	5	128	22	NO
	Through	2260	69	6	264	27	NO
	Right Turn	200	0	0	4	13	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	29	14	206	40	NO
	Through						
	Right Turn	1100	29	14	206	40	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	25	5	141	20	NO
	Through						
	Right Turn	1130	28	5	143	20	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	39	4	143	8	NO
	Through						
	Right Turn	1420	39	5	142	8	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	0	0	62	31	NO
WB	Left Turn						
	Through						
	Right Turn	1170	0	0	0	0	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	42	3	232	31	NO
WB	Left Turn						
	Through						
	Right Turn	1780	0	0	20	16	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	5	16	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	157	26	685	490	MAX
	Through	1700	91	16	594	430	NO
	Right Turn	1700	60	37	592	731	NO
SB	Left Turn	550	17	6	77	13	NO
	Through						
	Right Turn	550	19	7	121	34	NO
EB	Left Turn	1120	34	4	119	17	NO
	Through	1120	65	19	558	115	NO
	Right Turn	810	2	2	147	114	NO
WB	Left Turn						
	Through	1370	55	11	458	81	NO
	Right Turn	280	0	0	43	37	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	72	76	379	110	NO
	Through	1530	72	76	379	110	NO
	Right Turn	730	72	77	379	110	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,400	1	2	101	277	NO
SB	Left Turn						
	Through						
	Right Turn	1,250	15	3	119	12	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	18	7	159	44	NO
	Through						
	Right Turn	1,230	26	10	181	44	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,080	52	3	235	29	NO
	Through						
	Right Turn	1,080	34	4	247	32	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **AM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1,940	0	0	0	0	NO
	Through						
	Right Turn	1,940	21	5	156	18	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,650	24	7	205	40	NO
	Through						
	Right Turn	1,650	24	7	205	40	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,620	32	4	144	22	NO
	Through						
	Right Turn	1,620	32	4	144	22	NO

Intersection 38 **Taylor Rd/I-80 EB Off-ramp** **Unsignalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn						
	Through						
	Right Turn	1,000	0	0	6	17	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	3,030	3,049	100.6%	14.7	1.2	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,060	1,034	97.5%	10.9	1.0	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,505	1,480	98.3%	12.2	0.9	B
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,690	2,785	103.5%	5.9	0.5	A
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,580	2,715	105.2%	14.0	0.9	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	5,560	5,789	104.1%	42.6	5.2	D
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,890	4,109	105.6%	11.8	0.9	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	4,960	4,953	99.9%	7.3	0.4	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	4,600	4,639	100.8%	12.6	0.6	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	4,290	4,297	100.2%	36.8	1.8	D
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	5,150	5,109	99.2%	9.6	2.7	A
12	SR-65 SB Ramps/Galleria Blvd	Signal	5,190	5,021	96.7%	16.4	1.4	B
13	Galleria Blvd/Antelope Creek Dr	Signal	3,900	3,646	93.5%	20.2	1.2	C
14	Galleria Blvd/Roseville Pkwy	Signal	6,540	6,540	100.0%	55.8	4.1	E
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,995	4,012	100.4%	17.5	3.1	B
16	Taylor Rd/East Roseville Pkwy	Signal	5,635	5,709	101.3%	42.1	4.5	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,440	5,570	102.4%	37.2	3.0	D
18	Wills Rd/Atlantic St	Signal	2,570	2,683	104.4%	21.4	2.8	C
19	I-80 WB Ramps/Atlantic St	Signal	3,880	3,959	102.0%	12.2	2.1	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,665	5,754	101.6%	76.8	16.3	E
21	North Sunrise Ave/Eureka Rd	Signal	5,865	6,120	104.3%	63.1	11.7	E
22	Harding Blvd/Wills Rd	Signal	2,635	2,741	104.0%	14.1	1.1	B
23	Harding Blvd/Douglas Blvd	Signal	3,600	3,602	100.0%	38.9	8.2	D
24	I-80 WB Ramps/Douglas Blvd	Signal	4,490	4,513	100.5%	16.6	3.8	B

Network Summary	
Total Demand Volume (veh/hr)	98,720
Total Volume Served (veh/hr)	99,828
Percent Served	101.1%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 2 (CD Roadway)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	GEH	Delay (sec/veh)		LOS	Worst Movement
			Demand	Served			Average	Std. Dev.		
25	I-80 EB Ramps/Douglas Blvd	Signal	5,090	5,125	100.7%	0.5	15.5	6.2	B	
26	North Sunrise Ave/Douglas Blvd	Signal	5,670	5,714	100.8%	0.6	55.5	16.5	E	
27	Pacific St/Woodside Dr	Signal	2,865	2,897	101.1%	0.6	8.3	0.8	A	
28	Pacific St/Sunset Blvd	Signal	4,095	4,110	100.4%	0.2	43.1	12.1	D	
29	Granite Dr/Rocklin Rd	Signal	3,250	3,342	102.8%	1.6	91.3	13.0	F	
30	I-80 WB Ramps/Rocklin Rd	Signal	3,330	3,424	102.8%	1.6	38.3	3.0	D	
31	I-80 EB Ramps/Rocklin Rd	Signal	3,110	3,182	102.3%	1.3	26.5	14.7	C	
32	Aguilar Rd/Rocklin Rd	Signal	2,315	2,376	102.6%	1.3	17.9	5.5	B	
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,895	2,907	100.4%	0.2	9.2	0.7	A	
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,730	1,722	99.5%	0.2	26.6	1.5	C	
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,895	1,929	101.8%	0.8	14.9	0.8	B	
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,935	1,968	101.7%	0.8	14.4	0.6	B	
37	Taylor Rd/I-80 WB On-ramp-Cattlemens Drwy	Side-street Stop	3,135	3,164	100.9%	0.5	26.9	7.2	D	WB TH
38	Taylor Rd/I-80 EB Off-ramp	Side-street Stop	1,835	1,864	101.6%	0.7	7.7	0.7	A	WB RT
40	Galleria Blvd/Berry St	Signal	2,465	2,524	102.4%	1.2	9.1	1.0	A	

Network Summary	
Total Demand Volume (veh/hr)	45,615
Total Volume Served (veh/hr)	46,248
Percent Served	101.4%
GEH Statistic	3.0

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.
3. For Side-street Stop and Uncontrolled intersections, the delay for the highest movement is reported.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	25	5	131	28	NO
	Through						
	Right Turn	1500	25	5	132	28	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	19	3	92	14	NO
	Through						
	Right Turn	1500	19	3	92	14	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	30	3	111	14	NO
	Through						
	Right Turn	1330	32	3	113	14	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	54	4	203	26	NO
	Through						
	Right Turn	1400	5	1	62	14	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	55	9	203	69	MAX
	Through	2260	58	12	250	49	NO
	Right Turn	200	0	0	14	44	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	38	7	226	38	NO
	Through						
	Right Turn	1100	38	7	225	38	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	25	4	119	20	NO
	Through						
	Right Turn	1130	28	4	121	20	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	43	1	168	21	NO
	Through						
	Right Turn	1420	42	1	167	21	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	6	1	199	82	NO
WB	Left Turn						
	Through						
	Right Turn	1170	3	5	123	390	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	43	2	206	24	NO
WB	Left Turn						
	Through						
	Right Turn	1780	3	0	109	35	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	17	23	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	91	15	518	226	MAX
	Through	1700	51	14	223	34	NO
	Right Turn	1700	3	3	217	219	NO
SB	Left Turn	550	18	2	81	23	NO
	Through						
	Right Turn	550	48	11	289	56	NO
EB	Left Turn	1120	53	4	172	23	NO
	Through	1120	79	6	520	62	NO
	Right Turn	810	1	0	108	59	NO
WB	Left Turn						
	Through	1370	436	369	1401	136	MAX
	Right Turn	280	4	4	121	63	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	75	76	333	71	NO
	Through	1530	75	76	333	71	NO
	Right Turn	730	76	76	333	71	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Alt 2 (CD Roadway)**
Queue Length **PM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,400	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1,250	30	5	264	195	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	47	12	226	96	NO
	Through						
	Right Turn	1,230	59	14	247	96	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,080	75	11	263	35	NO
	Through						
	Right Turn	1,080	34	5	269	41	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 2 (CD Roadway)**
Queue Length | **PM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1,940	0	0	0	0	NO
	Through						
	Right Turn	1,940	53	2	242	51	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,650	29	4	168	35	NO
	Through						
	Right Turn	1,650	29	4	168	35	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,620	64	3	275	53	NO
	Through						
	Right Turn	1,620	64	3	275	53	NO

Intersection 38 **Taylor Rd/I-80 EB Off-ramp** **Unsignalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn						
	Through						
	Right Turn	1,100	1	1	103	99	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

I-80/SR 65 Interchange Improvements

Vissim Model Results – Construction Year Alternative 3 (Taylor Road Interchange Eliminated)

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Network Statistics | **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	167,860	22
Travel Distance [mi]	All Vehicles	788,063	1,033
Travel Time [h]	All Vehicles	16,757	59.7
Average Speed [mph]	All Vehicles	47.0	0.1
Total Delay [h]	All Vehicles	3,258	52.6
Average Delay per Vehicle [s]	All Vehicles	68	1.1
VHD/VMT [min/mile]	All Vehicles	0.25	0.00
Number of Vehicles Served	HOV	32,845	20
Travel Distance [mi]	HOV	164,276	578
Travel Time [h]	HOV	3,343	18
Average Speed [mph]	HOV	49.1	0.1
Total Delay [h]	HOV	557	10
Average Delay per Vehicle [s]	HOV	60	1
VHD/VMT [min/mile]	HOV	0.20	0.00
Number of Vehicles Served	Truck	7,658	10
Travel Distance [mi]	Truck	37,981	237
Travel Time [h]	Truck	821	6
Average Speed [mph]	Truck	46.2	0
Total Delay [h]	Truck	166	4
Average Delay per Vehicle [s]	Truck	76	2
VHD/VMT [min/mile]	Truck	0.26	0.01

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	32,850	7,660	167,860
Demand Volume	33,940	8,240	169,110
Percent Demand Served	96.8%	93.0%	99.3%
Vehicle Miles of Travel	164,280	37,980	788,060
Person Miles of Travel	344,980	39,880	970,660
Vehicle Hours of Travel	3,340	820	16,760
Vehicle Hours of Delay	560	170	3,260
VHD % of VHT	16.8%	20.7%	19.5%
Average Delay per Vehicle (min)	1.02	1.33	1.17
Person Hours of Delay	1,180	180	3,890
Average Travel Speed	49.1	46.2	47.0

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,093	742	14	09:22	00:25	20.9
	I-80 at Auburn to SR-65 at Blue Oaks	32,850	1502	20	06:29	00:08	23.0
	I-80 at Sierra College to I-80 at Antelope	45,844	1130	14	09:14	00:22	22.6
	I-80 at Auburn to I-80 at Sierra College	36,738	664	11	06:41	00:08	25.0
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,093	256	6	08:39	00:05	22.6
	I-80 at Auburn to SR-65 at Blue Oaks	32,850	410	8	06:21	00:04	23.5
	I-80 at Sierra College to I-80 at Antelope	45,844	499	7	08:33	00:07	24.4
	I-80 at Auburn to I-80 at Sierra College	36,738	232	7	06:34	00:03	25.4

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Network Statistics | **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	235,095	75
Travel Distance [mi]	All Vehicles	930,076	1,154
Travel Time [h]	All Vehicles	21,617	74.4
Average Speed [mph]	All Vehicles	43.0	0.2
Total Delay [h]	All Vehicles	5,295	80.2
Average Delay per Vehicle [s]	All Vehicles	80	1.2
VHD/VMT [min/mile]	All Vehicles	0.34	0.01
Number of Vehicles Served	HOV	46,850	40
Travel Distance [mi]	HOV	199,570	644
Travel Time [h]	HOV	4,465	20
Average Speed [mph]	HOV	44.7	0.2
Total Delay [h]	HOV	1,006	18
Average Delay per Vehicle [s]	HOV	76	1
VHD/VMT [min/mile]	HOV	0.30	0.01
Number of Vehicles Served	Truck	9,251	8
Travel Distance [mi]	Truck	37,309	344
Travel Time [h]	Truck	877	8
Average Speed [mph]	Truck	42.6	0
Total Delay [h]	Truck	217	4
Average Delay per Vehicle [s]	Truck	83	1
VHD/VMT [min/mile]	Truck	0.35	0.01

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	46,850	9,250	235,090
Demand Volume	47,330	9,750	233,500
Percent Demand Served	99.0%	94.9%	100.7%
Vehicle Miles of Travel	199,570	37,310	930,080
Person Miles of Travel	419,100	39,170	1,151,470
Vehicle Hours of Travel	4,470	880	21,620
Vehicle Hours of Delay	1,010	220	5,300
VHD % of VHT	22.6%	25.0%	24.5%
Average Delay per Vehicle (min)	1.29	1.43	1.35
Person Hours of Delay	2,120	230	6,420
Average Travel Speed	44.7	42.6	43.0

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,093	829	13	08:20	00:02	23.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,850	1592	18	06:26	00:02	23.2
	I-80 at Sierra College to I-80 at Antelope	45,844	488	11	08:20	00:02	25.0
	I-80 at Auburn to I-80 at Sierra College	36,738	713	12	06:37	00:01	25.2
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,093	134	5	08:19	00:03	23.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,850	500	10	06:23	00:02	23.4
	I-80 at Sierra College to I-80 at Antelope	45,844	227	7	08:13	00:02	25.4
	I-80 at Auburn to I-80 at Sierra College	36,738	291	9	06:35	00:01	25.4

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,341	47	110.1%	1,104	26	111.5%				61.8	0.8	29.3	0.4	D
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,435	83	110.1%							58.0	3.0	35.9	2.4	E
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,424	103	110.0%				1,397	79	109.1%	59.5	3.7	30.5	3.1	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,023	93	110.1%				419	40	110.3%	61.2	1.8	24.7	1.1	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,602	82	110.0%							62.8	0.4	26.2	0.3	D
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	6,604	81	110.1%	1,066	39	100.5%	1,747	73	107.2%	62.8	0.2	23.9	0.2	C
7	I-80 EB CD - Eureka Rd to SR-65	Weave	175	23	103.1%	964	45	102.6%	513	40	109.1%	60.9	1.0	9.8	0.3	A
8	I-80 EB - Eureka Rd to SR-65	Basic	5,922	105	109.1%							62.3	0.3	27.2	0.4	D
9	I-80 EB - HOV Connector Off-ramp	Diverge	5,921	103	109.0%				748	38	106.9%	60.9	0.7	27.1	0.5	C
10	I-80 EB - SR-65 Off-ramp	Diverge	5,171	101	109.3%				2,940	89	108.9%	63.8	0.3	22.5	0.3	C
11	I-80 EB - SR-65 Off-ramp to Eureka Rd On-ramp	Basic	2,237	84	110.2%							64.1	0.1	13.5	0.4	B
17	I-80 EB - Eureka Rd On-ramp	Merge	2,241	79	110.4%	512	41	108.9%				63.0	0.3	13.9	0.8	B
18	I-80 EB - Eureka Rd On-ramp to SR-65 On-ramp	Basic	2,753	95	110.1%							63.9	0.1	15.2	0.7	B
19	I-80 EB - SR-65 On-ramp	Merge	2,751	94	110.1%	1,630	78	108.0%				61.5	0.3	26.4	0.6	C
20	I-80 EB - SR-65 to Rocklin Rd	Basic	4,382	117	109.3%							63.2	0.1	22.4	0.4	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,394	118	109.6%				1,385	84	105.7%	63.5	0.1	21.5	0.4	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,014	87	111.6%							63.6	0.1	19.4	0.4	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,016	84	111.7%	204	17	107.2%				61.4	0.3	19.6	0.4	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,224	87	111.5%							63.4	0.2	20.1	0.4	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,226	89	111.6%				445	39	108.4%	62.8	0.3	21.2	0.5	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,788	93	112.4%							63.5	0.2	18.4	0.4	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,791	88	112.5%	131	6	101.1%				62.8	0.1	17.2	0.6	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	2,926	91	112.1%	428	14	109.6%				62.3	0.4	18.9	0.6	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,740	25	105.8%				858	56	107.2%	57.7	1.3	26.5	0.7	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,881	73	105.5%							62.6	0.5	23.4	0.4	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,880	79	105.4%	50	3	83.2%				63.2	0.3	20.8	0.6	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,928	75	105.0%	300	9	103.4%				62.2	0.4	22.2	0.6	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,221	83	104.7%							62.7	0.1	25.1	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,219	83	104.7%				245	26	101.9%	61.7	0.6	26.1	0.6	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,967	85	104.7%							63.0	0.4	23.6	0.5	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,967	87	104.7%	1,123	34	102.1%				59.1	1.5	27.1	1.0	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,082	78	103.9%							61.5	0.3	28.9	0.5	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,077	75	103.8%							62.3	0.3	23.9	0.6	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,074	75	103.8%				1,348	82	104.5%	63.5	0.1	22.1	0.3	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,718	86	103.3%							63.6	0.1	20.0	0.3	C
60	I-80 WB - SR-65 to Atlantic St	Weave	3,711	87	103.1%	4,174	116	104.4%	307	33	99.2%	60.0	0.9	23.0	0.7	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,566	139	103.8%				997	53	104.9%	58.3	4.1	28.1	4.3	D
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,565	130	103.5%							60.2	1.4	30.2	0.7	D
64	I-80 WB - Atlantic St On-ramp	Merge	6,566	125	103.6%	1,061	40	108.3%				54.9	5.1	22.2	2.2	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,630	128	104.2%				989	61	100.9%	56.3	3.8	37.0	3.9	E
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,637	155	104.7%							48.9	10.3	46.7	16.3	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,640	169	104.7%	1,001	54	107.6%				28.7	8.3	87.3	22.2	F
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	7,643	186	105.1%	468	21	108.7%				28.7	0.9	74.4	5.6	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,110	232	105.3%							59.0	1.2	35.5	1.2	E
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,098	174	105.2%				756	61	98.2%	62.1	0.1	30.1	0.5	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	7,340	171	105.9%							62.1	0.1	35.0	0.5	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	7,338	168	105.9%	245	7	74.1%				62.8	0.1	27.7	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,583	168	104.5%	936	24	94.5%				62.5	0.2	27.0	0.6	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,534	185	103.4%							62.1	0.1	31.4	0.7	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,540	192	103.5%				326	35	90.5%	61.8	0.4	32.3	0.5	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	8,219	181	104.2%							62.3	0.2	30.6	0.5	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	8,219	177	104.2%	579	19	99.8%				59.7	3.1	31.0	2.5	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,797	168	103.9%	409	12	88.8%	87	16	86.8%	58.2	5.6	33.6	6.1	D
79	I-80 WB - Truck Scales Off to On-ramp	Basic	9,167	181	103.8%							45.5	9.8	51.3	14.6	F
80	I-80 WB - Truck Scales On-ramp	Merge	9,214	204	104.3%	87	18	87.1%				30.2	5.0	78.0	11.4	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	9,375	210	105.0%							36.6	2.9	63.9	4.7	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	9,393	207	105.2%				796	53	107.5%	38.7	7.6	51.3	8.7	F
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	8,670	161	105.9%							28.6	1.2	86.1	5.8	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	8,720	147	106.5%	861	15	102.5%				27.7	0.9	92.5	4.3	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	9,638	144	106.7%	878	27	95.4%				33.2	0.3	75.8	1.2	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	526	7	46.6%				20	10	97.5%	64.5	0.2	7.2	0.1	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	507	14	45.7%							64.5	0.2	6.9	0.1	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	508	15	45.7%	849	16	102.2%				60.2	0.3	10.0	0.1	A
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,358	29	70.0%	831	15	109.4%				59.1	0.8	15.2	0.3	B
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,190	35	81.1%							62.1	0.8	24.7	0.4	C
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,189	35	81.1%							62.5	0.4	23.4	0.3	C
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,191	38	109.0%	1,281	58	105.9%	331	36	103.3%	59.5	0.9	25.0	0.7	C
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,137	78	108.2%							61.9	0.6	29.2	0.8	D
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	3,134	82	108.1%	650	36	114.0%				55.4	3.6	35.1	2.0	E
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,785	90	109.1%							60.7	1.0	35.2	1.5	E
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,786	93	109.1%				423	49	111.2%	62.2	0.1	32.2	1.0	D
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	3,360	92	108.7%							62.6	0.1	29.4	0.9	D
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	3,356	96	108.6%	342	26	107.0%				59.3	3.3	31.4	2.0	D
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	3,694	99	108.3%	149	16	106.7%	431	43	105.1%	61.3	0.6	30.0	1.1	D
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,414	107	108.7%							60.4	5.9	30.1	4.2	D
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,412	106	108.7%	358	20	108.4%				57.0	10.4	35.0	12.4	D
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,768	100	108.6%	442	25	102.9%				50.5	6.9	43.4	7.9	E
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	4,210	105	108.0%							56.9	2.2	39.7	2.3	E
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	4,211	105	108.0%				817	43	108.9%	60.3	1.6	36.9	1.4	E
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,391	95	107.7%							62.2	1.6	29.3	0.9	D
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,389	98	107.6%	415	33	106.3%				52.5	7.0	35.8	5.7	E
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,803	111	107.4%	1,131	45	100.9%	707	60	107.1%	52.9	5.2	36.6	5.4	E
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,224	112	105.6%							60.9	1.1	36.9	1.2	E
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,221	117	105.5%	638	38	102.8%				59.6	1.1	29.2	0.6	D
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,860	123	105.2%	719	38	102.7%				55.7	5.3	33.2	3.7	D
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,575	115	104.8%							60.3	0.8	33.1	0.8	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,574	114	104.8%				926	68	100.7%	61.9	0.4	28.1	0.7	D
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,657	111	105.8%							62.5	0.3	26.7	0.7	D
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,667	105	106.1%	1,129	67	101.7%	4,170	103	104.2%	61.0	0.7	24.1	0.5	C
120	SR-65 SB to EB I-80 Connector	Basic	1,625	79	107.6%							52.8	0.8	23.9	1.1	C
121	SR-65 SB to WB I-80 Connector	Basic	3,317	81	98.1%							54.6	0.4	23.1	0.3	C
123	SR-65 NB from WB I-80 Connector	Basic	1,348	84	104.5%							53.3	0.2	15.1	0.8	B
124	SR-65 NB from EB I-80 Connector	Basic	2,941	91	108.9%							62.4	0.6	27.0	0.8	D
125	SR-65 NB - Eureka Rd On-ramp	Merge	3,688	93	136.6%	630	44	101.6%				49.1	0.2	27.5	0.7	C
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	3,568	104	107.5%	2,096	91	105.3%	1,216	76	105.8%	60.6	0.4	21.7	0.6	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	4,448	144	106.9%							62.4	0.3	23.1	0.6	C
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	4,454	142	107.1%	408	38	102.0%				54.6	6.2	11.4	2.6	B
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,870	141	106.8%							53.9	4.8	37.4	3.9	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,871	142	106.8%				908	66	99.8%	57.0	2.7	34.1	2.2	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,962	112	108.6%							59.8	4.0	37.7	3.6	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,963	112	108.6%	221	31	100.4%	1,884	99	110.1%	62.0	1.4	27.9	1.2	C
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,305	102	106.7%							63.6	0.1	20.2	0.9	C
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,304	100	106.7%	539	46	99.8%				60.6	0.5	22.5	1.1	C
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,841	128	105.2%							62.5	0.2	24.9	1.3	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,839	128	105.1%				1,214	81	104.6%	63.6	0.2	19.4	0.8	B
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	1,626	65	105.6%							63.9	0.2	14.4	0.4	B
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	1,626	65	105.6%	57	16	113.4%				63.9	0.3	14.2	0.5	B
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	1,687	68	106.1%	190	24	111.8%	314	39	98.1%	63.5	0.3	13.8	0.5	B
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	1,562	71	108.5%							63.6	0.2	13.9	0.6	B
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	1,562	72	108.5%	161	25	107.0%				63.2	0.4	14.3	0.6	B
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	1,723	74	108.3%	207	26	108.7%				62.7	0.9	15.8	0.4	B
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	1,930	79	108.4%							62.9	0.7	17.5	0.5	B
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	1,931	80	56.5%				368	38	94.4%	63.0	0.3	17.6	0.5	B
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	1,566	76	51.7%							63.6	0.2	14.9	0.3	B
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	1,571	81	51.9%	267	25	107.0%	855	57	112.5%	63.8	0.2	12.5	0.3	B
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	986	71	39.1%							64.2	0.1	11.0	0.8	A
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	985	71	39.1%				682	56	106.6%	64.5	0.1	9.0	0.6	A
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	302	38	16.1%							64.6	0.3	3.2	0.3	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	303	38	16.1%	15	3	75.0%				64.2	0.3	3.2	0.3	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,711	44	102.1%	970	20	96.0%				61.7	1.0	27.2	0.8	C
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,678	56	101.4%							61.3	1.1	31.9	0.8	D
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	8,674	58	101.3%				1,159	61	100.8%	61.6	0.7	28.6	0.5	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	7,514	88	101.4%				640	45	101.6%	61.4	4.8	25.0	1.9	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,881	83	101.5%							63.0	0.3	25.3	0.4	C
6	I-80 EB - Douglas Blvd to Eureka Rd	Weave	6,885	81	101.5%	1,702	67	100.7%	1,436	74	99.0%	62.5	0.2	25.1	0.3	C
7	I-80 EB CD - Eureka Rd to SR-65	Weave	236	27	102.7%	1,390	58	100.0%	664	50	102.2%	60.9	0.8	15.6	0.3	B
8	I-80 EB - Eureka Rd to SR-65	Basic	7,153	140	101.9%							60.3	2.5	31.2	1.2	D
9	I-80 EB - HOV Connector Off-ramp	Diverge	7,151	134	101.9%				1,118	47	102.6%	57.8	1.6	32.2	1.0	D
10	I-80 EB - SR-65 Off-ramp	Diverge	6,036	143	101.8%				3,503	89	103.3%	63.3	0.5	25.0	0.4	C
11	I-80 EB - SR-65 Off-ramp to Eureka Rd On-ramp	Basic	2,533	116	99.7%							64.2	0.1	14.2	0.6	B
17	I-80 EB - Eureka Rd On-ramp	Merge	2,532	110	99.7%	669	50	102.9%				63.3	0.3	14.8	0.6	B
18	I-80 EB - Eureka Rd On-ramp to SR-65 On-ramp	Basic	3,199	112	100.3%							63.9	0.1	15.9	0.5	B
19	I-80 EB - SR-65 On-ramp	Merge	3,199	113	100.3%	2,052	70	99.6%				61.0	0.4	27.7	0.8	C
20	I-80 EB - SR-65 to Rocklin Rd	Basic	5,250	121	100.0%							63.1	0.2	23.5	0.6	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	5,244	128	99.9%				1,361	76	99.3%	63.5	0.1	22.7	0.4	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,878	101	99.9%							63.4	0.3	21.8	0.6	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,875	101	99.9%	268	13	103.0%				60.5	0.5	22.2	0.6	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	4,139	100	100.0%							63.2	0.2	23.0	0.5	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	4,140	96	100.0%				320	28	96.8%	62.6	0.4	24.2	0.8	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	3,821	95	100.3%							63.3	0.2	21.9	0.4	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	3,823	86	100.3%	256	9	102.4%				61.4	0.6	20.9	0.6	C
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	4,078	87	100.4%	598	14	101.4%				60.4	0.8	24.2	0.6	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	3,578	22	105.8%				592	44	107.6%	60.7	0.8	18.9	0.2	B
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	2,980	58	105.3%							63.7	0.2	17.7	0.3	B
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	2,979	60	105.3%	209	7	99.5%				62.6	0.6	16.6	0.5	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,187	66	104.8%	247	8	102.8%				63.0	0.4	17.6	0.6	B
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	3,429	71	104.5%							63.3	0.3	19.7	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	3,427	70	104.5%				280	31	99.9%	63.1	0.2	20.7	0.6	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,146	72	104.9%							63.7	0.2	18.5	0.3	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,146	68	104.9%	1,568	59	101.8%				58.6	1.2	24.6	1.0	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,708	87	103.7%							61.9	0.5	26.3	0.7	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	4,703	88	103.6%							62.6	0.3	21.2	0.5	C
48	I-80 WB - SR-65 Off-ramp	Diverge	4,701	87	103.5%				1,598	68	103.1%	63.8	0.2	19.5	0.6	B
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,099	102	103.7%							63.9	0.1	17.2	0.6	B
60	I-80 WB - SR-65 to Atlantic St	Weave	3,094	104	103.5%	3,706	110	99.9%	395	37	103.8%	61.7	0.2	19.6	0.4	B
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	6,408	133	101.4%				963	67	100.3%	62.7	0.4	20.5	0.5	C
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	5,448	125	101.6%							62.8	0.3	24.8	0.7	C
64	I-80 WB - Atlantic St On-ramp	Merge	5,451	125	101.7%	1,265	34	98.8%				61.3	0.4	19.7	0.7	B
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	6,716	133	101.1%				1,057	65	98.8%	61.3	0.7	30.5	0.8	D
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	5,654	121	101.5%							63.0	0.3	28.7	0.7	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	5,652	114	101.5%	1,312	54	101.0%				61.3	0.1	25.9	0.3	C
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	6,966	131	101.4%	638	24	91.2%				59.6	2.5	23.9	1.4	C
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,605	104	100.5%							61.4	0.9	31.0	0.8	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,607	138	100.5%				996	61	102.7%	62.1	0.9	27.7	0.6	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,616	133	100.2%							62.3	0.4	32.0	0.4	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,615	131	100.2%	204	12	97.0%				62.9	0.1	25.6	0.4	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,818	140	100.1%	743	24	106.1%				61.7	1.0	23.0	0.7	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,557	145	100.6%							62.3	0.2	28.1	0.8	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,550	149	100.5%				961	73	102.2%	60.8	2.9	29.4	1.4	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,591	167	100.3%							62.5	0.8	25.3	0.4	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,593	165	100.3%	359	3	94.4%				60.3	1.2	23.3	1.0	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	6,955	159	100.1%	367	13	99.1%	65	14	71.9%	62.3	0.4	24.6	0.5	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,257	158	100.4%							62.8	0.4	26.9	0.6	D
80	I-80 WB - Truck Scales On-ramp	Merge	7,254	158	100.3%	64	16	70.8%				62.6	0.1	26.5	0.9	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	7,316	144	99.9%							61.8	0.2	28.1	0.7	D
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	7,313	143	99.9%				1,080	72	98.2%	62.2	0.4	26.2	0.7	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	6,230	141	100.2%							63.0	0.2	23.9	0.6	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	6,229	135	100.1%	898	4	99.8%				56.9	1.7	26.2	1.5	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	7,127	137	100.1%	659	22	103.0%				61.2	1.2	28.9	0.9	D

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VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	379	5	33.5%				27	11	88.3%	64.8	0.4	3.3	0.0	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	352	14	32.0%							64.8	0.4	3.0	0.1	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	353	14	32.0%	476	12	101.3%				60.2	0.3	5.2	0.1	A
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	828	20	52.7%	349	10	99.7%				61.3	0.3	6.8	0.2	A
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	1,177	24	61.3%							64.2	0.2	11.6	0.4	B
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	1,177	27	61.3%							64.4	0.2	10.9	0.4	A
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	1,176	27	98.8%	1,151	46	100.1%	267	35	95.5%	61.8	0.5	13.9	0.4	B
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,059	47	100.0%							63.8	0.2	16.8	0.4	B
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,058	48	99.9%	413	34	98.4%				61.8	0.2	18.7	0.6	B
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	2,473	61	99.7%							63.4	0.2	20.1	0.6	C
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	2,473	67	99.7%				444	44	98.7%	63.4	0.2	19.0	0.5	B
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,029	60	99.9%							63.6	0.2	16.6	0.4	B
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,031	62	100.0%	344	28	104.3%				62.2	0.5	18.4	0.5	B
101	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	2,377	65	100.7%	309	32	99.8%	245	29	98.2%	62.6	0.3	19.5	0.5	B
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	2,437	75	100.7%							63.1	0.2	20.4	0.6	C
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	2,438	76	100.7%	618	35	106.6%				60.3	0.9	24.2	0.8	C
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,057	86	101.9%	719	28	102.7%				56.7	2.9	33.1	1.4	D
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	3,778	94	102.1%							60.3	0.8	32.8	1.0	D
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	3,776	96	102.0%				734	43	96.6%	62.2	0.2	31.2	0.9	D
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,036	97	103.2%							63.0	0.2	25.5	0.9	C
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,036	96	103.3%	396	28	104.1%				59.3	0.7	27.5	1.1	C
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,435	93	103.5%	1,100	61	101.8%	573	52	98.8%	60.3	0.4	28.6	0.9	D
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	3,951	128	103.4%							61.9	0.5	32.8	1.1	D
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	3,948	128	103.4%	486	36	101.2%				61.2	0.3	25.8	0.8	C
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,432	128	103.1%	838	49	99.8%				61.0	0.8	26.4	0.9	C
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,265	127	102.4%							61.5	0.3	29.1	0.4	D
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,264	127	102.4%				1,004	59	100.4%	62.5	0.3	25.0	0.7	C
115	SR-65 SB - Galleria Off to On-ramp	Basic	4,265	107	103.0%							62.8	0.3	24.4	0.4	C
117	SR-65 SB - Galleria Blvd to I-80	Weave	4,264	113	103.0%	1,501	60	92.1%	3,708	108	100.0%	59.9	1.2	22.8	0.6	C
120	SR-65 SB to EB I-80 Connector	Basic	2,056	64	99.8%							51.9	0.6	26.3	1.2	D
121	SR-65 SB to WB I-80 Connector	Basic	3,109	113	91.7%							55.2	0.4	20.2	0.9	C
123	SR-65 NB from WB I-80 Connector	Basic	1,600	68	103.2%							53.1	0.2	17.2	0.5	B
124	SR-65 NB from EB I-80 Connector	Basic	3,505	90	103.4%							62.0	0.4	32.3	0.8	D
125	SR-65 NB - Eureka Rd On-ramp	Merge	4,628	97	136.5%	957	56	98.6%				48.8	0.1	32.8	0.8	D
126	SR-65 NB - I-80 to Stanford Ranch Rd	Weave	4,468	113	102.5%	2,721	89	103.1%	1,954	97	101.2%	59.5	0.4	25.6	0.6	C
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	5,238	99	103.3%							62.1	0.3	25.2	0.4	C
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	5,235	101	103.2%	677	47	91.5%				53.2	4.6	17.8	2.3	B
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	5,915	129	101.8%							52.8	4.0	39.6	2.7	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	5,916	129	101.8%				1,474	52	103.1%	56.8	2.1	35.3	1.5	E
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	4,437	114	101.3%							60.4	2.3	37.5	2.5	E
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	4,437	111	101.3%	586	47	99.3%	1,714	77	100.8%	62.0	0.3	30.1	0.9	D
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	3,304	98	101.0%							60.7	5.8	27.8	3.9	D
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	3,306	98	101.1%	757	60	105.1%				48.8	9.3	38.8	10.4	E
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	4,052	130	101.6%							61.2	0.5	34.0	1.6	D
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	4,049	133	101.5%				860	59	103.7%	62.7	0.1	28.8	1.2	D
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	3,187	120	100.9%							62.9	0.1	25.9	1.3	C
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	3,188	125	100.9%	53	14	88.2%				62.2	1.5	26.2	1.1	C
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	3,239	129	100.6%	355	30	104.3%	534	42	102.8%	62.3	0.2	24.9	1.0	C
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	3,061	121	100.7%							62.7	0.2	25.5	1.1	C
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	3,061	115	100.7%	122	25	101.7%				62.6	0.3	25.7	1.1	C
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,181	112	100.6%	263	29	101.0%				61.6	0.3	27.2	1.0	C
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	3,442	123	100.6%							61.5	0.3	29.1	1.2	D
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	3,441	122	100.6%				728	53	101.1%	61.1	0.9	29.7	1.1	D
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,710	112	100.4%							63.0	0.2	22.6	0.7	C
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,706	110	100.2%	295	36	95.2%	1,175	78	100.4%	63.3	0.2	18.6	0.6	B
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	1,823	87	99.1%							63.5	0.1	17.9	0.8	B
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,824	86	99.1%				1,402	80	99.5%	64.1	0.2	14.0	0.7	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	421	37	98.0%							64.7	0.2	3.7	0.4	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	421	38	98.0%	29	3	97.7%				64.0	0.3	3.7	0.4	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	2,445	2,683	109.7%	11.0	0.8	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,150	1,274	110.8%	10.0	1.9	A
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,265	1,335	105.5%	10.0	0.6	A
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,335	2,497	106.9%	10.9	0.9	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,505	2,710	108.2%	12.4	0.4	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks	Signal	4,655	4,830	103.8%	33.1	2.1	C
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,065	3,275	106.8%	10.8	0.9	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	3,905	4,483	114.8%	6.5	0.5	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	3,080	3,134	101.7%	14.3	0.8	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	2,990	3,126	104.5%	23.9	0.9	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,215	3,389	105.4%	8.4	0.6	A
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,050	3,093	101.4%	18.6	1.0	B
13	Galleria Blvd/Antelope Creek Dr	Signal	1,935	1,906	98.5%	9.6	1.5	A
14	Galleria Blvd/Roseville Pkwy	Signal	4,136	4,452	107.6%	32.9	1.1	C
15	Creekside Ridge Dr/Roseville Pkwy	Signal	2,780	2,944	105.9%	5.9	1.8	A
16	Taylor Rd/East Roseville Pkwy	Signal	4,410	4,689	106.3%	48.8	5.5	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	3,895	4,168	107.0%	29.8	5.0	C
18	Wills Rd/Atlantic St	Signal	1,985	2,163	109.0%	18.9	4.2	B
19	I-80 WB Ramps/Atlantic St	Signal	3,350	3,591	107.2%	25.5	12.3	C
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,185	5,470	105.5%	30.5	5.6	C
21	North Sunrise Ave/Eureka Rd	Signal	4,435	4,698	105.9%	35.1	5.3	D
22	Harding Blvd/Wills Rd	Signal	1,795	1,922	107.1%	14.4	2.4	B
23	Harding Blvd/Douglas Blvd	Signal	2,595	2,828	109.0%	23.1	5.2	C
24	I-80 WB Ramps/Douglas Blvd	Signal	3,705	3,973	107.2%	11.8	1.6	B

Network Summary	
Total Demand Volume (veh/hr)	73,866
Total Volume Served (veh/hr)	78,630
Percent Served	106.4%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	4,085	4,436	108.6%	8.5	0.8	A
26	North Sunrise Ave/Douglas Blvd	Signal	4,400	4,720	107.3%	37.1	2.1	D
27	Pacific St/Woodside Dr	Signal	1,525	1,652	108.3%	6.5	0.4	A
28	Pacific St/Sunset Blvd	Signal	2,345	2,547	108.6%	17.2	1.3	B
29	Granite Dr/Rocklin Rd	Signal	2,486	2,586	104.0%	19.1	1.3	B
30	I-80 WB Ramps/Rocklin Rd	Signal	2,690	2,821	104.9%	39.6	9.9	D
31	I-80 EB Ramps/Rocklin Rd	Signal	2,575	2,758	107.1%	35.1	11.6	D
32	Aguilar Rd/Rocklin Rd	Signal	1,930	2,093	108.5%	19.4	15.6	B
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,395	2,614	109.1%	9.1	0.7	A
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,640	1,753	106.9%	26.3	3.1	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,660	1,822	109.7%	11.7	0.4	B
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,620	1,726	106.5%	8.3	1.0	A
40	Galleria Blvd/Berry St	Signal	1,595	1,692	106.1%	8.2	1.1	A

Network Summary	
Total Demand Volume (veh/hr)	30,946
Total Volume Served (veh/hr)	33,219
Percent Served	107.3%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **AM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	23	5	140	23	NO
	Through						
	Right Turn	1500	23	5	140	23	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	5	2	51	13	NO
	Through						
	Right Turn	1500	5	2	51	13	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	41	5	164	29	NO
	Through						
	Right Turn	1330	43	5	166	29	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1400	60	5	277	100	NO
	Through						
	Right Turn	1400	9	1	78	11	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **AM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	28	6	133	24	NO
	Through	2260	69	6	275	74	NO
	Right Turn	200	0	0	31	52	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	30	13	194	34	NO
	Through						
	Right Turn	1100	30	13	194	34	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	26	4	145	40	NO
	Through						
	Right Turn	1130	29	3	147	40	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1420	40	6	167	18	NO
	Through						
	Right Turn	1420	39	6	166	18	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **AM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1800	0	0	80	28	NO
WB	Left Turn						
	Through						
	Right Turn	1170	0	0	0	0	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1130	43	4	211	28	NO
WB	Left Turn						
	Through						
	Right Turn	1780	0	0	30	36	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Alt 3 (No Taylor)**
Queue Length **AM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	57	5	223	193	MAX
	Through	1700	113	38	821	259	NO
	Right Turn	1700	20	23	521	252	NO
SB	Left Turn	550	19	3	87	26	NO
	Through						
	Right Turn	550	63	14	316	96	NO
EB	Left Turn	1120	32	4	131	38	NO
	Through	1120	79	19	584	121	NO
	Right Turn	810	3	3	182	120	NO
WB	Left Turn						
	Through	1370	71	15	477	98	NO
	Right Turn	280	0	0	44	29	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1530	72	73	363	74	NO
	Through	1530	72	73	363	74	NO
	Right Turn	730	72	74	363	74	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **AM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	0	0	21	60	NO
SB	Left Turn						
	Through						
	Right Turn	1250	15	3	104	14	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	25	14	212	62	NO
	Through						
	Right Turn	1230	34	18	233	62	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	58	6	260	67	NO
	Through						
	Right Turn	1080	35	7	273	70	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **AM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	21	5	160	18	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	23	8	207	54	NO
	Through						
	Right Turn	1650	23	8	207	54	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	32	4	164	34	NO
	Through						
	Right Turn	1620	32	4	164	34	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	3,030	3,028	99.9%	14.2	1.3	B
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,060	1,038	97.9%	10.5	0.8	B
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,505	1,483	98.5%	12.4	1.0	B
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,690	2,786	103.6%	6.1	0.6	A
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,610	2,738	104.9%	13.8	0.7	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks	Signal	5,570	5,813	104.4%	39.9	3.9	D
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,920	4,144	105.7%	12.0	1.0	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	4,970	5,199	104.6%	7.9	0.8	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	4,605	4,665	101.3%	12.7	0.8	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	4,540	4,529	99.8%	37.2	4.6	D
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	5,390	5,333	98.9%	10.1	1.1	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	5,250	5,039	96.0%	17.0	1.2	B
13	Galleria Blvd/Antelope Creek Dr	Signal	3,870	3,619	93.5%	19.6	1.3	B
14	Galleria Blvd/Roseville Pkwy	Signal	6,525	6,486	99.4%	58.1	5.8	E
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,970	3,949	99.5%	17.3	3.6	B
16	Taylor Rd/East Roseville Pkwy	Signal	6,265	6,230	99.4%	53.4	8.9	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,490	5,588	101.8%	36.8	3.7	D
18	Wills Rd/Atlantic St	Signal	2,655	2,749	103.6%	28.5	10.8	C
19	I-80 WB Ramps/Atlantic St	Signal	4,080	4,126	101.1%	28.5	15.3	C
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	6,105	6,146	100.7%	77.7	9.2	E
21	North Sunrise Ave/Eureka Rd	Signal	5,785	6,033	104.3%	48.0	3.5	D
22	Harding Blvd/Wills Rd	Signal	2,650	2,739	103.3%	15.7	4.9	B
23	Harding Blvd/Douglas Blvd	Signal	3,615	3,575	98.9%	49.2	10.2	D
24	I-80 WB Ramps/Douglas Blvd	Signal	4,490	4,508	100.4%	17.7	4.5	B

Network Summary	
Total Demand Volume (veh/hr)	100,640
Total Volume Served (veh/hr)	101,540
Percent Served	100.9%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 3 (No Taylor)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,095	5,157	101.2%	10.3	3.4	B
26	North Sunrise Ave/Douglas Blvd	Signal	5,735	5,790	101.0%	46.9	4.6	D
27	Pacific St/Woodside Dr	Signal	2,390	2,388	99.9%	8.0	0.9	A
28	Pacific St/Sunset Blvd	Signal	3,635	3,645	100.3%	23.5	2.6	C
29	Granite Dr/Rocklin Rd	Signal	3,460	3,567	103.1%	109.8	20.5	F
30	I-80 WB Ramps/Rocklin Rd	Signal	3,430	3,546	103.4%	47.3	6.6	D
31	I-80 EB Ramps/Rocklin Rd	Signal	2,995	3,102	103.6%	48.4	10.6	D
32	Aguilar Rd/Rocklin Rd	Signal	2,215	2,305	104.1%	63.5	50.5	E
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,890	2,887	99.9%	9.0	0.6	A
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,730	1,721	99.5%	26.8	1.4	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,895	1,940	102.4%	14.7	1.0	B
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,930	1,964	101.8%	14.4	1.1	B
40	Galleria Blvd/Berry St	Signal	2,480	2,509	101.1%	8.4	0.8	A

Network Summary	
Total Demand Volume (veh/hr)	39,880
Total Volume Served (veh/hr)	40,520
Percent Served	101.6%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	24	5	155	52	NO
	Through						
	Right Turn	1,500	25	5	156	52	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	19	2	105	17	NO
	Through						
	Right Turn	1,500	19	2	105	17	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	30	4	114	14	NO
	Through						
	Right Turn	1,330	32	4	116	14	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,400	53	4	209	45	NO
	Through						
	Right Turn	1,400	6	0	57	8	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	49	9	185	71	NO
	Through	2,260	59	12	248	45	NO
	Right Turn	200	0	0	10	17	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	37	7	191	31	NO
	Through						
	Right Turn	1,100	37	7	191	31	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	24	4	125	20	NO
	Through						
	Right Turn	1,130	27	4	127	20	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,420	43	3	160	25	NO
	Through						
	Right Turn	1,420	43	3	160	25	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1,800	4	0	133	51	NO
WB	Left Turn						
	Through						
	Right Turn	1,170	0	0	0	0	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1,130	44	3	213	49	NO
WB	Left Turn						
	Through						
	Right Turn	1,780	2	0	103	43	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1,430	0	0	0	0	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	181	187	1,271	298	AVG
	Through	1,700	254	240	1,310	272	NO
	Right Turn	1,700	113	172	1,033	329	NO
SB	Left Turn	550	24	3	86	22	NO
	Through						
	Right Turn	550	76	11	415	145	NO
EB	Left Turn	1,120	55	5	188	31	NO
	Through	1,120	75	14	542	84	NO
	Right Turn	810	2	2	154	79	NO
WB	Left Turn						
	Through	1,370	340	261	1,282	94	NO
	Right Turn	280	5	5	138	51	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,530	80	82	360	87	NO
	Through	1,530	80	82	360	87	NO
	Right Turn	730	81	83	360	87	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Alt 3 (No Taylor)**
Queue Length **PM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1400	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1250	36	8	273	92	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	54	25	259	105	NO
	Through						
	Right Turn	1230	67	26	280	105	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1080	106	32	344	102	NO
	Through						
	Right Turn	1080	60	28	348	100	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Alt 3 (No Taylor)**
Queue Length | **PM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1940	0	0	0	0	NO
	Through						
	Right Turn	1940	50	3	246	69	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1650	29	3	171	27	NO
	Through						
	Right Turn	1650	29	3	171	27	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1620	63	4	259	40	NO
	Through						
	Right Turn	1620	63	4	259	40	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

I-80/SR 65 Interchange Improvements

Vissim Model Results – Construction Year Alternative 5 (No Build)

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Construction Year - Alt 5 (No Build)**
Network Statistics **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	163,776	143
Travel Distance [mi]	All Vehicles	740,654	1,696
Travel Time [h]	All Vehicles	23,042	236.2
Average Speed [mph]	All Vehicles	32.1	0.3
Total Delay [h]	All Vehicles	10,333	231.5
Average Delay per Vehicle [s]	All Vehicles	218.7	4.8
VHD/VMT [min/mile]	All Vehicles	0.84	0.02
Number of Vehicles Served	HOVs	31,606	77
Travel Distance [mi]	HOVs	151,373	492
Travel Time [h]	HOVs	4,398	38.6
Average Speed [mph]	HOVs	34.4	0.3
Total Delay [h]	HOVs	1,825	39.4
Average Delay per Vehicle [s]	HOVs	199.8	4.1
VHD/VMT [min/mile]	HOVs	0.72	0.02
Number of Vehicles Served	Trucks	7,543	29
Travel Distance [mi]	Trucks	36,837	398
Travel Time [h]	Trucks	1,180	18.9
Average Speed [mph]	Trucks	31.2	0.3
Total Delay [h]	Trucks	543	13.7
Average Delay per Vehicle [s]	Trucks	247.8	6.0
VHD/VMT [min/mile]	Trucks	0.88	0.02

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	31,610	7,540	163,780
Demand Volume	33,800	8,390	169,670
Percent Demand Served	93.5%	89.9%	96.5%
Vehicle Miles of Travel	151,370	36,840	740,650
Person Miles of Travel	317,880	38,680	909,000
Vehicle Hours of Travel	4,400	1,180	23,040
Vehicle Hours of Delay	1,830	540	10,330
VHD % of VHT	41.6%	45.8%	44.8%
Average Delay per Vehicle (min)	3.47	4.30	3.78
Person Hours of Delay	3,840	570	12,370
Average Travel Speed	34.4	31.2	32.1

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,113	535	12	17:10	01:03	11.4
	I-80 at Auburn to SR-65 at Blue Oaks	32,843	1474	18	09:05	00:58	16.4
	I-80 at Sierra College to I-80 at Antelope	45,830	1125	10	12:12	00:46	17.1
	I-80 at Auburn to I-80 at Sierra College	36,738	678	11	07:01	00:57	23.8
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,113	171	6	13:58	00:51	14.0
	I-80 at Auburn to SR-65 at Blue Oaks	32,843	360	8	08:51	00:53	16.9
	I-80 at Sierra College to I-80 at Antelope	45,830	504	8	08:52	00:12	23.5
	I-80 at Auburn to I-80 at Sierra College	36,738	224	7	06:37	00:11	25.2

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Construction Year - Alt 5 (No Build)**
Network Statistics | **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	216,607	2,142
Travel Distance [mi]	All Vehicles	805,449	16,684
Travel Time [h]	All Vehicles	37,227	669.3
Average Speed [mph]	All Vehicles	21.6	0.3
Total Delay [h]	All Vehicles	23,023	480.4
Average Delay per Vehicle [s]	All Vehicles	368.1	6.5
VHD/VMT [min/mile]	All Vehicles	1.72	0.03
Number of Vehicles Served	HOVs	42,854	505
Travel Distance [mi]	HOVs	173,711	3,643
Travel Time [h]	HOVs	6,741	217.5
Average Speed [mph]	HOVs	25.8	1.3
Total Delay [h]	HOVs	3,713	272.1
Average Delay per Vehicle [s]	HOVs	301.6	24.8
VHD/VMT [min/mile]	HOVs	1.28	0.12
Number of Vehicles Served	Trucks	8,196	103
Travel Distance [mi]	Trucks	29,871	728
Travel Time [h]	Trucks	1,533	62.6
Average Speed [mph]	Trucks	19.5	0.7
Total Delay [h]	Trucks	996	56.2
Average Delay per Vehicle [s]	Trucks	418.8	21.4
VHD/VMT [min/mile]	Trucks	2.00	0.10

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	42,850	8,200	216,610
Demand Volume	47,340	10,010	235,650
Percent Demand Served	90.5%	81.9%	91.9%
Vehicle Miles of Travel	173,710	29,870	805,450
Person Miles of Travel	364,790	31,360	998,020
Vehicle Hours of Travel	6,740	1,530	37,230
Vehicle Hours of Delay	3,710	1,000	23,020
VHD % of VHT	55.0%	65.4%	61.8%
Average Delay per Vehicle (min)	5.19	7.32	6.38
Person Hours of Delay	7,790	1050	27,150
Average Travel Speed	25.8	19.5	21.6

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,113	655	12	13:31	00:28	14.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,843	1019	68	35:10	03:11	4.2
	I-80 at Sierra College to I-80 at Antelope	45,830	496	11	12:14	01:18	17.0
	I-80 at Auburn to I-80 at Sierra College	36,738	493	32	31:30	03:29	5.3
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,113	115	6	13:01	00:27	15.1
	I-80 at Auburn to SR-65 at Blue Oaks	32,843	386	11	14:07	01:09	10.6
	I-80 at Sierra College to I-80 at Antelope	45,830	200	6	11:52	01:14	17.6
	I-80 at Auburn to I-80 at Sierra College	36,738	270	9	10:06	01:18	16.5

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,176	154	109.6%	928	45	103.1%				58.1	12.7	37.4	42.7	E
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,063	288	108.2%							55.5	14.7	39.0	32.1	E
3	I-80 EB - Douglas Blvd Slip Off	Diverge	8,044	329	108.0%				1,391	124	106.2%	55.3	13.4	33.5	21.1	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	6,634	284	108.0%				560	85	103.6%	52.8	10.3	40.1	23.9	E
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,064	269	108.3%							63.3	0.1	24.7	0.5	C
6	I-80 EB - Douglas Blvd On-ramp	Merge	6,061	272	108.2%	887	24	99.7%				61.9	0.5	28.3	0.7	D
7	I-80 EB - Eureka Rd Off-ramp	Diverge	6,942	292	107.0%				1,375	109	105.7%	59.0	2.1	30.3	2.0	D
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	5,566	236	107.3%							62.6	0.5	24.7	0.3	C
9	I-80 EB - Eureka Rd EB On-ramp	Merge	5,569	236	107.3%	199	23	110.3%				62.4	0.4	23.0	0.4	C
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	5,767	242	107.4%	443	42	103.0%	348	34	102.4%	59.7	11.0	25.3	20.5	C
11	I-80 EB - Taylor Rd to SR-65	Basic	5,844	285	107.0%							50.1	15.2	38.7	27.5	E
17	I-80 EB - SR-65 Off-ramp	Diverge	5,841	276	107.0%				2,967	162	105.6%	39.3	16.9	66.1	33.3	F
18	I-80 EB - SR-65 Off to On-ramp	Basic	2,855	153	107.7%							63.9	0.2	14.8	0.5	B
19	I-80 EB - SR-65 On-ramp	Merge	2,856	158	107.8%	1,139	69	86.9%				62.8	0.4	19.8	0.8	B
21	I-80 EB - SR-65 to Rocklin Rd	Basic	4,001	183	101.0%							63.5	0.1	18.8	0.6	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,000	178	101.0%				1,339	80	101.4%	47.4	8.9	73.1	33.7	F
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	2,648	107	100.3%							63.8	0.2	16.5	0.5	B
24	I-80 EB - Rocklin Rd On-ramp	Merge	2,649	110	100.3%	275	12	105.6%				60.2	0.5	17.5	0.6	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	2,924	109	100.8%							63.6	0.4	17.9	0.6	B
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	2,926	109	100.9%				405	41	101.2%	63.2	0.6	19.1	0.6	B
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,527	98	101.1%							63.7	0.3	16.5	0.6	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,531	97	101.2%	134	7	103.2%				63.0	0.2	15.4	0.6	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	2,669	98	101.5%	387	12	101.8%				61.2	0.5	16.9	0.7	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,881	22	105.0%				842	52	105.3%	56.1	2.1	28.0	0.9	C
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	4,038	61	104.9%							61.3	0.7	24.7	0.5	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	4,039	62	104.9%	50	3	82.8%				62.8	0.3	21.3	0.5	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	4,089	70	104.6%	299	9	103.1%				57.0	1.6	23.7	0.8	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,385	68	104.4%							63.0	0.2	24.8	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,385	69	104.4%				250	40	104.1%	62.8	0.3	24.5	0.7	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,134	94	104.4%							63.0	0.2	23.5	0.5	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,133	90	104.4%	912	24	101.4%				55.6	2.0	28.5	1.5	D
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,037	109	103.6%							62.1	0.6	28.2	0.7	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,037	114	103.6%							60.7	2.4	22.3	1.1	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,034	112	103.6%				1,368	76	102.8%	51.7	9.7	51.3	32.0	F
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,660	94	103.7%							63.6	0.1	19.4	0.3	C
50	I-80 WB - SR-65 On-ramp	Merge	3,659	95	103.6%	2,991	84	88.5%				55.6	12.8	31.9	16.3	D
60	I-80 WB - Taylor Rd On-ramp	Merge	6,647	155	96.2%	642	42	110.7%				40.3	17.8	56.3	33.3	F
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	7,279	190	97.2%				321	40	103.5%	25.0	13.9	96.3	34.3	F
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	6,949	202	96.8%				944	65	98.4%	22.2	11.0	93.1	20.4	F
63	I-80 WB - Atlantic St Off to On-ramp	Basic	5,992	183	96.3%							17.2	1.9	107.8	15.8	F
64	I-80 WB - Atlantic St On-ramp	Merge	5,989	168	96.3%	991	52	106.5%				18.1	2.5	107.1	20.3	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	6,978	136	97.6%				828	56	92.0%	26.9	1.0	46.2	3.8	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,141	97	98.2%							28.8	1.1	85.2	4.4	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,144	98	98.3%	976	37	104.9%				24.8	0.5	114.3	5.1	F
68	I-80 WB - Douglas Blvd Slip On	Merge	7,121	96	99.2%	452	19	107.5%				34.4	0.6	70.9	1.0	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,576	98	99.7%							60.8	0.2	34.6	0.2	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,573	93	99.7%				666	45	84.3%	61.9	0.1	32.1	0.3	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,907	110	101.4%							62.4	0.1	31.2	0.3	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,909	107	101.5%	281	6	82.6%				62.8	0.1	25.0	0.4	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,191	116	100.6%	897	5	88.8%				63.1	0.3	22.1	0.5	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,088	128	99.1%							62.6	0.1	28.3	0.3	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,088	121	99.1%				340	28	91.9%	62.6	0.1	27.3	0.4	C
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	7,751	130	99.5%							62.7	0.1	27.4	0.4	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	7,751	129	99.5%	581	5	100.2%				55.5	2.4	32.1	2.7	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,331	127	99.5%	414	14	90.1%	80	13	80.3%	60.0	1.2	29.6	1.0	D
79	I-80 WB - Truck Scales Off to On-ramp	Basic	8,670	110	99.3%							62.4	0.1	31.6	0.5	D
80	I-80 WB - Truck Scales On-ramp	Merge	8,677	110	99.4%	81	14	80.7%				60.0	2.1	33.1	1.6	D
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	8,770	117	99.3%							53.1	5.4	40.8	5.1	E
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	8,777	115	99.4%				721	55	97.4%	53.2	10.2	35.8	8.9	E
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	8,076	137	99.8%							36.7	11.6	64.1	22.0	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	8,107	153	100.2%	828	16	98.6%				27.5	4.2	93.4	14.4	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	9,016	165	101.0%	871	24	94.7%				32.4	0.4	81.9	2.5	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	508	6	108.1%				20	7	99.5%	64.7	0.2	5.4	0.1	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	488	11	108.5%							64.6	0.2	5.3	0.1	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	489	12	108.7%	869	14	105.9%				59.4	0.4	11.6	0.1	B
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,355	30	106.7%	757	36	101.0%				37.3	20.1	38.3	44.5	E
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,025	124	100.2%							19.6	24.1	90.1	60.5	F
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	1,991	141	98.6%							10.1	11.9	118.7	57.9	F
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	1,932	142	95.7%	1,000	143	84.8%	285	46	89.0%	4.9	2.1	152.8	29.0	F
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,436	226	84.6%							5.3	0.7	164.7	6.1	F
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,406	230	83.5%	512	46	98.5%				5.3	0.7	163.5	5.9	F
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	2,769	280	81.4%							6.7	1.0	153.4	6.9	F
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	2,714	296	79.8%				304	52	84.5%	9.0	1.3	142.4	8.8	F
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,290	266	75.3%							4.6	0.7	166.0	8.4	F
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,242	267	73.8%	239	26	108.7%				4.0	0.4	164.7	5.7	F
148	SR-65 SB - Placer Pkwy EB On-ramp	Merge	2,395	260	73.5%	195	19	108.5%				4.9	0.4	151.9	4.6	F
101	SR-65 SB - Sunset Blvd Off-ramp	Diverge	2,520	274	73.3%				310	80	60.7%	5.0	0.5	170.8	10.2	F
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	2,058	205	70.2%							6.4	0.4	154.4	3.9	F
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	2,033	189	69.4%	233	14	93.1%				7.3	0.8	138.5	5.2	F
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	2,225	178	70.0%	328	23	102.5%				9.5	1.1	125.9	5.7	F
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	2,506	172	71.6%							8.5	0.9	139.5	5.8	F
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	2,505	164	71.6%				490	78	76.5%	8.3	0.8	138.6	4.6	F
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	2,012	89	70.3%							7.5	0.6	145.2	3.1	F
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	2,022	92	70.7%	418	9	102.0%				9.5	0.6	111.0	2.3	F
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	2,440	95	74.6%	899	51	81.0%	434	48	71.1%	12.9	0.9	96.0	2.8	F
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	2,913	76	77.3%							16.6	1.2	98.6	2.2	F
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	2,914	75	77.3%	513	37	104.8%				20.1	1.5	78.9	3.0	F
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	3,428	66	80.5%	597	6	94.7%				32.3	0.9	58.2	1.2	F
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	4,022	68	82.3%							55.2	1.4	36.2	1.1	E
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	4,022	68	82.3%				783	50	73.1%	59.6	0.7	34.0	0.7	D
115	SR-65 SB - Galleria Blvd Off-ramp to Lane Add	Basic	3,240	82	84.8%							61.5	0.8	29.3	0.4	D
116	SR-65 SB - Lane Add to Galleria Blvd On-ramp	Basic	3,240	78	84.8%							63.3	0.1	20.1	0.3	C
117	SR-65 SB - Galleria Blvd On-ramp	Merge	3,240	81	84.8%	878	49	100.9%				58.6	1.4	25.9	0.8	C
118	SR-65 SB - I-80 WB Off-ramp	Diverge	4,120	86	87.8%				2,994	81	88.6%	62.5	0.6	24.1	0.6	C
125	SR-65 NB - I-80 WB On-ramp	Merge	2,911	139	103.6%	1,357	77	102.0%				26.6	1.1	87.3	4.0	F
126	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,241	139	102.4%							57.2	1.4	35.5	3.1	E
127	SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	4,241	139	102.4%				709	58	94.5%	56.8	1.9	36.4	2.9	E
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,526	127	104.0%							50.0	12.2	38.9	11.7	E
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	3,527	113	104.0%	776	36	103.5%				32.9	6.2	63.5	10.9	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,301	104	103.9%							57.8	1.5	37.7	0.9	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,302	103	103.9%				622	46	95.6%	60.4	1.2	32.9	0.5	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,680	109	105.5%							62.3	0.4	30.9	0.6	D
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,682	112	105.5%	234	28	97.5%	1,690	85	105.0%	63.0	0.2	23.7	0.5	C
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,224	78	104.9%							63.5	0.2	18.7	0.6	C
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,224	78	104.9%	417	34	88.6%				60.0	0.8	21.0	0.8	C
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,639	80	101.9%							62.5	0.3	23.8	0.8	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,637	78	101.8%				1,146	61	102.3%	63.6	0.2	18.5	0.4	B
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	1,492	66	101.5%							63.8	0.2	12.8	0.5	B
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	1,492	66	101.5%	51	13	102.6%				63.0	0.4	12.9	0.5	B
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	1,542	71	101.5%	247	21	107.4%	313	33	97.9%	63.7	0.2	12.7	0.4	B
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	1,477	61	103.3%							63.8	0.2	12.8	0.4	B
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	1,477	62	103.3%	191	22	100.4%				61.6	0.7	13.7	0.5	B
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	1,670	68	103.1%	219	24	109.3%				63.4	0.2	15.6	0.5	B
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	1,888	71	103.7%							63.5	0.2	16.2	0.5	B
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	1,888	71	115.8%				360	43	87.7%	63.3	0.2	16.6	0.5	B
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	1,528	61	125.2%							63.7	0.1	13.5	0.4	B
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	1,529	60	125.3%	246	24	98.5%	840	54	110.5%	63.9	0.2	11.7	0.4	B
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	939	49	132.3%							64.6	0.2	8.0	0.4	A
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	939	50	132.3%				660	41	103.0%	64.4	0.2	9.7	0.6	A
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	280	26	400.6%							64.6	0.2	2.9	0.2	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	281	27	401.9%	14	2	70.0%				64.2	0.2	2.9	0.2	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	5,560	986	74.3%	501	216	54.4%				22.8	5.1	180.4	14.1	F
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	6,043	1,149	71.9%							15.5	4.3	142.0	16.0	F
3	I-80 EB - Douglas Blvd EB Off-ramp	Diverge	6,031	1,114	71.8%				778	213	67.0%	20.0	4.1	102.9	7.6	F
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	5,228	913	72.2%				478	145	68.3%	28.6	11.8	157.6	17.2	F
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	4,739	785	72.5%							21.4	4.3	144.5	41.9	F
6	I-80 EB - Douglas Blvd On-ramp	Merge	4,764	774	72.8%	638	166	50.7%				9.3	1.7	165.3	8.5	F
7	I-80 EB - Eureka Rd Off-ramp	Diverge	5,418	810	69.5%				816	122	72.2%	12.5	4.0	131.1	17.6	F
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	4,626	650	69.4%							18.9	2.1	147.9	11.6	F
9	I-80 EB - Eureka Rd EB On-ramp	Merge	4,639	632	69.5%	297	21	98.9%				11.7	1.5	146.5	4.8	F
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	4,952	597	71.0%	964	48	100.4%	345	65	58.4%	13.0	2.2	135.4	8.4	F
11	I-80 EB - Taylor Rd to SR-65	Basic	5,592	536	76.2%							16.2	3.0	89.0	8.4	F
17	I-80 EB - SR-65 Off-ramp	Diverge	5,599	530	76.3%				3,099	201	79.1%	23.4	5.1	78.9	24.0	F
18	I-80 EB - SR-65 Off to On-ramp	Basic	2,490	297	72.8%							64.0	0.1	12.7	1.5	B
19	I-80 EB - SR-65 On-ramp	Merge	2,488	297	72.7%	1,600	67	88.9%				62.5	0.6	18.6	1.3	B
21	I-80 EB - SR-65 to Rocklin Rd	Basic	4,074	296	78.0%							61.1	5.4	18.7	5.4	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,049	314	77.6%				1,025	138	72.2%	58.1	8.2	40.4	47.1	E
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	2,999	244	78.9%							63.7	0.2	16.7	1.4	B
24	I-80 EB - Rocklin Rd On-ramp	Merge	2,999	248	78.9%	238	30	91.5%				60.7	0.3	17.3	1.2	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,240	254	79.8%							63.7	0.2	17.8	1.5	B
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,239	255	79.8%				236	37	71.4%	63.2	0.3	19.3	1.5	B
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,998	241	80.4%							63.6	0.2	17.5	1.5	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	3,002	245	80.5%	249	10	99.6%				62.4	0.3	16.7	1.3	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	3,247	244	81.6%	625	16	100.7%				57.5	1.9	20.6	1.8	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	3,590	15	105.0%				569	45	103.4%	61.0	0.4	19.0	0.3	B
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,018	47	105.2%							63.6	0.2	18.1	0.3	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,018	44	105.2%	136	7	97.3%				63.1	0.3	16.4	0.2	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,153	46	104.8%	224	5	93.5%				61.8	0.4	17.0	0.4	B
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	3,376	54	103.9%							63.7	0.1	18.3	0.2	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	3,375	54	103.8%				282	29	100.6%	63.4	0.2	18.7	0.4	B
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,099	64	104.3%							41.6	12.7	29.3	15.8	D
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,071	75	103.4%	825	280	67.1%				9.7	0.9	152.8	15.8	F
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	3,782	275	90.0%							11.0	0.5	127.7	2.8	F
47	I-80 WB - HOV Lane Start to SR-65	Basic	3,761	281	89.5%							26.9	3.8	69.0	10.9	F
48	I-80 WB - SR-65 Off-ramp	Diverge	3,756	283	89.4%				1,282	109	86.6%	29.2	5.3	140.4	10.2	F
49	I-80 WB - SR-65 Off to On-ramp	Basic	2,452	225	90.2%							63.8	0.3	14.4	2.0	B
50	I-80 WB - SR-65 On-ramp	Merge	2,454	227	90.2%	2,860	105	91.7%				63.3	0.1	20.9	0.6	C
60	I-80 WB - Taylor Rd On-ramp	Merge	5,321	258	91.1%	557	2	95.9%				62.0	0.2	25.4	1.1	C
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	5,879	255	91.6%				315	39	80.8%	62.7	0.6	26.9	0.7	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	5,565	245	92.3%				884	63	92.1%	61.1	1.0	27.9	1.1	C
63	I-80 WB - Atlantic St Off to On-ramp	Basic	4,684	239	92.4%							63.6	0.3	18.2	1.4	C
64	I-80 WB - Atlantic St On-ramp	Merge	4,687	237	92.4%	1,229	39	91.0%				60.8	0.6	20.2	1.1	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	5,917	246	92.2%				860	87	88.7%	61.4	1.3	14.9	1.1	B
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	5,058	185	92.8%							62.4	0.7	27.1	0.9	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	5,057	185	92.8%	1,138	62	84.3%				56.8	2.7	28.8	2.7	D
68	I-80 WB - Douglas Blvd EB On-ramp	Merge	6,199	198	91.2%	561	22	87.6%				57.4	3.0	32.8	2.4	D
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	6,769	190	91.0%							59.8	6.7	34.5	5.9	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	6,768	195	91.0%				889	54	90.7%	47.8	6.8	43.7	8.1	E
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	5,892	210	91.2%							60.5	0.9	28.5	1.2	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	5,894	210	91.2%	203	11	96.8%				63.2	0.2	22.1	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,101	200	91.5%	729	12	97.2%				63.1	0.3	19.5	0.8	B
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	6,829	194	92.0%							62.8	0.2	24.6	0.7	C
75	I-80 WB - Antelope Rd Off-ramp	Diverge	6,830	198	92.0%				889	75	93.5%	62.7	0.4	25.5	0.8	C
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	5,945	181	91.9%							63.1	0.2	21.9	0.6	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	5,946	184	91.9%	364	15	95.9%				62.1	0.5	20.1	0.6	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	6,309	181	92.1%	369	14	99.6%	59	12	98.8%	62.8	0.2	21.6	0.5	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	6,631	162	92.6%							63.0	0.2	23.7	0.4	C
80	I-80 WB - Truck Scales On-ramp	Merge	6,634	167	92.6%	59	11	98.8%				62.7	0.2	24.0	0.5	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	6,697	166	92.8%							61.5	0.4	25.7	0.6	C
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	6,697	169	92.8%				997	53	90.6%	62.2	1.3	23.1	0.7	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	5,704	177	93.2%							63.2	0.3	21.6	0.6	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	5,704	173	93.2%	920	20	102.2%				59.7	0.7	22.5	0.9	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	6,631	175	94.5%	656	17	102.5%				62.3	1.0	27.1	0.8	C

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
156	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	384	6	101.0%				34	10	113.0%	64.8	0.4	3.2	0.1	A
157	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	350	14	100.1%							64.8	0.3	2.9	0.1	A
158	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	350	15	100.1%	458	17	97.4%				60.7	0.3	6.0	0.2	A
159	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	809	28	98.6%	322	10	91.9%				61.6	0.1	7.3	0.3	A
160	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	1,129	29	96.5%							64.6	0.2	9.1	0.2	A
161	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	1,129	29	96.5%							64.6	0.2	9.1	0.2	A
97	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	1,130	30	96.6%	1,063	26	92.4%	260	24	96.2%	60.0	0.4	12.9	0.3	B
98	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	1,936	45	94.4%							63.9	0.3	15.5	0.4	B
99	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	1,936	43	94.4%	414	21	103.6%				61.6	0.5	17.8	0.4	B
100	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	2,351	49	95.9%							63.4	0.2	18.9	0.4	C
145	SR-65 SB - Placer Pkwy Off-ramp	Diverge	2,350	52	95.9%				425	34	92.4%	63.5	0.2	18.0	0.5	B
146	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	1,924	60	96.7%							63.7	0.1	15.2	0.5	B
147	SR-65 SB - Placer Pkwy WB On-ramp	Merge	1,926	59	96.8%	319	27	106.4%				54.5	13.9	18.2	5.7	B
148	SR-65 SB - Placer Pkwy EB On-ramp	Merge	2,237	72	97.7%	275	23	94.8%				38.3	22.9	41.3	29.4	E
101	SR-65 SB - Sunset Blvd Off-ramp	Diverge	2,474	103	95.9%				306	39	87.4%	27.4	26.2	79.5	52.4	F
102	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	2,039	169	91.4%							16.4	14.5	112.6	49.6	F
103	SR-65 SB - Sunset Blvd WB On-ramp	Merge	2,000	167	89.7%	483	38	86.2%				8.5	1.8	134.2	22.5	F
104	SR-65 SB - Sunset Blvd EB On-ramp	Merge	2,406	208	86.2%	536	35	103.2%				11.8	1.8	113.2	6.0	F
105	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	2,851	228	86.1%							11.5	2.0	126.6	9.1	F
106	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	2,817	212	85.1%				515	63	75.7%	11.5	1.9	119.6	8.4	F
107	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	2,222	161	84.5%							8.5	0.7	139.9	4.5	F
108	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	2,192	148	83.3%	390	19	102.6%				8.6	1.0	129.5	5.8	F
109	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	2,550	128	84.7%	1,065	29	91.8%	450	51	76.2%	11.3	1.0	116.8	5.5	F
110	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	3,156	125	88.2%							14.2	1.0	113.7	3.7	F
111	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	3,159	122	88.2%	371	33	100.3%				17.4	0.8	90.8	1.8	F
112	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	3,529	107	89.3%	790	39	100.0%				34.0	0.8	60.2	1.1	F
113	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	4,320	84	91.1%							59.3	1.3	36.6	0.6	E
114	SR-65 SB - Galleria Blvd Off-ramp	Diverge	4,319	85	91.1%				907	55	90.7%	60.1	1.0	36.0	0.8	E
115	SR-65 SB - Galleria Blvd Off-ramp to Lane Add	Basic	3,408	92	91.1%							58.8	3.7	30.8	2.6	D
116	SR-65 SB - Lane Add to Galleria Blvd On-ramp	Basic	3,409	98	91.2%							63.1	0.2	20.7	0.6	C
117	SR-65 SB - Galleria Blvd On-ramp	Merge	3,410	95	91.2%	1,047	66	88.8%				54.0	5.0	28.8	5.5	D
118	SR-65 SB - I-80 WB Off-ramp	Diverge	4,459	113	90.6%				2,856	104	91.5%	62.1	0.6	24.1	0.7	C
125	SR-65 NB - I-80 WB On-ramp	Merge	3,058	79	78.0%	1,278	104	86.3%				26.3	0.3	90.4	0.9	F
126	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,329	49	80.2%							58.1	3.6	36.5	2.7	E
127	SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	4,329	50	80.2%				1,183	61	81.0%	56.4	2.8	38.8	2.2	E
128	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,140	60	79.7%							35.3	17.7	57.3	26.5	F
129	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	3,129	59	79.4%	1,136	45	93.9%				28.7	5.7	83.4	18.5	F
130	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,267	74	82.9%							58.2	1.4	36.1	1.3	E
131	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,267	75	82.9%				859	58	87.6%	60.5	1.0	31.1	0.7	D
132	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,411	77	81.8%							62.6	0.6	27.9	0.5	D
133	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,410	83	81.8%	612	41	98.7%	1,562	72	85.8%	62.8	0.3	22.9	0.3	C
134	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,460	78	82.8%							63.4	0.2	20.0	0.4	C
135	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,457	80	82.7%	449	42	87.9%				59.9	1.4	22.1	0.8	C
136	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,904	90	83.5%							62.8	0.2	23.6	0.7	C
137	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,901	86	83.4%				498	53	90.5%	63.0	0.2	21.8	0.7	C
138	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	2,401	84	81.9%							63.1	0.2	19.7	0.6	C
139	SR-65 NB - Sunset Blvd EB On-ramp	Merge	2,402	83	82.0%	119	22	99.0%				61.1	0.4	20.6	0.6	C
140	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	2,519	84	82.6%	380	29	97.4%	410	49	85.5%	62.9	0.2	20.2	0.5	C
141	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	2,483	94	83.9%							63.2	0.2	20.5	0.7	C
149	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	2,482	91	83.8%	167	22	98.4%				60.5	0.7	21.5	0.8	C
150	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	2,646	92	84.5%	266	23	102.5%				62.3	0.3	23.5	0.8	C
151	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	2,908	100	85.8%							62.8	0.2	24.2	0.6	C
142	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	2,907	100	90.3%				593	49	84.8%	62.2	0.3	25.0	0.6	C
143	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,307	77	91.5%							63.3	0.2	19.7	0.4	C
144	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,306	77	91.5%	273	24	94.1%	1,000	66	86.2%	63.5	0.1	16.7	0.3	B
152	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	1,574	75	95.4%							64.2	0.2	12.9	0.6	B
153	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,573	77	95.3%				1,175	68	83.9%	63.9	0.2	14.7	0.6	B
154	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	396	37	158.4%							64.7	0.3	3.3	0.3	A
155	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	397	38	158.6%	26	2	87.7%				64.1	0.3	3.3	0.3	A

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Parkway	Signal	2,457	2,587	105.3%	31.7	39.4	C
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,118	1,120	100.2%	136.4	47.4	F
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,248	1,254	100.5%	88.8	57.8	F
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,224	2,083	93.7%	19.3	11.0	B
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,530	2,482	98.1%	14.2	2.4	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	4,496	4,000	89.0%	186.6	10.4	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	2,924	2,946	100.7%	11.8	1.2	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	3,671	3,525	96.0%	41.0	17.1	D
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	2,805	2,787	99.4%	10.4	0.9	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	2,987	3,071	102.8%	28.8	2.4	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,539	3,655	103.3%	26.6	11.4	C
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,793	3,604	95.0%	22.5	1.2	C
13	Galleria Blvd/Antelope Creek Dr	Signal	2,828	2,668	94.3%	13.2	2.3	B
14	Galleria Blvd/Roseville Pkwy	Signal	5,376	5,560	103.4%	36.4	1.6	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,581	3,674	102.6%	8.5	1.9	A
16	Taylor Rd/East Roseville Pkwy	Signal	4,547	4,740	104.2%	129.9	27.3	F
17	North Sunrise Ave/East Roseville Pkwy	Signal	4,351	4,580	105.3%	23.7	1.3	C
18	Wills Rd/Atlantic St	Signal	1,941	2,136	110.0%	16.4	1.7	B
19	I-80 WB Ramps/Atlantic St	Signal	3,233	3,403	105.3%	15.5	10.6	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	4,252	4,422	104.0%	22.1	2.4	C
21	North Sunrise Ave/Eureka Rd	Signal	3,889	4,013	103.2%	25.4	1.3	C
22	Harding Blvd/Wills Rd	Signal	2,172	2,261	104.1%	13.5	2.1	B
23	Harding Blvd/Douglas Blvd	Signal	2,755	2,955	107.3%	22.2	3.9	C
24	I-80 WB Ramps/Douglas Blvd	Signal	3,702	3,842	103.8%	58.7	8.9	E

Network Summary	
Total Demand Volume (veh/hr)	76,419
Total Volume Served (veh/hr)	77,365
Percent Served	101.2%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	4,092	4,358	106.5%	46.9	22.8	D
26	North Sunrise Ave/Douglas Blvd	Signal	4,467	4,722	105.7%	30.4	1.3	C
27	Pacific St/Woodside Dr	Signal	1,720	1,883	109.5%	8.5	1.0	A
28	Pacific St/Sunset Blvd	Signal	2,684	2,957	110.2%	27.9	2.0	C
29	Granite Dr/Rocklin Rd	Signal	2,424	2,520	103.9%	21.1	5.0	C
30	I-80 WB Ramps/Rocklin Rd	Signal	2,671	2,801	104.9%	36.5	13.0	D
31	I-80 EB Ramps/Rocklin Rd	Signal	2,704	2,848	105.3%	69.8	15.0	E
32	Aguilar Rd/Rocklin Rd	Signal	1,899	2,038	107.3%	9.4	0.9	A
253	Galleria Blvd/Berry St	Signal	2,031	2,102	103.5%	10.4	0.8	B
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,396	2,401	100.2%	96.9	72.1	F
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,641	1,497	91.2%	228.6	103.5	F
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,291	1,398	108.2%	6.2	0.7	A
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,602	1,655	103.3%	7.6	0.7	A

Network Summary	
Total Demand Volume (veh/hr)	31,622
Total Volume Served (veh/hr)	33,180
Percent Served	104.9%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Pkwy	Signal	3,044	2,799	92.0%	120.2	26.0	F
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	964	960	99.6%	6.5	0.7	A
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,423	1,322	92.9%	8.2	0.7	A
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,660	2,483	93.3%	59.1	16.3	E
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,629	2,487	94.6%	113.0	38.9	F
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	5,499	4,923	89.5%	187.5	9.2	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,722	3,467	93.2%	25.5	3.8	C
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	5,071	4,924	97.1%	6.8	0.8	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	4,334	4,231	97.6%	10.6	1.1	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	4,669	4,334	92.8%	107.1	72.0	F
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	5,764	5,381	93.4%	45.4	24.0	D
12	SR-65 SB Ramps/Galleria Blvd	Signal	5,566	5,221	93.8%	43.4	38.0	D
13	Galleria Blvd/Antelope Creek Dr	Signal	4,566	3,971	87.0%	27.9	18.1	C
14	Galleria Blvd/Roseville Pkwy	Signal	7,751	6,687	86.3%	226.7	12.4	F
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,747	4,051	85.3%	60.9	22.1	E
16	Taylor Rd/East Roseville Pkwy	Signal	5,981	5,524	92.4%	36.7	4.1	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,476	5,261	96.1%	32.3	3.5	C
18	Wills Rd/Atlantic St	Signal	2,866	2,709	94.5%	27.1	17.7	C
19	I-80 WB Ramps/Atlantic St	Signal	4,389	4,111	93.7%	35.9	14.6	D
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,651	5,416	95.8%	42.2	3.3	D
21	North Sunrise Ave/Eureka Rd	Signal	5,529	5,656	102.3%	48.5	12.4	D
22	Harding Blvd/Wills Rd	Signal	3,086	2,915	94.5%	15.6	3.6	B
23	Harding Blvd/Douglas Blvd	Signal	3,691	3,263	88.4%	123.4	30.5	F
24	I-80 WB Ramps/Douglas Blvd	Signal	4,498	3,905	86.8%	42.3	18.5	D

Network Summary	
Total Demand Volume (veh/hr)	103,576
Total Volume Served (veh/hr)	96,000
Percent Served	92.7%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Alt 5 (No Build)
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,119	3,935	76.9%	63.6	29.2	E
26	North Sunrise Ave/Douglas Blvd	Signal	5,962	4,391	73.7%	202.8	66.9	F
27	Pacific St/Woodside Dr	Signal	2,276	2,141	94.1%	9.9	4.7	A
28	Pacific St/Sunset Blvd	Signal	3,774	3,752	99.4%	30.4	3.2	C
29	Granite Dr/Rocklin Rd	Signal	3,639	2,897	79.6%	169.7	46.3	F
30	I-80 WB Ramps/Rocklin Rd	Signal	3,632	2,779	76.5%	82.3	27.4	F
31	I-80 EB Ramps/Rocklin Rd	Signal	3,334	2,672	80.2%	115.4	82.6	F
32	Aguilar Rd/Rocklin Rd	Signal	2,354	2,016	85.6%	229.3	188.2	F
253	Galleria Blvd/Berry St	Signal	2,919	2,690	92.2%	10.0	2.0	A
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,901	2,627	90.6%	134.1	4.2	F
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,747	1,629	93.3%	138.4	5.0	F
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,455	1,509	103.7%	6.3	1.1	A
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,918	1,893	98.7%	8.5	0.4	A

Network Summary	
Total Demand Volume (veh/hr)	41,030
Total Volume Served (veh/hr)	34,932
Percent Served	85.1%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

I-80/SR 65 Interchange Improvements

Transportation Analysis Report

Technical Appendix – Part 2

Placer County, CA

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

August 2014

Caltrans

PLACER COUNTY
TRANSPORTATION
PLANNING AGENCY

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Vissim Model Results – Design Year Alternative 2 (Collector-Distributor Roadway System Ramps)

Vissim Model Results – Design Year Alternative 3 (Taylor Road Interchange Eliminated)

Vissim Model Results – Design Year Alternative 5 (No Build)

Vissim Model Results – Construction Year Alternative 1 (Taylor Road Full Access Interchange)

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Vissim Model Results – Construction Year Alternative 5 (No Build)

Part 2

Traffic Counts

Travel Demand Forecasts Memorandum, June 2012

Existing Conditions Operations Model Calibration and Validation Memorandum, July 2012

Draft I-80/SR 65 Interchange Improvements Traffic Analysis Report, February 2013

Traffic Focus Meeting Minutes

I-80/SR 65 Interchange Improvements

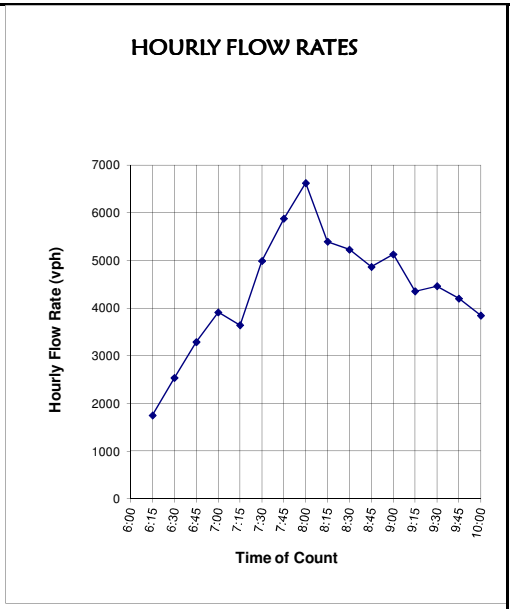
Traffic Counts

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:		y	Y or N
NO. LANES COUNTED:	5		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):			
REMARKS:	6-7AM from 1/31/2012		

CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES
(HOV LANE)



VEHICLE TYPE		COUNT CLASSIFICATION													OCC.	(15/15) TOTAL COUNTS	FLOW RATE (vph)	HOURLY VOL
		CARS			MISC					BUSES								
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL					
6:00 - 6:15	ESTIMATED	323	43	4	1	3	63	0	0	0	0	0	0		1.19	**438**	1752	
6:15 - 6:30	ESTIMATED	499	67	7	3	1	58	0	0	0	0	0	0		1.21	**635**	2540	
6:30 - 6:45	ESTIMATED	676	90	9	1	0	46	0	0	0	0	0	0		1.17	**823**	3292	
6:45 - 7:00	ESTIMATED	792	114	11	0	1	59	1	0	0	0	2	0		1.21	**979**	3916	**2875**
7:00 - 7:15		723	122	7	0	1	57	1	1	0	0	0	0		1.16	**911**	3644	3348
7:15 - 7:30		1023	146	19	0	3	55	0	2	0	0	0	0		1.16	**1248**	4992	3961
7:30 - 7:45		1247	162	15	0	1	36	0	8	1	0	0	0		1.14	**1470**	5880	4608
7:45 - 8:00		1371	212	14	0	5	50	0	5	0	0	0	0		1.15	**1657**	6628	**5286**
8:00 - 8:15		1076	178	27	0	1	59	0	6	0	1	1	0		1.21	**1349**	5396	5724
8:15 - 8:30		1083	148	17	0	2	56	0	2	0	0	0	0		1.15	**1308**	5232	5784
8:30 - 8:45		962	176	27	0	1	46	0	1	0	2	2	0		1.25	**1217**	4868	5531
8:45 - 9:00		1018	200	14	0	2	45	0	4	0	0	0	0		1.19	**1283**	5132	**5157**
9:00 - 9:15		839	156	20	0	1	68	0	4	0	0	0	1		1.24	**1089**	4356	4897
9:15 - 9:30		835	189	17	1	1	67	0	6	0	0	0	0		1.23	**1116**	4464	4705
9:30 - 9:45		810	167	17	0	1	49	0	5	0	0	1	1		1.26	**1051**	4204	4539
9:45 - 10:00		735	167	11	1	1	40	0	7	0	0	0	0		1.22	**962**	3848	**4218**
PEAK PERIOD																		
6:00 - 10:00	**Totals:**	**14012**	**2337**	**237**	**7**	**25**	**854**	**2**	**51**	**1**	**4**	**7**	**2**			**17536**		
	Percentage:	79.9%	13.3%	1.3%	0.0%	0.1%	4.9%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%			100%		
																		Occ.
	Vehicle Occupants:	**14012**	**4673**	**804**	**74**	**25**	**1025**	**2**	**56**	**5**	**35**	**141**	**92**			**20941**		**1.19**
PEAK HOUR																		
7:30 - 8:30	**Totals:**	**4777**	**700**	**73**	**0**	**9**	**201**	**0**	**21**	**1**	**1**	**1**	**0**			**5784**		
	Percentage:	82.6%	12.1%	1.3%	0.0%	0.2%	3.5%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%			100%		
																		Occ.
	Vehicle Occupants:	**4777**	**1400**	**248**	**0**	**9**	**241**	**0**	**23**	**4**	**10**	**20**	**0**			**6733**		**1.16**
MIN. HOURLY VOL.																		
6:00 - 7:00	**Totals:**	**2290**	**314**	**32**	**5**	**5**	**226**	**1**	**0**	**0**	**3**	**3**	**0**			**2878**		
	Percentage:	79.6%	10.9%	1.1%	0.2%	0.2%	7.9%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%			100%		
																		Occ.
	Vehicle Occupants:	**2290**	**627**	**107**	**53**	**5**	**271**	**1**	**0**	**1**	**30**	**61**	**12**			**3457**		**1.20**

HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
2670	1027		1495	154	14712
15.2%		**5.9%**	**56.0%**	**12.0%**	**99.0%**
806	366		474	45	4933
13.9%		**6.3%**	**58.8%**	**9.4%**	**99.1%**
362	99		12	30	2486
12.6%		**3.4%**	**3.3%**	**24.4%**	**98.8%**

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	0		
REMARKS:	6-7AM from 1/31/2012		

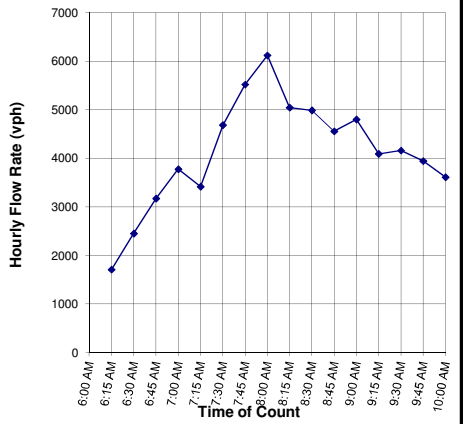
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION																
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	328	30	2	1	3	63	0	0	0	0	0	0	1.14	**427**	1708	
6:15 - 6:30	ESTIMATED	504	46	4	1	0	58	0	0	0	0	0	0	1.13	**613**	2452	
6:30 - 6:45	ESTIMATED	680	62	5	0	0	46	0	0	0	0	0	0	1.11	**793**	3172	
6:45 - 7:00	ESTIMATED	799	78	6	0	1	59	0	0	0	0	1	0	1.14	**944**	3776	2777
7:00 - 7:15		717	76	3	0	1	57	0	0	0	0	0	0	1.11	**854**	3416	3204
7:15 - 7:30		1016	93	5	0	2	55	0	0	0	0	0	0	1.10	**1171**	4684	3762
7:30 - 7:45		1235	100	7	0	1	36	0	0	1	0	0	0	1.09	**1380**	5520	4349
7:45 - 8:00		1362	114	4	0	0	50	0	0	0	0	0	0	1.09	**1530**	6120	4935
8:00 - 8:15		1068	112	19	0	1	59	0	0	0	1	1	0	1.16	**1261**	5044	5342
8:15 - 8:30		1078	105	8	0	0	56	0	0	0	0	0	0	1.11	**1247**	4988	5418
8:30 - 8:45		957	124	11	0	0	45	0	0	0	2	0	0	1.16	**1139**	4556	5177
8:45 - 9:00		1010	139	8	0	1	42	0	0	0	0	0	0	1.14	**1200**	4800	4847
9:00 - 9:15		832	111	11	0	0	68	0	0	0	0	0	1	1.19	**1023**	4092	4609
9:15 - 9:30		823	138	11	0	1	67	0	0	0	0	0	0	1.17	**1040**	4160	4402
9:30 - 9:45		805	122	9	0	1	49	0	0	0	0	0	0	1.16	**986**	3944	4249
9:45 - 10:00		724	131	7	1	0	40	0	0	0	0	0	0	1.18	**903**	3612	3952
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**13938**	**1580**	**119**	**3**	**12**	**850**	**0**	**0**	**1**	**4**	**2**	**1**		**16511**		
	Percentage:	84.4%	9.6%	0.7%	0.0%	0.1%	5.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**13938**	**3161**	**405**	**32**	**12**	**1020**	**0**	**0**	**5**	**35**	**48**	**48**		**18703**		**Occ. 1.13**
PEAK HOUR																	
7:30 - 8:30	**Totals:**	**4743**	**431**	**38**	**0**	**2**	**201**	**0**	**0**	**1**	**1**	**1**	**0**		**5418**		
	Percentage:	87.5%	8.0%	0.7%	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**4743**	**862**	**129**	**0**	**2**	**241**	**0**	**0**	**4**	**10**	**20**	**0**		**6011**		**Occ. 1.11**
MIN. HOURLY VOL.																	
6:00 - 7:00	**Totals:**	**2311**	**215**	**16**	**2**	**4**	**226**	**0**	**0**	**0**	**1**	**1**	**0**		**2778**		
	Percentage:	83.2%	7.8%	0.6%	0.1%	0.1%	8.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**2311**	**431**	**55**	**21**	**4**	**271**	**0**	**0**	**1**	**14**	**28**	**8**		**3143**		**Occ. 1.13**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1723					
10.4%					
474					
8.7%					
241					
8.7%					

AM/PM PEAK:	**AM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**80**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Auburn Boulevard**		
DIRECTION:	**EB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**y**	**Y/ N**
NO. LANES COUNTED:	**5**		
DATE:	**2/14/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**6:00**	**4**	**3 or 4**
END TIME:	**10:00**		
WEATHER:	**clear**	**DAY:**	**Tuesday**
RECORDER(S):	**0**		
REMARKS:	**6-7AM from 1/31/2012**		

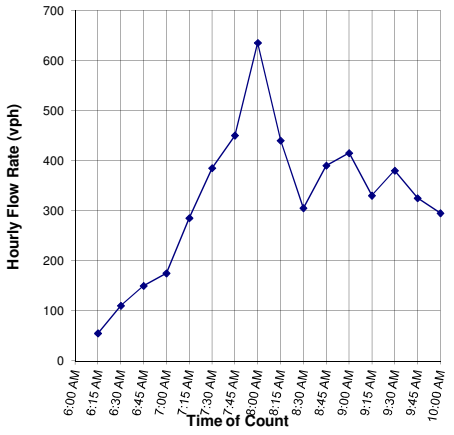
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

			COUNT CLASSIFICATION																
VEHICLE TYPE			**CARS**			**MISC**						**BUSES**				**OCC.**	**(15/15) TOTAL COUNTS**	**FLOW RATE (vph)**	**HOURLY VOL**
TIME			**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**				
6:00 - 6:15		ESTIMATED	3	7	1	0	0	0	0	0	0	0	0	0	1.98	**11**	44	
6:15 - 6:30		ESTIMATED	5	12	2	2	1	0	0	0	0	0	0	0	2.71	**22**	88	
6:30 - 6:45		ESTIMATED	8	18	3	1	0	0	0	0	0	0	0	0	2.27	**30**	120	
6:45 - 7:00		ESTIMATED	8	22	3	0	0	0	1	0	0	0	1	0	2.50	**35**	140	98
7:00 - 7:15			6	46	4	0	0	0	1	1	0	0	0	0	1.98	**57**	228	144
7:15 - 7:30			7	53	14	0	1	0	0	2	0	0	0	0	2.13	**77**	308	199
7:30 - 7:45			12	62	8	0	0	0	0	8	0	0	0	0	1.91	**90**	360	259
7:45 - 8:00			9	98	10	0	5	0	0	5	0	0	0	0	1.96	**127**	508	351
8:00 - 8:15			8	66	8	0	0	0	0	6	0	0	0	0	1.98	**88**	352	382
8:15 - 8:30			5	43	9	0	2	0	0	2	0	0	0	0	2.06	**61**	244	366
8:30 - 8:45			5	52	16	0	1	1	0	1	0	0	2	0	2.65	**78**	312	354
8:45 - 9:00			8	61	6	0	1	3	0	4	0	0	0	0	1.92	**83**	332	310
9:00 - 9:15			7	45	9	0	1	0	0	4	0	0	0	0	2.02	**66**	264	288
9:15 - 9:30			12	51	6	1	0	0	0	6	0	0	0	0	1.99	**76**	304	303
9:30 - 9:45			5	45	8	0	0	0	0	5	0	0	1	1	2.89	**65**	260	290
9:45 - 10:00			11	36	4	0	1	0	0	7	0	0	0	0	1.78	**59**	236	266
PEAK PERIOD																		
6:00 - 10:00	**Totals:**		**119**	**717**	**111**	**4**	**13**	**4**	**2**	**51**	**0**	**0**	**4**	**1**		**1025**		
	Percentage:		11.6%	70.0%	10.8%	0.4%	1.3%	0.4%	0.2%	5.0%	0.0%	0.0%	0.4%	0.1%		100%		
	Vehicle Occupants:		**119**	**1435**	**377**	**42**	**13**	**5**	**2**	**56**	**0**	**0**	**89**	**42**		**2178**		**Occ. 2.12**
PEAK HOUR																		
7:15 - 8:15	**Totals:**		**36**	**279**	**40**	**0**	**6**	**0**	**0**	**21**	**0**	**0**	**0**	**0**		**382**		
	Percentage:		9.4%	73.0%	10.5%	0.0%	1.6%	0.0%	0.0%	5.5%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:		**36**	**558**	**136**	**0**	**6**	**0**	**0**	**23**	**0**	**0**	**0**	**0**		**759**		**Occ. 1.99**
MIN. HOURLY VOL.																		
6:00 - 7:00	**Totals:**		**24**	**59**	**9**	**3**	**1**	**0**	**1**	**0**	**0**	**1**	**1**	**0**		**99**		
	Percentage:		24.4%	59.6%	9.0%	3.0%	1.0%	0.0%	1.0%	0.0%	0.0%	1.4%	1.4%	0.1%		100%		
	Vehicle Occupants:		**24**	**119**	**30**	**32**	**1**	**0**	**1**	**0**	**0**	**14**	**29**	**2**		**251**		**Occ. 2.53**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
902				123	
88.0%				**12.0%**	
346				36	
90.6%				**9.4%**	
75				24	
75.6%				**24.4%**	

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	0		
REMARKS:	6-7AM from 1/31/2012		

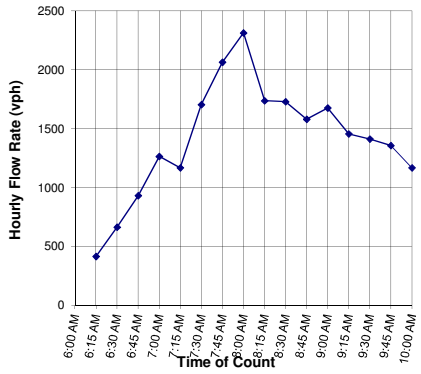
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

			COUNT CLASSIFICATION																
VEHICLE TYPE			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15		ESTIMATED	95	6	0	0	1	1	0	0	0	0	0	0	1.08	**104**	416	
6:15 - 6:30		ESTIMATED	155	10	0	0	0	0	0	0	0	0	0	0	1.08	**166**	664	
6:30 - 6:45		ESTIMATED	217	14	1	0	0	1	0	0	0	0	0	0	1.08	**233**	932	
6:45 - 7:00		ESTIMATED	289	24	1	0	0	1	0	0	0	0	1	0	1.15	**316**	1264	819
7:00 - 7:15			267	21	3	0	1	0	0	0	0	0	0	0	1.10	**292**	1168	1007
7:15 - 7:30			397	27	1	0	0	1	0	0	0	0	0	0	1.07	**426**	1704	1267
7:30 - 7:45			489	26	0	0	0	1	0	0	0	0	0	0	1.05	**516**	2064	1550
7:45 - 8:00			549	27	2	0	0	0	0	0	0	0	0	0	1.06	**578**	2312	1812
8:00 - 8:15			399	31	2	0	1	1	0	0	0	0	0	0	1.08	**434**	1736	1954
8:15 - 8:30			408	22	0	0	0	2	0	0	0	0	0	0	1.05	**432**	1728	1960
8:30 - 8:45			364	26	3	0	0	0	0	0	0	2	0	0	1.13	**395**	1580	1839
8:45 - 9:00			381	34	2	0	1	1	0	0	0	0	0	0	1.09	**419**	1676	1680
9:00 - 9:15			326	37	1	0	0	0	0	0	0	0	0	0	1.11	**364**	1456	1610
9:15 - 9:30			308	44	0	0	0	1	0	0	0	0	0	0	1.13	**353**	1412	1531
9:30 - 9:45			305	33	1	0	0	0	0	0	0	0	0	0	1.10	**339**	1356	1475
9:45 - 10:00			254	36	2	0	0	0	0	0	0	0	0	0	1.14	**292**	1168	1348
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**5204**	**418**	**19**	**0**	**4**	**10**	**0**	**0**	**0**	**2**	**1**	**0**		**5659**		
		Percentage:	92.0%	7.4%	0.3%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**5204**	**837**	**66**	**0**	**4**	**12**	**0**	**0**	**0**	**23**	**24**	**0**		**6170**		**1.09**
PEAK HOUR																		
7:30 - 8:30		**Totals:**	**1845**	**106**	**4**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**		**1960**		
		Percentage:	94.1%	5.4%	0.2%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**1845**	**212**	**14**	**0**	**1**	**5**	**0**	**0**	**0**	**0**	**0**	**0**		**2076**		**1.06**
MIN. HOURLY VOL.																		
6:00 - 7:00		**Totals:**	**757**	**54**	**2**	**0**	**1**	**3**	**0**	**0**	**0**	**1**	**1**	**0**		**820**		
		Percentage:	92.3%	6.6%	0.3%	0.0%	0.1%	0.4%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**757**	**109**	**8**	**0**	**1**	**4**	**0**	**0**	**0**	**12**	**24**	**0**		**914**		**1.12**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
445					
7.9%					
111					
5.7%					
60					
7.3%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	0		
REMARKS:	6-7AM from 1/31/2012		

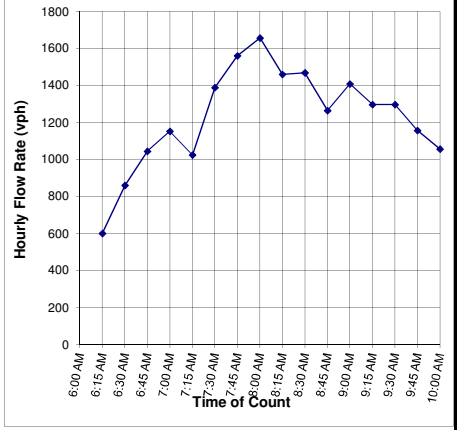
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #3 ONLY

			COUNT CLASSIFICATION																
VEHICLE TYPE			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15		ESTIMATED	135	12	1	1	0	1	0	0	0	0	0	0	1.17	**150**	600	
6:15 - 6:30		ESTIMATED	194	17	1	0	0	3	0	0	0	0	0	0	1.11	**215**	860	
6:30 - 6:45		ESTIMATED	234	21	1	0	0	5	0	0	0	0	0	0	1.11	**261**	1044	
6:45 - 7:00		ESTIMATED	260	23	1	0	1	2	0	0	0	0	0	0	1.10	**288**	1152	914
7:00 - 7:15			221	30	0	0	0	5	0	0	0	0	0	0	1.12	**256**	1024	1020
7:15 - 7:30			319	22	3	0	0	3	0	0	0	0	0	0	1.09	**347**	1388	1152
7:30 - 7:45			361	25	1	0	1	1	0	0	1	0	0	0	1.08	**390**	1560	1281
7:45 - 8:00			374	37	0	0	0	3	0	0	0	0	0	0	1.09	**414**	1656	1407
8:00 - 8:15			316	37	7	0	0	4	0	0	0	1	0	0	1.17	**365**	1460	1516
8:15 - 8:30			324	33	6	0	0	4	0	0	0	0	0	0	1.13	**367**	1468	1536
8:30 - 8:45			273	38	1	0	0	4	0	0	0	0	0	0	1.13	**316**	1264	1462
8:45 - 9:00			318	32	0	0	0	2	0	0	0	0	0	0	1.09	**352**	1408	1400
9:00 - 9:15			282	34	1	0	0	6	0	0	0	0	0	1	1.24	**324**	1296	1359
9:15 - 9:30			265	50	1	0	0	8	0	0	0	0	0	0	1.17	**324**	1296	1316
9:30 - 9:45			255	32	0	0	0	2	0	0	0	0	0	0	1.11	**289**	1156	1289
9:45 - 10:00			227	35	0	1	0	1	0	0	0	0	0	0	1.17	**264**	1056	1201
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**4358**	**478**	**24**	**2**	**2**	**54**	**0**	**0**	**1**	**1**	**0**	**1**		**4922**		
		Percentage:	88.5%	9.7%	0.5%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**4358**	**957**	**81**	**21**	**2**	**65**	**0**	**0**	**5**	**12**	**0**	**49**		**5549**		**1.13**
PEAK HOUR																		
7:30 - 8:30		**Totals:**	**1375**	**132**	**14**	**0**	**1**	**12**	**0**	**0**	**1**	**1**	**0**	**0**		**1536**		
		Percentage:	89.5%	8.6%	0.9%	0.0%	0.1%	0.8%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**1375**	**264**	**48**	**0**	**1**	**14**	**0**	**0**	**4**	**10**	**0**	**0**		**1716**		**1.12**
MIN. HOURLY VOL.																		
6:00 - 7:00		**Totals:**	**823**	**73**	**4**	**1**	**1**	**11**	**0**	**0**	**0**	**0**	**0**	**0**		**914**		
		Percentage:	90.1%	8.0%	0.4%	0.1%	0.1%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**823**	**147**	**13**	**11**	**1**	**13**	**0**	**0**	**1**	**0**	**0**	**9**		**1017**		**1.11**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
510					
10.4%					
149					
9.7%					
80					
8.7%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	0		
REMARKS:	6-7AM from 1/31/2012		

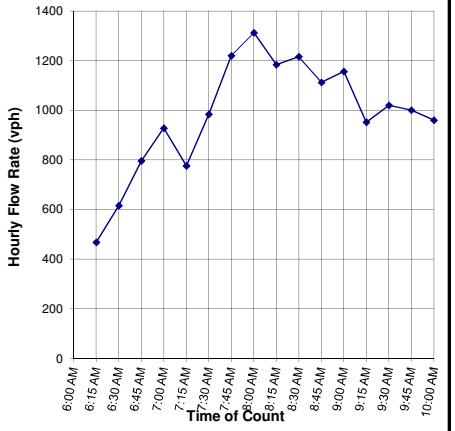
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #4 ONLY

VEHICLE TYPE			COUNT CLASSIFICATION													OCC.	(15/15) TOTAL COUNTS	FLOW RATE (vph)	HOURLY VOL
			CARS			MISC					BUSES								
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL					
6:00 - 6:15		ESTIMATED	64	8	1	0	2	42	0	0	0	0	0	0		1.16	**117**	468	
6:15 - 6:30		ESTIMATED	99	13	1	1	0	40	0	0	0	0	0	0		1.22	**154**	616	
6:30 - 6:45		ESTIMATED	144	19	2	0	0	34	0	0	0	0	0	0		1.16	**199**	796	
6:45 - 7:00		ESTIMATED	165	21	2	0	0	43	0	0	0	0	0	0		1.16	**232**	928	702
7:00 - 7:15			134	19	0	0	0	41	0	0	0	0	0	0		1.14	**194**	776	779
7:15 - 7:30			176	32	0	0	1	37	0	0	0	0	0	0		1.16	**246**	984	871
7:30 - 7:45			244	30	3	0	0	28	0	0	0	0	0	0		1.14	**305**	1220	977
7:45 - 8:00			253	36	1	0	0	38	0	0	0	0	0	0		1.14	**328**	1312	1073
8:00 - 8:15			225	26	0	0	0	44	0	0	0	0	1	0		1.18	**296**	1184	1175
8:15 - 8:30			229	32	2	0	0	41	0	0	0	0	0	0		1.15	**304**	1216	1233
8:30 - 8:45			206	34	4	0	0	34	0	0	0	0	0	0		1.18	**278**	1112	1206
8:45 - 9:00			207	49	6	0	0	27	0	0	0	0	0	0		1.24	**289**	1156	1167
9:00 - 9:15			159	28	7	0	0	44	0	0	0	0	0	0		1.23	**238**	952	1109
9:15 - 9:30			171	29	10	0	0	45	0	0	0	0	0	0		1.24	**255**	1020	1060
9:30 - 9:45			163	44	8	0	1	34	0	0	0	0	0	0		1.28	**250**	1000	1032
9:45 - 10:00			167	39	2	0	0	32	0	0	0	0	0	0		1.21	**240**	960	983
PEAK PERIOD																			
6:00 - 10:00		**Totals:**	**2807**	**459**	**49**	**1**	**4**	**604**	**0**	**0**	**0**	**0**	**1**	**0**			**3925**		
		Percentage:	71.5%	11.7%	1.3%	0.0%	0.1%	15.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			100%		
																			Occ.
		Vehicle Occupants:	**2807**	**917**	**168**	**11**	**4**	**725**	**0**	**0**	**0**	**0**	**23**	**0**			**4655**		**1.19**
PEAK HOUR																			
7:30 - 8:30		**Totals:**	**951**	**124**	**6**	**0**	**0**	**151**	**0**	**0**	**0**	**0**	**1**	**0**			**1233**		
		Percentage:	77.1%	10.1%	0.5%	0.0%	0.0%	12.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%			100%		
																			Occ.
		Vehicle Occupants:	**951**	**248**	**20**	**0**	**0**	**181**	**0**	**0**	**0**	**0**	**20**	**0**			**1421**		**1.15**
MIN. HOURLY VOL.																			
6:00 - 7:00		**Totals:**	**473**	**61**	**6**	**1**	**2**	**159**	**0**	**0**	**0**	**0**	**0**	**0**			**702**		
		Percentage:	67.3%	8.6%	0.9%	0.1%	0.3%	22.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			100%		
																			Occ.
		Vehicle Occupants:	**473**	**121**	**22**	**11**	**2**	**191**	**0**	**0**	**0**	**2**	**3**	**0**			**824**		**1.17**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
514					
13.1%					
131					
10.6%					
70					
10.0%					

AM/PM PEAK:	**PM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**80**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Auburn Boulevard**		
DIRECTION:	**EB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:		**y**	**Y or N**
NO. LANES COUNTED:	**5**		
DATE:	**1/31/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Tuesday**
RECORDER(S):	**SM,RL,CA,CH,RW,SL**		
REMARKS:			

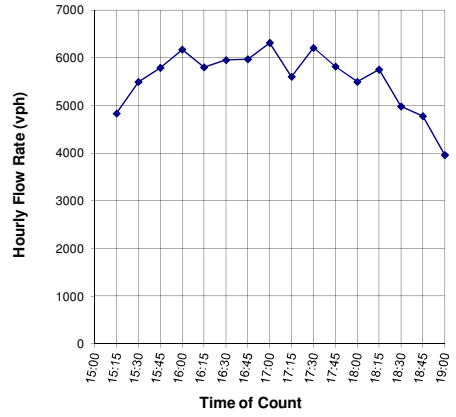
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES
(HOV LANE)

			COUNT CLASSIFICATION																
VEHICLE TYPE			**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL**	**FLOW RATE**	**HOURLY**
TIME			**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**		**COUNTS**	**(vph)**	**VOL**
15:00	15:15		905	227	18	1	1	53	0	3	0	0	1	0	1.26	**1209**	4836	
15:15	15:30		1045	262	14	1	1	49	0	1	0	0	1	0	1.24	**1374**	5496	
15:30	15:45		1106	266	27	1	4	40	0	2	0	0	0	2	1.29	**1448**	5792	
15:45	16:00		1218	261	17	0	5	38	0	4	0	1	0	0	1.21	**1544**	6176	**5575**
16:00	16:15		1124	256	17	0	2	50	1	2	0	0	0	0	1.21	**1451**	5804	5817
16:15	16:30		1158	263	29	0	1	29	1	6	1	0	2	0	1.26	**1489**	5956	5932
16:30	16:45		1150	263	23	3	6	41	1	5	0	0	2	0	1.26	**1493**	5972	5977
16:45	17:00		1269	243	22	0	7	34	0	3	0	0	1	0	1.20	**1579**	6316	**6012**
17:00	17:15		1118	220	8	1	8	40	0	4	0	0	2	0	1.21	**1401**	5604	5962
17:15	17:30		1306	188	13	0	7	33	1	5	0	0	1	0	1.16	**1553**	6212	6026
17:30	17:45		1255	140	16	0	3	32	0	9	0	0	0	0	1.13	**1455**	5820	5988
17:45	18:00	ESTIMATED	1166	161	13	0	1	25	0	5	0	0	4	0	1.20	**1375**	5500	**5784**
18:00	18:15	ESTIMATED	1216	168	13	0	4	37	0	0	0	0	1	0	1.16	**1439**	5756	5822
18:15	18:30	ESTIMATED	1060	146	12	1	2	24	0	0	0	0	1	0	1.17	**1246**	4984	5515
18:30	18:45	ESTIMATED	999	138	11	0	0	46	0	0	0	0	1	0	1.16	**1195**	4780	5255
18:45	19:00	ESTIMATED	836	115	9	0	1	29	0	0	0	0	1	0	1.16	**991**	3964	**4871**
PEAK PERIOD																		
15:00	**19:00**	**Totals:**	**17932**	**3316**	**262**	**8**	**53**	**600**	**4**	**49**	**1**	**1**	**17**	**2**		**22242**		
		Percentage:	80.6%	14.9%	1.2%	0.0%	0.2%	2.7%	0.0%	0.2%	0.0%	0.0%	0.1%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**17932**	**6632**	**889**	**84**	**53**	**720**	**4**	**54**	**5**	**13**	**338**	**100**		**26821**		**1.21**
PEAK HOUR																		
16:30	**17:30**	**Totals:**	**4843**	**914**	**66**	**4**	**28**	**148**	**2**	**17**	**0**	**0**	**6**	**0**		**6026**		
		Percentage:	80.4%	15.2%	1.1%	0.1%	0.5%	2.5%	0.0%	0.3%	0.0%	0.0%	0.1%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**4843**	**1828**	**224**	**42**	**28**	**178**	**2**	**19**	**0**	**0**	**120**	**0**		**7282**		**1.21**
MIN. HOURLY VOL.																		
18:00	**19:00**	**Totals:**	**4112**	**566**	**45**	**1**	**7**	**136**	**0**	**0**	**0**	**3**	**3**	**0**		**4874**		
		Percentage:	84.4%	11.6%	0.9%	0.0%	0.1%	2.8%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**4112**	**1133**	**153**	**11**	**7**	**163**	**0**	**0**	**1**	**31**	**61**	**16**		**5686**		**1.17**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
3710	2489		1401	683	17849
16.7%		**11.2%**	**37.8%**	**22.0%**	**96.3%**
1035	690		447	116	4875
17.2%		**11.5%**	**43.2%**	**12.8%**	**97.7%**
626	523		4	252	3996
12.8%		**10.7%**	**0.6%**	**38.4%**	**94.1%**

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	SM,RL,CA,CH,RW,SL		
REMARKS:			

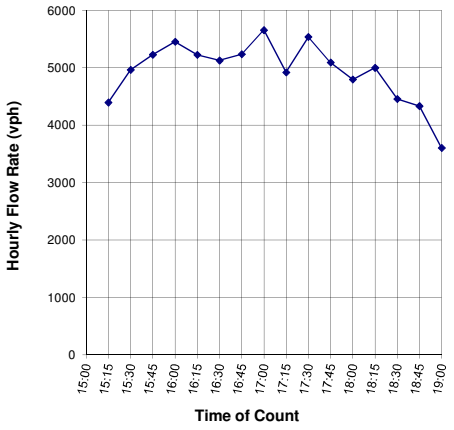
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		885	148	11	1	0	53	0	0	0	0	1	0	1.19	**1099**	4396	
15:15 - 15:30		1027	158	4	1	1	49	0	0	0	0	1	0	1.17	**1241**	4964	
15:30 - 15:45		1090	166	10	0	1	40	0	0	0	0	0	0	1.15	**1307**	5228	
15:45 - 16:00		1200	116	8	0	2	36	0	0	0	1	0	0	1.11	**1363**	5452	5010
16:00 - 16:15		1109	138	10	0	0	49	0	0	0	0	0	0	1.13	**1306**	5224	5217
16:15 - 16:30		1138	95	19	0	0	29	1	0	0	0	1	0	1.13	**1282**	5128	5258
16:30 - 16:45		1126	129	10	0	2	41	0	0	0	0	1	0	1.14	**1309**	5236	5260
16:45 - 17:00		1248	121	10	0	0	34	0	0	0	0	1	0	1.12	**1414**	5656	5311
17:00 - 17:15		1090	96	1	0	3	40	0	0	0	0	0	0	1.09	**1230**	4920	5235
17:15 - 17:30		1278	69	3	0	0	33	1	0	0	0	1	0	1.07	**1384**	5536	5337
17:30 - 17:45		1187	52	3	0	0	31	0	0	0	0	0	0	1.05	**1273**	5092	5301
17:45 - 18:00	ESTIMATED	1091	75	5	0	0	25	0	0	0	0	2	0	1.12	**1199**	4796	5086
18:00 - 18:15	ESTIMATED	1127	78	6	0	2	37	0	0	0	0	1	0	1.09	**1250**	5000	5106
18:15 - 18:30	ESTIMATED	1013	70	5	0	1	24	0	0	0	0	0	0	1.09	**1114**	4456	4836
18:30 - 18:45	ESTIMATED	965	67	5	0	0	46	0	0	0	0	0	0	1.09	**1083**	4332	4646
18:45 - 19:00	ESTIMATED	811	56	4	0	1	29	0	0	0	0	0	0	1.09	**901**	3604	4348
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**17384**	**1634**	**114**	**2**	**13**	**596**	**2**	**0**	**0**	**1**	**10**	**0**		**19755**		
	Percentage:	88.0%	8.3%	0.6%	0.0%	0.1%	3.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**17384**	**3269**	**387**	**21**	**13**	**715**	**2**	**0**	**0**	**13**	**205**	**0**		**22007**		**1.11**
PEAK HOUR																	
16:30 - 17:30	**Totals:**	**4742**	**415**	**24**	**0**	**5**	**148**	**1**	**0**	**0**	**0**	**3**	**0**		**5337**		
	Percentage:	88.9%	7.8%	0.4%	0.0%	0.1%	2.8%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**4742**	**830**	**82**	**0**	**5**	**178**	**1**	**0**	**0**	**0**	**60**	**0**		**5896**		**1.10**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**3916**	**271**	**19**	**0**	**4**	**136**	**0**	**0**	**0**	**2**	**2**	**0**		**4350**		
	Percentage:	90.0%	6.2%	0.4%	0.0%	0.1%	3.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**3916**	**542**	**66**	**0**	**4**	**163**	**0**	**0**	**0**	**18**	**35**	**0**		**4743**		**1.09**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1775					
9.0%					
447					
8.4%					
298					
6.8%					

AM/PM PEAK:	**PM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**80**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Auburn Boulevard**		
DIRECTION:	**EB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**y**	**Y/ N**
NO. LANES COUNTED:	**5**		
DATE:	**1/31/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Tuesday**
RECORDER(S):	**SM,RL,CA,CH,RW,SL**		
REMARKS:			

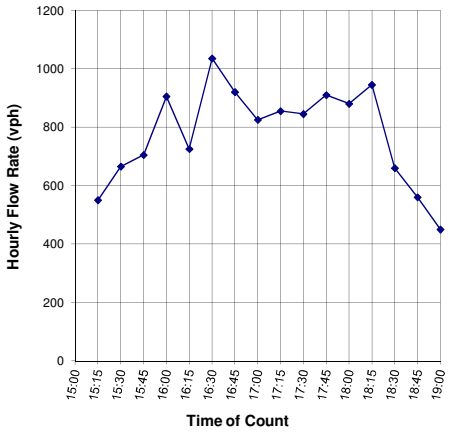
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

			COUNT CLASSIFICATION																
VEHICLE TYPE			**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL COUNTS**	**FLOW RATE (vph)**	**HOURLY VOL**
TIME			**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**				
15:00 -	15:15		20	79	7	0	1	0	0	3	0	0	0	0	1.87	**110**	440	
15:15 -	15:30		18	104	10	0	0	0	0	1	0	0	0	0	1.96	**133**	532	
15:30 -	15:45		16	100	17	1	3	0	0	2	0	0	0	2	2.62	**141**	564	
15:45 -	16:00		18	145	9	0	3	2	0	4	0	0	0	0	1.92	**181**	724	565
16:00 -	16:15		15	118	7	0	2	1	1	2	0	0	0	0	1.93	**145**	580	600
16:15 -	16:30		20	168	10	0	1	0	0	6	1	0	1	0	2.04	**207**	828	674
16:30 -	16:45		24	134	13	3	4	0	1	5	0	0	1	0	2.16	**184**	736	717
16:45 -	17:00		21	122	12	0	7	0	0	3	0	0	0	0	1.92	**165**	660	701
17:00 -	17:15		28	124	7	1	5	0	0	4	0	0	2	0	2.10	**171**	684	727
17:15 -	17:30		28	119	10	0	7	0	0	5	0	0	0	0	1.85	**169**	676	689
17:30 -	17:45		68	88	13	0	3	1	0	9	0	0	0	0	1.66	**182**	728	687
17:45 -	18:00	ESTIMATED	66	95	8	0	1	0	0	5	0	0	1	0	1.84	**176**	704	698
18:00 -	18:15	ESTIMATED	72	105	9	0	2	0	0	0	0	0	0	0	1.75	**189**	756	716
18:15 -	18:30	ESTIMATED	50	73	6	1	1	0	0	0	0	0	0	0	1.82	**132**	528	679
18:30 -	18:45	ESTIMATED	43	63	5	0	0	0	0	0	0	0	0	0	1.75	**112**	448	609
18:45 -	19:00	ESTIMATED	35	50	4	0	0	0	0	0	0	0	0	0	1.75	**90**	360	523
PEAK PERIOD																		
15:00 -	**19:00**	**Totals:**	**543**	**1686**	**149**	**6**	**40**	**4**	**2**	**49**	**1**	**0**	**7**	**3**		**2487**		
		Percentage:	21.8%	67.8%	6.0%	0.2%	1.6%	0.2%	0.1%	2.0%	0.1%	0.0%	0.3%	0.1%		100%		
																		Occ.
		Vehicle Occupants:	**543**	**3372**	**506**	**63**	**40**	**5**	**2**	**54**	**5**	**0**	**131**	**104**		**4822**		**1.94**
PEAK HOUR																		
16:15 -	**17:15**	**Totals:**	**93**	**548**	**42**	**4**	**17**	**0**	**1**	**18**	**1**	**0**	**4**	**0**		**727**		
		Percentage:	12.8%	75.4%	5.8%	0.6%	2.3%	0.0%	0.1%	2.5%	0.1%	0.0%	0.6%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**93**	**1096**	**143**	**42**	**17**	**0**	**1**	**20**	**4**	**0**	**80**	**0**		**1495**		**2.06**
MIN. HOURLY VOL.																		
18:00 -	**19:00**	**Totals:**	**201**	**291**	**25**	**1**	**3**	**0**	**0**	**0**	**0**	**1**	**1**	**0**		**524**		
		Percentage:	38.4%	55.4%	4.9%	0.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.1%		100%		
																		Occ.
		Vehicle Occupants:	**201**	**581**	**87**	**11**	**3**	**0**	**0**	**0**	**1**	**12**	**23**	**18**		**936**		**1.79**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1940				547	
78.0%				**22.0%**	
634				93	
87.2%				**12.8%**	
323				201	
61.6%				**38.4%**	

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	SM,RL,CA,CH,RW,SL		
REMARKS:			

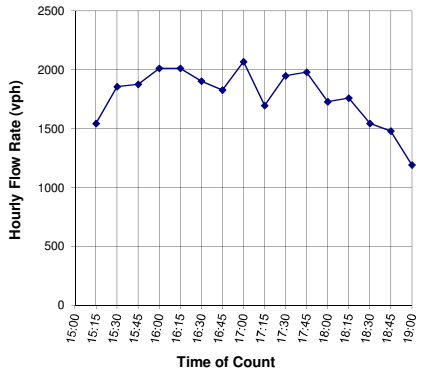
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		333	49	4	0	0	0	0	0	0	0	0	0	1.15	**386**	1544	
15:15 - 15:30		415	46	1	0	1	1	0	0	0	0	0	0	1.10	**464**	1856	
15:30 - 15:45		433	34	1	0	1	0	0	0	0	0	0	0	1.08	**469**	1876	
15:45 - 16:00		476	26	1	0	0	0	0	0	0	0	0	0	1.06	**503**	2012	1822
16:00 - 16:15		461	36	6	0	0	0	0	0	0	0	0	0	1.10	**503**	2012	1939
16:15 - 16:30		452	21	3	0	0	0	0	0	0	0	0	0	1.06	**476**	1904	1951
16:30 - 16:45		432	22	1	0	1	0	0	0	0	0	1	0	1.09	**457**	1828	1939
16:45 - 17:00		492	21	2	0	0	2	0	0	0	0	0	0	1.05	**517**	2068	1953
17:00 - 17:15		406	17	0	0	0	1	0	0	0	0	0	0	1.04	**424**	1696	1874
17:15 - 17:30		478	9	0	0	0	0	1	0	0	0	0	0	1.02	**487**	1948	1885
17:30 - 17:45		484	9	0	0	0	2	0	0	0	0	0	0	1.02	**495**	1980	1923
17:45 - 18:00	ESTIMATED	413	16	1	0	0	1	0	0	0	0	1	0	1.09	**432**	1728	1838
18:00 - 18:15	ESTIMATED	421	16	1	0	1	1	0	0	0	0	0	0	1.05	**440**	1760	1854
18:15 - 18:30	ESTIMATED	371	14	1	0	0	0	0	0	0	0	0	0	1.05	**386**	1544	1753
18:30 - 18:45	ESTIMATED	355	13	1	0	0	1	0	0	0	0	0	0	1.05	**370**	1480	1628
18:45 - 19:00	ESTIMATED	286	11	1	0	0	0	0	0	0	0	0	0	1.05	**298**	1192	1494
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**6708**	**359**	**24**	**0**	**4**	**9**	**1**	**0**	**0**	**0**	**3**	**0**		**7107**		
	Percentage:	94.4%	5.1%	0.3%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**6708**	**719**	**80**	**0**	**4**	**11**	**1**	**0**	**0**	**0**	**53**	**0**		**7576**		**1.07**
PEAK HOUR																	
16:00 - 17:00	**Totals:**	**1837**	**100**	**12**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**1**	**0**		**1953**		
	Percentage:	94.1%	5.1%	0.6%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1837**	**200**	**41**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**20**	**0**		**2101**		**1.08**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**1433**	**54**	**4**	**0**	**1**	**2**	**0**	**0**	**0**	**1**	**1**	**0**		**1495**		
	Percentage:	95.9%	3.6%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1433**	**108**	**12**	**0**	**1**	**2**	**0**	**0**	**0**	**5**	**10**	**0**		**1572**		**1.05**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
390					
5.5%					
114					
5.8%					
59					
4.0%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	SM,RL,CA,CH,RW,SL		
REMARKS:			

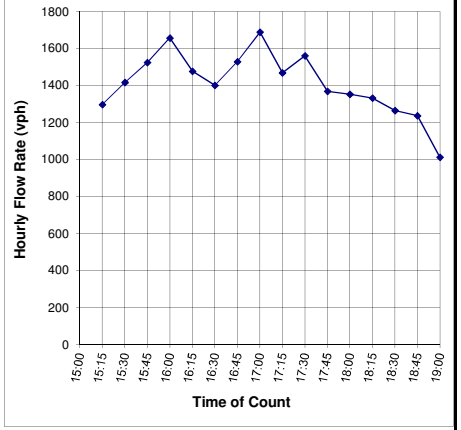
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #3 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		273	44	1	1	0	5	0	0	0	0	0	0	1.18	**324**	1296	
15:15 - 15:30		311	41	0	0	0	2	0	0	0	0	0	0	1.12	**354**	1416	
15:30 - 15:45		332	48	0	0	0	1	0	0	0	0	0	0	1.13	**381**	1524	
15:45 - 16:00		371	39	0	0	0	3	0	0	0	1	0	0	1.12	**414**	1656	1473
16:00 - 16:15		333	35	0	0	0	1	0	0	0	0	0	0	1.10	**369**	1476	1518
16:15 - 16:30		324	23	0	0	0	3	1	0	0	0	0	0	1.07	**350**	1400	1514
16:30 - 16:45		329	43	5	0	1	4	0	0	0	0	0	0	1.15	**382**	1528	1515
16:45 - 17:00		377	37	0	0	0	7	0	0	0	0	1	0	1.14	**422**	1688	1523
17:00 - 17:15		328	30	1	0	1	7	0	0	0	0	0	0	1.09	**367**	1468	1521
17:15 - 17:30		373	13	1	0	0	2	0	0	0	0	1	0	1.09	**390**	1560	1561
17:30 - 17:45		303	30	3	0	0	6	0	0	0	0	0	0	1.11	**342**	1368	1521
17:45 - 18:00	ESTIMATED	311	22	1	0	0	3	0	0	0	0	1	0	1.14	**338**	1352	1437
18:00 - 18:15	ESTIMATED	301	21	1	0	0	10	0	0	0	0	0	0	1.09	**333**	1332	1403
18:15 - 18:30	ESTIMATED	292	21	1	0	0	2	0	0	0	0	0	0	1.08	**316**	1264	1329
18:30 - 18:45	ESTIMATED	280	20	1	0	0	8	0	0	0	0	0	0	1.09	**309**	1236	1296
18:45 - 19:00	ESTIMATED	232	16	1	0	0	4	0	0	0	0	0	0	1.09	**253**	1012	1211
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**5071**	**483**	**14**	**1**	**2**	**68**	**1**	**0**	**0**	**1**	**4**	**0**		**5644**		
	Percentage:	89.8%	8.6%	0.3%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**5071**	**966**	**49**	**11**	**2**	**82**	**1**	**0**	**0**	**13**	**79**	**0**		**6271**		**1.11**
PEAK HOUR																	
16:30 - 17:30	**Totals:**	**1407**	**123**	**7**	**0**	**2**	**20**	**0**	**0**	**0**	**0**	**2**	**0**		**1561**		
	Percentage:	90.1%	7.9%	0.4%	0.0%	0.1%	1.3%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1407**	**246**	**24**	**0**	**2**	**24**	**0**	**0**	**0**	**0**	**40**	**0**		**1743**		**1.12**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**1106**	**78**	**3**	**0**	**0**	**24**	**0**	**0**	**0**	**1**	**1**	**0**		**1212**		
	Percentage:	91.3%	6.4%	0.2%	0.0%	0.0%	2.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1106**	**156**	**9**	**0**	**0**	**29**	**0**	**0**	**0**	**7**	**15**	**0**		**1321**		**1.09**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
505					
9.0%					
134					
8.6%					
82					
6.8%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	SM,RL,CA,CH,RW,SL		
REMARKS:			

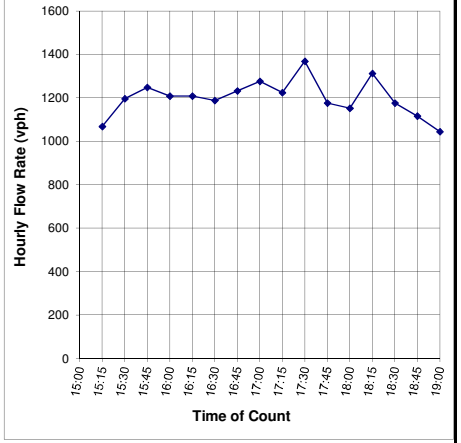
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #4 ONLY

		COUNT CLASSIFICATION																
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		188	37	4	0	0	38	0	0	0	0	0	0	1.20	**267**	1068	
15:15 - 15:30		202	57	3	0	0	37	0	0	0	0	0	0	1.24	**299**	1196	
15:30 - 15:45		209	64	8	0	0	31	0	0	0	0	0	0	1.29	**312**	1248	
15:45 - 16:00		237	37	5	0	0	23	0	0	0	0	0	0	1.18	**302**	1208	1180
16:00 - 16:15		208	52	4	0	0	38	0	0	0	0	0	0	1.23	**302**	1208	1215
16:15 - 16:30		227	33	15	0	0	22	0	0	0	0	0	0	1.25	**297**	1188	1213
16:30 - 16:45		235	46	2	0	0	25	0	0	0	0	0	0	1.18	**308**	1232	1209
16:45 - 17:00		255	36	4	0	0	24	0	0	0	0	0	0	1.16	**319**	1276	1226
17:00 - 17:15		242	35	0	0	2	27	0	0	0	0	0	0	1.13	**306**	1224	1230
17:15 - 17:30		287	30	0	0	0	25	0	0	0	0	0	0	1.10	**342**	1368	1275
17:30 - 17:45		267	6	0	0	0	21	0	0	0	0	0	0	1.03	**294**	1176	1261
17:45 - 18:00	ESTIMATED	243	27	3	0	0	15	0	0	0	0	0	0	1.13	**288**	1152	1230
18:00 - 18:15	ESTIMATED	272	31	3	0	0	22	0	0	0	0	0	0	1.13	**328**	1312	1252
18:15 - 18:30	ESTIMATED	245	27	3	0	0	19	0	0	0	0	0	0	1.13	**294**	1176	1204
18:30 - 18:45	ESTIMATED	230	26	3	0	0	20	0	0	0	0	0	0	1.13	**279**	1116	1189
18:45 - 19:00	ESTIMATED	216	24	3	0	0	18	0	0	0	0	0	0	1.13	**261**	1044	1162
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**3763**	**568**	**60**	**0**	**2**	**405**	**0**	**0**	**0**	**0**	**0**	**0**		**4798**		
	Percentage:	78.4%	11.8%	1.2%	0.0%	0.0%	8.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**3763**	**1137**	**203**	**0**	**2**	**486**	**0**	**0**	**0**	**0**	**0**	**0**		**5590**		**1.17**
PEAK HOUR																	
16:30 - 17:30	**Totals:**	**1019**	**147**	**6**	**0**	**2**	**101**	**0**	**0**	**0**	**0**	**0**	**0**		**1275**		
	Percentage:	79.9%	11.5%	0.5%	0.0%	0.2%	7.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1019**	**294**	**20**	**0**	**2**	**121**	**0**	**0**	**0**	**0**	**0**	**0**		**1457**		**1.14**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**963**	**108**	**12**	**0**	**0**	**79**	**0**	**0**	**0**	**0**	**0**	**0**		**1162**		
	Percentage:	82.9%	9.3%	1.0%	0.0%	0.0%	6.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**963**	**216**	**40**	**0**	**0**	**95**	**0**	**0**	**0**	**0**	**0**	**0**		**1314**		**1.13**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
630 **13.1%**					
155 **12.2%**					
120 **10.3%**					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	5		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	SM,RL,CA,CH,RW,SL		
REMARKS:			

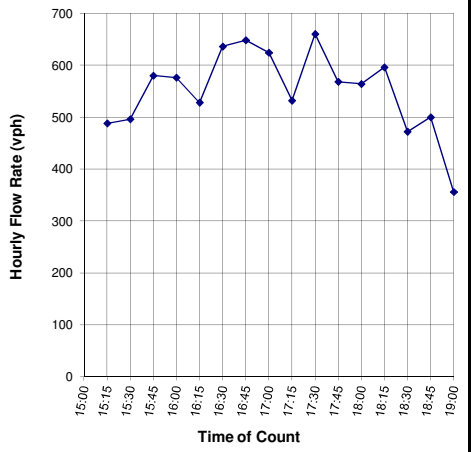
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #5 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		91	18	2	0	0	10	0	0	0	0	1	0	1.36	**122**	488	
15:15 - 15:30		99	14	0	1	0	9	0	0	0	0	1	0	1.36	**124**	496	
15:30 - 15:45		116	20	1	0	0	8	0	0	0	0	0	0	1.17	**145**	580	
15:45 - 16:00		116	14	2	0	2	10	0	0	0	0	0	0	1.14	**144**	576	535
16:00 - 16:15		107	15	0	0	0	10	0	0	0	0	0	0	1.13	**132**	528	545
16:15 - 16:30		135	18	1	0	0	4	0	0	0	0	1	0	1.25	**159**	636	580
16:30 - 16:45		130	18	2	0	0	12	0	0	0	0	0	0	1.16	**162**	648	597
16:45 - 17:00		124	27	4	0	0	1	0	0	0	0	0	0	1.24	**156**	624	609
17:00 - 17:15		114	14	0	0	0	5	0	0	0	0	0	0	1.11	**133**	532	610
17:15 - 17:30		140	17	2	0	0	6	0	0	0	0	0	0	1.14	**165**	660	616
17:30 - 17:45		133	7	0	0	0	2	0	0	0	0	0	0	1.05	**142**	568	596
17:45 - 18:00	ESTIMATED	122	12	1	0	0	6	0	0	0	0	0	0	1.12	**141**	564	581
18:00 - 18:15	ESTIMATED	131	12	1	0	1	4	0	0	0	0	0	0	1.12	**149**	596	597
18:15 - 18:30	ESTIMATED	103	10	1	0	1	3	0	0	0	0	0	0	1.12	**118**	472	550
18:30 - 18:45	ESTIMATED	98	9	1	0	0	17	0	0	0	0	0	0	1.13	**125**	500	533
18:45 - 19:00	ESTIMATED	73	7	1	0	1	7	0	0	0	0	0	0	1.13	**89**	356	481
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**1833**	**232**	**18**	**1**	**5**	**114**	**0**	**0**	**0**	**0**	**4**	**0**		**2206**		
	Percentage:	83.1%	10.5%	0.8%	0.0%	0.2%	5.2%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1833**	**464**	**60**	**11**	**5**	**137**	**0**	**0**	**0**	**0**	**72**	**0**		**2581**		**1.17**
PEAK HOUR																	
16:30 - 17:30	**Totals:**	**508**	**76**	**8**	**0**	**0**	**24**	**0**	**0**	**0**	**0**	**0**	**0**		**616**		
	Percentage:	82.5%	12.3%	1.3%	0.0%	0.0%	3.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**508**	**152**	**27**	**0**	**0**	**29**	**0**	**0**	**0**	**0**	**0**	**0**		**716**		**1.16**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**405**	**38**	**3**	**0**	**3**	**31**	**0**	**0**	**0**	**0**	**0**	**0**		**481**		
	Percentage:	84.2%	8.0%	0.6%	0.0%	0.6%	6.4%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**405**	**77**	**10**	**0**	**3**	**37**	**0**	**0**	**0**	**4**	**9**	**0**		**546**		**1.13**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
259 **11.8%**					
84 **13.6%**					
45 **9.4%**					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:		N	Y or N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:	6-7AM from 1/31/2012		

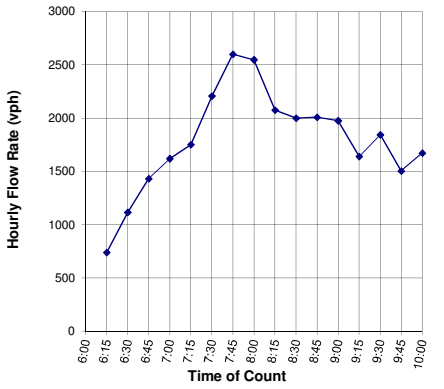
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES

			COUNT CLASSIFICATION																
VEHICLE TYPE			CARS			MISC					BUSES				OCC.	(15/15) TOTAL COUNTS	FLOW RATE (vph)	HOURLY VOL
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL				
6:00 - 6:15	ESTIMATED		113	20	0	0	0	51	0	0	0	0	0	0	1.20	**185**	740	
6:15 - 6:30	ESTIMATED		202	36	1	0	0	39	1	0	0	0	0	0	1.20	**279**	1116	
6:30 - 6:45	ESTIMATED		274	49	1	0	0	33	0	0	0	0	0	0	1.20	**358**	1432	
6:45 - 7:00	ESTIMATED		304	66	1	0	0	32	1	0	0	1	0	0	1.25	**405**	1620	**1227**
7:00 - 7:15			339	60	0	2	0	37	0	0	0	0	0	0	1.20	**438**	1752	1480
7:15 - 7:30			399	93	5	4	1	48	1	0	1	1	0	0	1.30	**552**	2208	1753
7:30 - 7:45			506	112	2	0	0	30	0	0	0	0	0	0	1.19	**650**	2600	2045
7:45 - 8:00			491	106	3	4	1	31	0	0	0	0	0	1	1.31	**637**	2548	**2277**
8:00 - 8:15			369	104	1	1	2	41	0	0	1	0	0	0	1.24	**519**	2076	2358
8:15 - 8:30			354	92	6	2	0	41	0	0	2	2	1	0	1.35	**500**	2000	2306
8:30 - 8:45			389	79	1	1	0	30	3	0	1	1	0	0	1.22	**502**	2008	2158
8:45 - 9:00			378	68	1	1	0	42	2	0	1	0	0	3	1.42	**494**	1976	**2015**
9:00 - 9:15			299	66	3	0	1	39	2	0	1	1	0	0	1.23	**410**	1640	1906
9:15 - 9:30			331	74	0	1	1	54	0	0	0	0	0	0	1.20	**461**	1844	1867
9:30 - 9:45			265	71	0	2	0	38	0	0	0	0	0	0	1.26	**376**	1504	1741
9:45 - 10:00			295	94	1	0	0	26	0	0	2	0	0	0	1.26	**418**	1672	**1665**
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**5308**	**1190**	**27**	**18**	**6**	**612**	**10**	**0**	**10**	**7**	**1**	**5**		**7184**		
		Percentage:	73.9%	16.6%	0.4%	0.3%	0.1%	8.5%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%		100%		
																		Occ.
		Vehicle Occupants:	**5308**	**2379**	**91**	**189**	**6**	**734**	**11**	**0**	**41**	**71**	**24**	**187**		**9031**		**1.26**
PEAK HOUR																		
7:15 - 8:15		**Totals:**	**1765**	**415**	**11**	**9**	**4**	**150**	**1**	**0**	**2**	**1**	**0**	**1**		**2358**		
		Percentage:	74.9%	17.6%	0.5%	0.4%	0.2%	6.4%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**1765**	**830**	**37**	**95**	**4**	**180**	**1**	**0**	**8**	**10**	**0**	**40**		**2969**		**1.26**
MIN. HOURLY VOL.																		
6:00 - 7:00		**Totals:**	**893**	**171**	**4**	**0**	**0**	**155**	**2**	**0**	**1**	**0**	**0**	**1**		**1225**		
		Percentage:	72.9%	13.9%	0.3%	0.0%	0.0%	12.7%	0.2%	0.0%	0.1%	0.0%	0.0%	0.1%		100%		
																		Occ.
		Vehicle Occupants:	**893**	**341**	**13**	**0**	**0**	**186**	**2**	**0**	**5**	**2**	**4**	**27**		**1471**		**1.20**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1264					
17.6%					
443					
18.8%					
177					
14.4%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:	6-7AM from 1/31/2012		

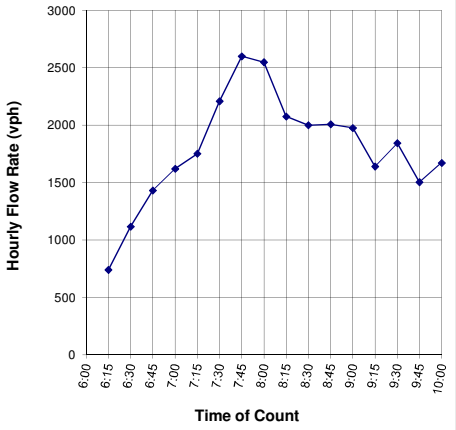
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

VEHICLE TYPE		COUNT CLASSIFICATION															
		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	113	20	0	0	0	51	0	0	0	0	0	0	1.20	**185**	740	
6:15 - 6:30	ESTIMATED	202	36	1	0	0	39	1	0	0	0	0	0	1.20	**279**	1116	
6:30 - 6:45	ESTIMATED	274	49	1	0	0	33	0	0	0	0	0	0	1.20	**358**	1432	
6:45 - 7:00	ESTIMATED	304	66	1	0	0	32	1	0	0	1	0	0	1.25	**405**	1620	1227
7:00 - 7:15		339	60	0	2	0	37	0	0	0	0	0	0	1.20	**438**	1752	1480
7:15 - 7:30		399	93	5	4	1	48	1	0	1	1	0	0	1.30	**552**	2208	1753
7:30 - 7:45		506	112	2	0	0	30	0	0	0	0	0	0	1.19	**650**	2600	2045
7:45 - 8:00		491	106	3	4	1	31	0	0	0	0	0	1	1.31	**637**	2548	2277
8:00 - 8:15		369	104	1	1	2	41	0	0	1	0	0	0	1.24	**519**	2076	2358
8:15 - 8:30		354	92	6	2	0	41	0	0	2	2	1	0	1.35	**500**	2000	2306
8:30 - 8:45		389	79	1	1	0	30	3	0	1	1	0	0	1.22	**502**	2008	2158
8:45 - 9:00		378	68	1	1	0	42	2	0	1	0	0	3	1.42	**494**	1976	2015
9:00 - 9:15		299	66	3	0	1	39	2	0	1	1	0	0	1.23	**410**	1640	1906
9:15 - 9:30		331	74	0	1	1	54	0	0	0	0	0	0	1.20	**461**	1844	1867
9:30 - 9:45		265	71	0	2	0	38	0	0	0	0	0	0	1.26	**376**	1504	1741
9:45 - 10:00		295	94	1	0	0	26	0	0	2	0	0	0	1.26	**418**	1672	1665
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**5308**	**1190**	**27**	**18**	**6**	**612**	**10**	**0**	**10**	**7**	**1**	**5**		**7184**		
	Percentage:	73.9%	16.6%	0.4%	0.3%	0.1%	8.5%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**5308**	**2379**	**91**	**189**	**6**	**734**	**11**	**0**	**41**	**71**	**24**	**187**		**9031**		**1.26**
PEAK HOUR																	
7:15 - 8:15	**Totals:**	**1765**	**415**	**11**	**9**	**4**	**150**	**1**	**0**	**2**	**1**	**0**	**1**		**2358**		
	Percentage:	74.9%	17.6%	0.5%	0.4%	0.2%	6.4%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1765**	**830**	**37**	**95**	**4**	**180**	**1**	**0**	**8**	**10**	**0**	**40**		**2969**		**1.26**
MIN. HOURLY VOL.																	
6:00 - 7:00	**Totals:**	**893**	**171**	**4**	**0**	**0**	**155**	**2**	**0**	**1**	**0**	**0**	**1**		**1225**		
	Percentage:	72.9%	13.9%	0.3%	0.0%	0.0%	12.7%	0.2%	0.0%	0.1%	0.0%	0.0%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**893**	**341**	**13**	**0**	**0**	**186**	**2**	**0**	**5**	**2**	**4**	**27**		**1471**		**1.20**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1264					
17.6%					
443					
18.8%					
177					
14.4%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:	6-7AM from 1/31/2012		

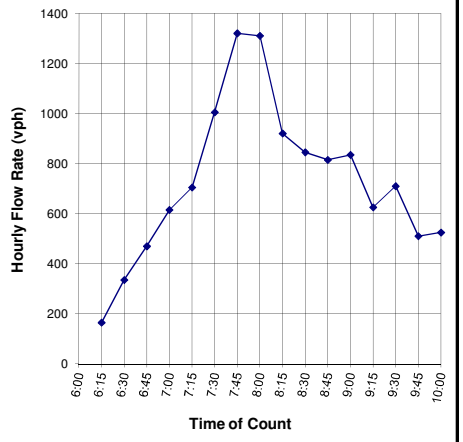
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

VEHICLE TYPE			COUNT CLASSIFICATION															
			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15		ESTIMATED	27	6	0	0	0	0	0	0	0	0	0	0	1.18	**33**	132	
6:15 - 6:30		ESTIMATED	55	12	0	0	0	0	1	0	0	0	0	0	1.18	**67**	268	
6:30 - 6:45		ESTIMATED	77	17	0	0	0	0	0	0	0	0	0	0	1.18	**94**	376	
6:45 - 7:00		ESTIMATED	93	30	0	0	0	0	0	0	0	0	0	0	1.24	**123**	492	317
7:00 - 7:15			111	29	0	0	0	1	0	0	0	0	0	0	1.21	**141**	564	425
7:15 - 7:30			156	44	0	1	0	0	1	0	0	0	0	0	1.27	**201**	804	559
7:30 - 7:45			211	53	0	0	0	0	0	0	0	0	0	0	1.20	**264**	1056	729
7:45 - 8:00			212	50	0	0	0	0	0	0	0	0	0	0	1.19	**262**	1048	868
8:00 - 8:15			136	46	0	0	1	1	0	0	0	0	0	0	1.25	**184**	736	911
8:15 - 8:30			133	35	0	0	0	1	0	0	0	0	0	0	1.21	**169**	676	879
8:30 - 8:45			128	34	0	0	0	1	0	0	0	0	0	0	1.21	**163**	652	778
8:45 - 9:00			138	27	1	0	0	1	2	0	0	0	0	0	1.18	**167**	668	683
9:00 - 9:15			98	27	0	0	0	0	2	0	0	0	0	0	1.22	**125**	500	624
9:15 - 9:30			108	32	0	0	1	1	0	0	0	0	0	0	1.23	**142**	568	597
9:30 - 9:45			80	22	0	0	0	0	0	0	0	0	0	0	1.22	**102**	408	536
9:45 - 10:00			75	30	0	0	0	0	0	0	0	0	0	0	1.29	**105**	420	474
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**1839**	**493**	**1**	**1**	**2**	**6**	**6**	**0**	**0**	**0**	**0**	**0**		**2342**		
		Percentage:	78.5%	21.1%	0.0%	0.0%	0.1%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**1839**	**987**	**4**	**11**	**2**	**7**	**7**	**0**	**0**	**0**	**0**	**0**		**2849**		**Occ. 1.22**
PEAK HOUR																		
7:15 - 8:15		**Totals:**	**715**	**193**	**0**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**		**911**		
		Percentage:	78.5%	21.2%	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**715**	**386**	**0**	**11**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**		**1114**		**Occ. 1.22**
MIN. HOURLY VOL.																		
6:00 - 7:00		**Totals:**	**253**	**64**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**		**317**		
		Percentage:	79.7%	20.3%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**253**	**129**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**		**382**		**Occ. 1.20**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
497					
21.2%					
195					
21.4%					
64					
20.3%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:	6-7AM from 1/31/2012		

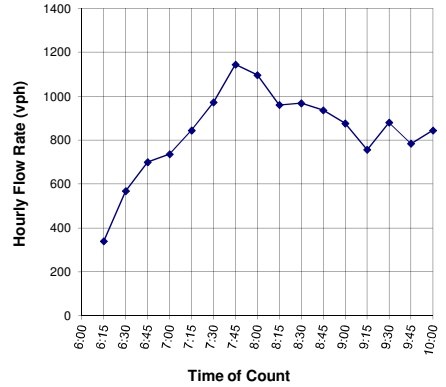
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

VEHICLE TYPE			COUNT CLASSIFICATION															
			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15		ESTIMATED	68	10	0	0	0	6	0	0	0	0	0	0	1.15	**85**	340	
6:15 - 6:30		ESTIMATED	115	18	1	0	0	8	0	0	0	0	0	0	1.15	**142**	568	
6:30 - 6:45		ESTIMATED	147	23	1	0	0	4	0	0	0	0	0	0	1.15	**175**	700	
6:45 - 7:00		ESTIMATED	147	25	1	0	0	10	1	0	0	1	0	0	1.21	**184**	736	586
7:00 - 7:15			184	21	0	1	0	5	0	0	0	0	0	0	1.15	**211**	844	712
7:15 - 7:30			187	38	4	2	1	11	0	0	0	0	0	0	1.28	**243**	972	813
7:30 - 7:45			239	41	1	0	0	5	0	0	0	0	0	0	1.16	**286**	1144	924
7:45 - 8:00			222	40	2	2	1	7	0	0	0	0	0	0	1.24	**274**	1096	1014
8:00 - 8:15			184	45	1	1	1	8	0	0	0	0	0	0	1.24	**240**	960	1043
8:15 - 8:30			175	47	6	2	0	11	0	0	1	0	0	0	1.35	**242**	968	1042
8:30 - 8:45			197	30	1	0	0	6	2	0	0	0	0	0	1.14	**234**	936	990
8:45 - 9:00			174	31	0	1	0	12	0	0	1	0	0	0	1.21	**219**	876	935
9:00 - 9:15			148	31	1	0	0	9	0	0	0	0	0	0	1.19	**189**	756	884
9:15 - 9:30			170	32	0	1	0	17	0	0	0	0	0	0	1.20	**220**	880	862
9:30 - 9:45			150	37	0	2	0	7	0	0	0	0	0	0	1.29	**196**	784	824
9:45 - 10:00			155	52	1	0	0	3	0	0	0	0	0	0	1.26	**211**	844	816
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**2663**	**520**	**20**	**12**	**3**	**129**	**3**	**0**	**2**	**1**	**0**	**0**		**3351**		
		Percentage:	79.5%	15.5%	0.6%	0.4%	0.1%	3.8%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		**Occ.**
		Vehicle Occupants:	**2663**	**1040**	**68**	**126**	**3**	**155**	**3**	**0**	**10**	**12**	**0**	**0**		**4077**		**1.22**
PEAK HOUR																		
7:15 - 8:15		**Totals:**	**832**	**164**	**8**	**5**	**3**	**31**	**0**	**0**	**0**	**0**	**0**	**0**		**1043**		
		Percentage:	79.8%	15.7%	0.8%	0.5%	0.3%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		**Occ.**
		Vehicle Occupants:	**832**	**328**	**27**	**53**	**3**	**37**	**0**	**0**	**0**	**0**	**0**	**0**		**1280**		**1.23**
MIN. HOURLY VOL.																		
6:00 - 7:00		**Totals:**	**478**	**75**	**3**	**0**	**0**	**28**	**1**	**0**	**0**	**0**	**0**	**0**		**585**		
		Percentage:	81.8%	12.8%	0.5%	0.0%	0.0%	4.8%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		**Occ.**
		Vehicle Occupants:	**478**	**150**	**10**	**0**	**0**	**34**	**1**	**0**	**2**	**0**	**0**	**0**		**674**		**1.15**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
559					
16.7%					
180					
17.3%					
79					
13.4%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:	6-7AM from 1/31/2012		

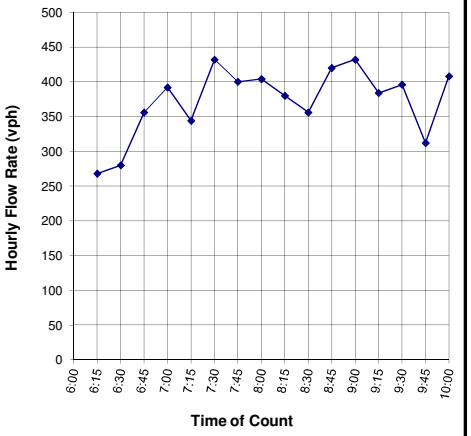
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #3 ONLY

VEHICLE TYPE		COUNT CLASSIFICATION															
		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	18	3	0	0	0	45	0	0	0	0	0	0	1.27	**67**	268	
6:15 - 6:30	ESTIMATED	32	6	0	0	0	31	0	0	0	0	0	0	1.32	**70**	280	
6:30 - 6:45	ESTIMATED	50	9	0	0	0	29	0	0	0	0	0	0	1.34	**89**	356	
6:45 - 7:00	ESTIMATED	63	11	0	0	0	22	0	0	0	0	0	0	1.36	**98**	392	324
7:00 - 7:15		44	10	0	1	0	31	0	0	0	0	0	0	1.30	**86**	344	343
7:15 - 7:30		56	11	1	1	0	37	0	0	1	1	0	0	1.39	**108**	432	381
7:30 - 7:45		56	18	1	0	0	25	0	0	0	0	0	0	1.25	**100**	400	392
7:45 - 8:00		57	16	1	2	0	24	0	0	0	0	0	1	1.80	**101**	404	395
8:00 - 8:15		49	13	0	0	0	32	0	0	1	0	0	0	1.24	**95**	380	404
8:15 - 8:30		46	10	0	0	0	29	0	0	1	2	1	0	1.63	**89**	356	385
8:30 - 8:45		64	15	0	1	0	23	1	0	1	1	0	0	1.39	**105**	420	390
8:45 - 9:00		66	10	0	0	0	29	0	0	0	0	0	3	2.23	**108**	432	397
9:00 - 9:15		53	8	2	0	1	30	0	0	1	1	0	0	1.32	**96**	384	398
9:15 - 9:30		53	10	0	0	0	36	0	0	0	0	0	0	1.17	**99**	396	408
9:30 - 9:45		35	12	0	0	0	31	0	0	0	0	0	0	1.23	**78**	312	381
9:45 - 10:00		65	12	0	0	0	23	0	0	2	0	0	0	1.22	**102**	408	375
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**808**	**174**	**6**	**5**	**1**	**477**	**1**	**0**	**8**	**6**	**1**	**5**		**1491**		
	Percentage:	54.2%	11.6%	0.4%	0.3%	0.1%	32.0%	0.1%	0.0%	0.6%	0.4%	0.1%	0.3%		100%		**Occ.**
	Vehicle Occupants:	**808**	**347**	**21**	**53**	**1**	**572**	**1**	**0**	**33**	**61**	**25**	**191**		**2112**		**1.42**
PEAK HOUR																	
8:30 - 9:30	**Totals:**	**236**	**43**	**2**	**1**	**1**	**118**	**1**	**0**	**2**	**2**	**0**	**3**		**408**		
	Percentage:	57.8%	10.5%	0.5%	0.2%	0.2%	28.9%	0.2%	0.0%	0.5%	0.5%	0.0%	0.7%		100%		**Occ.**
	Vehicle Occupants:	**236**	**86**	**7**	**11**	**1**	**142**	**1**	**0**	**8**	**20**	**0**	**120**		**630**		**1.54**
MIN. HOURLY VOL.																	
6:00 - 7:00	**Totals:**	**164**	**29**	**1**	**0**	**0**	**127**	**0**	**0**	**1**	**0**	**0**	**1**		**323**		
	Percentage:	50.7%	8.9%	0.3%	0.0%	0.0%	39.3%	0.0%	0.0%	0.4%	0.1%	0.1%	0.2%		100%		**Occ.**
	Vehicle Occupants:	**164**	**57**	**4**	**0**	**0**	**152**	**0**	**0**	**5**	**3**	**5**	**31**		**421**		**1.30**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
206					
13.8%					
54					
13.2%					
32					
10.0%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:		N	Y or N
NO. LANES COUNTED:	3		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:			

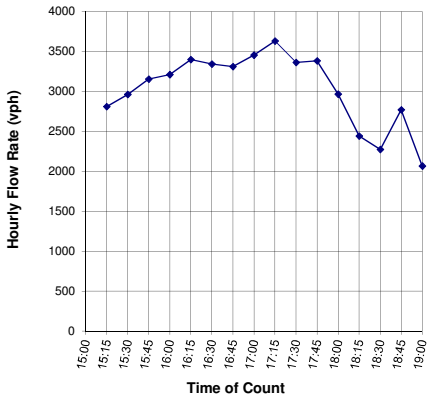
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		541	118	2	0	2	39	2	0	0	1	0	0	1.20	**703**	2812	
15:15 - 15:30		556	137	5	0	0	42	1	0	1	0	0	0	1.22	**741**	2964	
15:30 - 15:45		584	153	5	0	7	39	1	0	0	1	0	0	1.23	**789**	3156	
15:45 - 16:00		608	161	1	1	2	27	1	0	0	2	0	1	1.29	**803**	3212	**3036**
16:00 - 16:15		666	144	3	1	2	33	0	0	1	0	0	0	1.20	**850**	3400	3183
16:15 - 16:30		679	113	5	3	2	33	0	0	0	1	0	0	1.20	**836**	3344	3278
16:30 - 16:45		646	135	13	4	4	25	0	0	1	0	0	0	1.26	**828**	3312	3317
16:45 - 17:00		669	148	13	1	1	31	1	0	1	0	0	0	1.23	**864**	3456	**3378**
17:00 - 17:15		736	123	7	2	3	37	3	0	0	0	0	0	1.18	**908**	3632	3436
17:15 - 17:30		718	87	8	0	5	22	4	0	0	1	0	0	1.14	**841**	3364	3441
17:30 - 17:45		731	77	3	1	5	29	1	0	0	0	0	0	1.12	**846**	3384	3459
17:45 - 18:00	ESTIMATED	618	93	4	0	2	24	0	0	0	0	0	0	1.15	**742**	2968	**3337**
18:00 - 18:15	ESTIMATED	514	69	3	0	1	23	0	0	0	0	0	0	1.14	**611**	2444	3040
18:15 - 18:30	ESTIMATED	476	64	3	0	1	25	0	0	0	0	0	0	1.14	**569**	2276	2768
18:30 - 18:45	ESTIMATED	579	78	4	0	4	28	0	0	0	0	0	0	1.14	**693**	2772	2615
18:45 - 19:00	ESTIMATED	415	56	3	0	2	41	1	0	0	0	0	0	1.14	**517**	2068	**2390**
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**9736**	**1756**	**82**	**13**	**43**	**498**	**15**	**0**	**5**	**7**	**0**	**1**		**12141**		
	Percentage:	80.2%	14.5%	0.7%	0.1%	0.4%	4.1%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**9736**	**3511**	**279**	**137**	**43**	**598**	**17**	**0**	**20**	**75**	**0**	**52**		**14449**		**1.19**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**2854**	**435**	**31**	**4**	**14**	**119**	**9**	**0**	**1**	**1**	**0**	**0**		**3459**		
	Percentage:	82.5%	12.6%	0.9%	0.1%	0.4%	3.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**2854**	**870**	**105**	**42**	**14**	**143**	**10**	**0**	**4**	**10**	**0**	**0**		**4042**		**1.17**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**1983**	**266**	**13**	**0**	**8**	**117**	**1**	**0**	**1**	**0**	**0**	**0**		**2389**		
	Percentage:	83.0%	11.2%	0.5%	0.0%	0.3%	4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1983**	**533**	**44**	**0**	**8**	**140**	**1**	**0**	**3**	**0**	**0**	**9**		**2721**		**1.14**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1907					
15.7%					
486					
14.1%					
288					
12.1%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:			

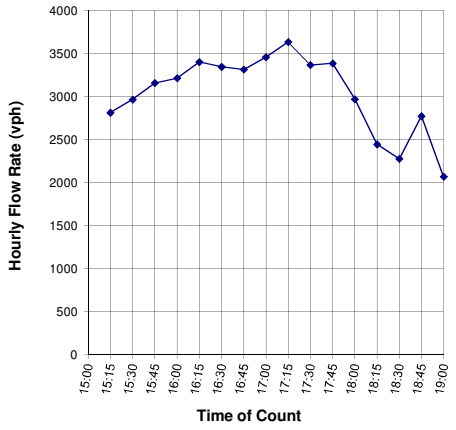
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		541	118	2	0	2	39	2	0	0	1	0	0	1.20	**703**	2812	
15:15 - 15:30		556	137	5	0	0	42	1	0	1	0	0	0	1.22	**741**	2964	
15:30 - 15:45		584	153	5	0	7	39	1	0	0	1	0	0	1.23	**789**	3156	
15:45 - 16:00		608	161	1	1	2	27	1	0	0	2	0	1	1.29	**803**	3212	3036
16:00 - 16:15		666	144	3	1	2	33	0	0	1	0	0	0	1.20	**850**	3400	3183
16:15 - 16:30		679	113	5	3	2	33	0	0	0	1	0	0	1.20	**836**	3344	3278
16:30 - 16:45		646	135	13	4	4	25	0	0	1	0	0	0	1.26	**828**	3312	3317
16:45 - 17:00		669	148	13	1	1	31	1	0	1	0	0	0	1.23	**864**	3456	3378
17:00 - 17:15		736	123	7	2	3	37	3	0	0	0	0	0	1.18	**908**	3632	3436
17:15 - 17:30		718	87	8	0	5	22	4	0	0	1	0	0	1.14	**841**	3364	3441
17:30 - 17:45		731	77	3	1	5	29	1	0	0	0	0	0	1.12	**846**	3384	3459
17:45 - 18:00	ESTIMATED	618	93	4	0	2	24	0	0	0	0	0	0	1.15	**742**	2968	3337
18:00 - 18:15	ESTIMATED	514	69	3	0	1	23	0	0	0	0	0	0	1.14	**611**	2444	3040
18:15 - 18:30	ESTIMATED	476	64	3	0	1	25	0	0	0	0	0	0	1.14	**569**	2276	2768
18:30 - 18:45	ESTIMATED	579	78	4	0	4	28	0	0	0	0	0	0	1.14	**693**	2772	2615
18:45 - 19:00	ESTIMATED	415	56	3	0	2	41	1	0	0	0	0	0	1.14	**517**	2068	2390
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**9736**	**1756**	**82**	**13**	**43**	**498**	**15**	**0**	**5**	**7**	**0**	**1**		**12141**		
	Percentage:	80.2%	14.5%	0.7%	0.1%	0.4%	4.1%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%		100%		
	Vehicle Occupants:	**9736**	**3511**	**279**	**137**	**43**	**598**	**17**	**0**	**20**	**75**	**0**	**52**		**14449**		**Occ. 1.19**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**2854**	**435**	**31**	**4**	**14**	**119**	**9**	**0**	**1**	**1**	**0**	**0**		**3459**		
	Percentage:	82.5%	12.6%	0.9%	0.1%	0.4%	3.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**2854**	**870**	**105**	**42**	**14**	**143**	**10**	**0**	**4**	**10**	**0**	**0**		**4042**		**Occ. 1.17**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**1983**	**266**	**13**	**0**	**8**	**117**	**1**	**0**	**1**	**0**	**0**	**0**		**2389**		
	Percentage:	83.0%	11.2%	0.5%	0.0%	0.3%	4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**1983**	**533**	**44**	**0**	**8**	**140**	**1**	**0**	**3**	**0**	**0**	**9**		**2721**		**Occ. 1.14**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1907					
15.7%					
486					
14.1%					
288					
12.1%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:			

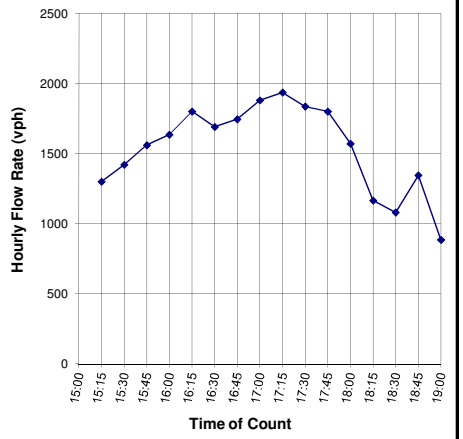
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		210	49	0	0	1	0	1	0	0	0	0	0	1.19	**260**	1040	
15:15 - 15:30		228	56	0	0	0	0	1	0	0	0	0	0	1.20	**284**	1136	
15:30 - 15:45		249	57	2	0	4	0	1	0	0	0	0	0	1.20	**312**	1248	
15:45 - 16:00		240	85	0	0	2	0	0	0	0	0	0	0	1.26	**327**	1308	1183
16:00 - 16:15		286	72	0	1	1	0	0	0	0	0	0	0	1.23	**360**	1440	1283
16:15 - 16:30		280	53	2	2	1	0	0	0	0	0	0	0	1.23	**338**	1352	1337
16:30 - 16:45		264	72	8	3	1	1	0	0	0	0	0	0	1.34	**349**	1396	1374
16:45 - 17:00		311	62	2	0	1	0	1	0	0	0	0	0	1.18	**376**	1504	1423
17:00 - 17:15		325	55	1	2	3	1	2	0	0	0	0	0	1.20	**387**	1548	1450
17:15 - 17:30		321	41	3	0	2	0	4	0	0	0	0	0	1.13	**367**	1468	1479
17:30 - 17:45		325	31	0	1	3	0	0	0	0	0	0	0	1.11	**360**	1440	1490
17:45 - 18:00	ESTIMATED	268	44	1	0	1	0	0	0	0	0	0	0	1.15	**314**	1256	1428
18:00 - 18:15	ESTIMATED	202	29	1	0	0	1	0	0	0	0	0	0	1.14	**233**	932	1274
18:15 - 18:30	ESTIMATED	187	27	1	0	1	0	0	0	0	0	0	0	1.13	**216**	864	1123
18:30 - 18:45	ESTIMATED	230	33	1	0	4	1	0	0	0	0	0	0	1.13	**269**	1076	1032
18:45 - 19:00	ESTIMATED	152	22	1	0	2	0	1	0	0	0	0	0	1.13	**177**	708	895
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**4078**	**789**	**23**	**9**	**27**	**4**	**11**	**0**	**0**	**0**	**0**	**0**		**4929**		
	Percentage:	82.7%	16.0%	0.5%	0.2%	0.5%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**4078**	**1577**	**77**	**95**	**27**	**5**	**12**	**0**	**0**	**0**	**0**	**0**		**5858**		**1.19**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**1282**	**189**	**6**	**3**	**9**	**1**	**7**	**0**	**0**	**0**	**0**	**0**		**1490**		
	Percentage:	86.0%	12.7%	0.4%	0.2%	0.6%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1282**	**378**	**20**	**32**	**9**	**1**	**8**	**0**	**0**	**0**	**0**	**0**		**1722**		**1.16**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**771**	**112**	**3**	**0**	**7**	**2**	**1**	**0**	**0**	**0**	**0**	**0**		**895**		
	Percentage:	86.1%	12.5%	0.4%	0.0%	0.8%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**771**	**224**	**12**	**0**	**7**	**2**	**1**	**0**	**0**	**0**	**0**	**0**		**1015**		**1.13**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
847					
17.2%					
207					
13.9%					
122					
13.7%					

AM/PM PEAK:	**PM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**80**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Sierra College Road**		
DIRECTION:	**EB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**N**	**Y/ N**
NO. LANES COUNTED:	**3**		
DATE:	**1/31/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Tuesday**
RECORDER(S):	**DW,DL,LT,MR**		
REMARKS:			

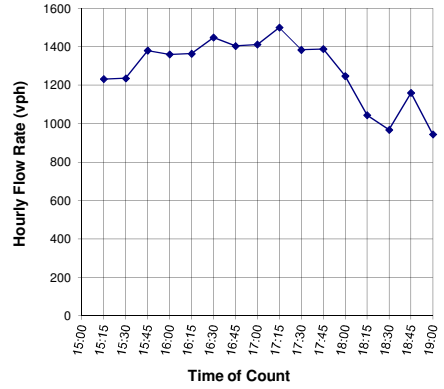
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL**	**FLOW RATE**	**HOURLY**
TIME		**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**		**COUNTS**	**(vph)**	**VOL**
15:00 - 15:15		260	42	2	0	0	3	1	0	0	1	0	0	1.18	**308**	1232	
15:15 - 15:30		239	55	2	0	0	13	0	0	0	0	0	0	1.20	**309**	1236	
15:30 - 15:45		266	69	2	0	2	5	0	0	0	1	0	0	1.24	**345**	1380	
15:45 - 16:00		278	53	1	1	0	6	1	0	0	0	0	1	1.31	**340**	1360	1302
16:00 - 16:15		282	49	2	0	1	7	0	0	0	0	0	0	1.16	**341**	1364	1335
16:15 - 16:30		312	40	1	1	1	6	0	0	0	1	0	0	1.17	**362**	1448	1388
16:30 - 16:45		302	40	4	1	1	3	0	0	0	0	0	0	1.17	**351**	1404	1394
16:45 - 17:00		269	62	8	1	0	13	0	0	0	0	0	0	1.26	**353**	1412	1407
17:00 - 17:15		320	43	3	0	0	9	1	0	0	0	0	0	1.14	**375**	1500	1441
17:15 - 17:30		306	32	2	0	3	3	0	0	0	0	0	0	1.11	**346**	1384	1425
17:30 - 17:45		303	34	2	0	2	6	1	0	0	0	0	0	1.12	**347**	1388	1421
17:45 - 18:00	ESTIMATED	271	34	2	0	0	5	0	0	0	0	0	0	1.14	**312**	1248	1380
18:00 - 18:15	ESTIMATED	226	26	1	0	1	7	0	0	0	0	0	0	1.13	**261**	1044	1266
18:15 - 18:30	ESTIMATED	209	24	1	0	0	8	0	0	0	0	0	0	1.13	**242**	968	1162
18:30 - 18:45	ESTIMATED	255	29	2	0	0	4	0	0	0	0	0	0	1.13	**290**	1160	1105
18:45 - 19:00	ESTIMATED	206	23	1	0	0	5	0	0	0	0	0	0	1.13	**236**	944	1029
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**4304**	**655**	**37**	**4**	**11**	**103**	**4**	**0**	**0**	**4**	**0**	**1**		**5118**		
	Percentage:	84.1%	12.8%	0.7%	0.1%	0.2%	2.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**4304**	**1310**	**125**	**42**	**11**	**124**	**4**	**0**	**0**	**36**	**0**	**52**		**6003**		**1.17**
PEAK HOUR																	
16:15 - 17:15	**Totals:**	**1203**	**185**	**16**	**3**	**2**	**31**	**1**	**0**	**0**	**1**	**0**	**0**		**1441**		
	Percentage:	83.5%	12.8%	1.1%	0.2%	0.1%	2.2%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1203**	**370**	**54**	**32**	**2**	**37**	**1**	**0**	**0**	**10**	**0**	**0**		**1708**		**1.19**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**895**	**102**	**6**	**0**	**1**	**24**	**0**	**0**	**0**	**0**	**0**	**0**		**1029**		
	Percentage:	87.1%	9.9%	0.6%	0.0%	0.1%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**895**	**204**	**20**	**0**	**1**	**29**	**0**	**0**	**0**	**0**	**0**	**9**		**1158**		**1.13**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
711					
13.9%					
207					
14.4%					
109					
10.6%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	EB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	DW,DL,LT,MR		
REMARKS:			

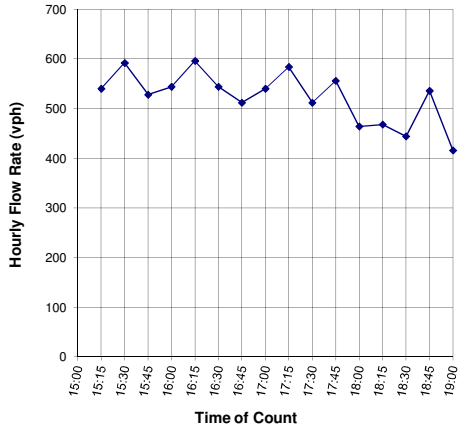
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #3 ONLY

VEHICLE TYPE		COUNT CLASSIFICATION												OCC.	(15/15) TOTAL COUNTS	FLOW RATE (vph)	HOURLY VOL
		CARS			MISC					BUSES							
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL				
15:00 - 15:15		71	27	0	0	1	36	0	0	0	0	0	0	1.25	**135**	540	
15:15 - 15:30		89	26	3	0	0	29	0	0	1	0	0	0	1.28	**148**	592	
15:30 - 15:45		69	27	1	0	1	34	0	0	0	0	0	0	1.27	**132**	528	
15:45 - 16:00		90	23	0	0	0	21	0	0	0	2	0	0	1.33	**136**	544	551
16:00 - 16:15		98	23	1	0	0	26	0	0	1	0	0	0	1.23	**149**	596	565
16:15 - 16:30		87	20	2	0	0	27	0	0	0	0	0	0	1.22	**136**	544	553
16:30 - 16:45		80	23	1	0	2	21	0	0	1	0	0	0	1.25	**128**	512	549
16:45 - 17:00		89	24	3	0	0	18	0	0	1	0	0	0	1.28	**135**	540	548
17:00 - 17:15		91	25	3	0	0	27	0	0	0	0	0	0	1.26	**146**	584	545
17:15 - 17:30		91	14	3	0	0	19	0	0	0	1	0	0	1.27	**128**	512	537
17:30 - 17:45		103	12	1	0	0	23	0	0	0	0	0	0	1.14	**139**	556	548
17:45 - 18:00	ESTIMATED	79	15	1	0	1	19	0	0	0	0	0	0	1.21	**116**	464	529
18:00 - 18:15	ESTIMATED	86	14	1	0	0	15	0	0	0	0	0	0	1.19	**117**	468	500
18:15 - 18:30	ESTIMATED	79	13	1	0	0	17	0	0	0	0	0	0	1.19	**111**	444	483
18:30 - 18:45	ESTIMATED	94	16	1	0	0	23	0	0	0	0	0	0	1.19	**134**	536	478
18:45 - 19:00	ESTIMATED	57	10	1	0	0	36	0	0	0	0	0	0	1.20	**104**	416	466
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**1353**	**313**	**23**	**0**	**5**	**391**	**0**	**0**	**5**	**4**	**0**	**0**		**2094**		
	Percentage:	64.6%	14.9%	1.1%	0.0%	0.2%	18.7%	0.0%	0.0%	0.2%	0.2%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1353**	**625**	**79**	**0**	**5**	**469**	**0**	**0**	**20**	**40**	**0**	**0**		**2591**		**1.24**
PEAK HOUR																	
15:15 - 16:15	**Totals:**	**346**	**99**	**5**	**0**	**1**	**110**	**0**	**0**	**2**	**2**	**0**	**0**		**565**		
	Percentage:	61.2%	17.5%	0.9%	0.0%	0.2%	19.5%	0.0%	0.0%	0.4%	0.4%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**346**	**198**	**17**	**0**	**1**	**132**	**0**	**0**	**8**	**20**	**0**	**0**		**722**		**1.28**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**316**	**53**	**4**	**0**	**0**	**91**	**0**	**0**	**1**	**0**	**0**	**0**		**465**		
	Percentage:	67.9%	11.4%	0.9%	0.0%	0.0%	19.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**316**	**106**	**14**	**0**	**0**	**109**	**0**	**0**	**4**	**0**	**0**	**0**		**549**		**1.18**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
350					
16.7%					
109					
19.3%					
58					
12.5%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:		y	Y or N
NO. LANES COUNTED:	4		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:	6-7AM from 1/31/2012		

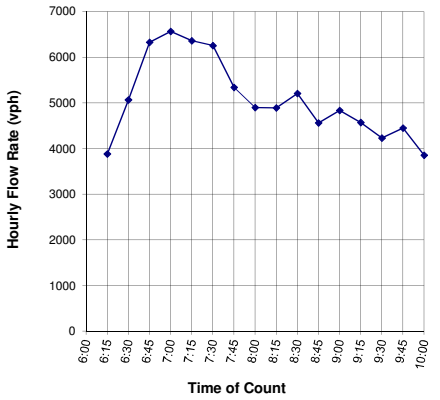
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES
(HOV LANE)

			COUNT CLASSIFICATION																
VEHICLE TYPE			CARS			MISC					BUSES				OCC.	(15/15) TOTAL COUNTS	FLOW RATE (vph)	HOURLY VOL
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL				
6:00 - 6:15		ESTIMATED	818	105	3	0	1	41	1	0	0	0	2	0	1.16	**971**	3884	
6:15 - 6:30		ESTIMATED	1067	137	6	1	1	50	0	0	0	0	4	0	1.20	**1267**	5068	
6:30 - 6:45		ESTIMATED	1356	173	4	1	5	39	1	0	0	1	2	0	1.16	**1582**	6328	
6:45 - 7:00		ESTIMATED	1391	197	5	2	2	40	1	1	0	0	3	0	1.19	**1642**	6568	**5462**
7:00 - 7:15			1335	190	4	1	3	45	0	9	0	0	3	0	1.17	**1590**	6360	6081
7:15 - 7:30			1290	209	4	2	5	38	0	16	0	0	0	0	1.16	**1564**	6256	6378
7:30 - 7:45			1091	168	3	1	7	46	1	15	1	1	2	0	1.18	**1335**	5340	6131
7:45 - 8:00			1013	149	3	0	2	46	0	11	0	0	1	0	1.15	**1225**	4900	**5714**
8:00 - 8:15			1032	124	1	1	1	51	0	13	0	0	0	0	1.12	**1223**	4892	5347
8:15 - 8:30			1066	164	2	1	3	52	0	14	0	0	0	0	1.15	**1302**	5208	5085
8:30 - 8:45			935	135	3	1	4	54	0	8	0	0	1	0	1.16	**1141**	4564	4891
8:45 - 9:00			990	169	6	1	2	38	0	2	0	0	1	0	1.18	**1209**	4836	**4875**
9:00 - 9:15			921	166	2	2	6	40	0	6	0	0	0	0	1.17	**1143**	4572	4795
9:15 - 9:30			834	143	7	2	2	59	1	8	0	0	3	0	1.23	**1058**	4232	4551
9:30 - 9:45			839	197	7	0	2	56	5	11	0	0	0	1	1.24	**1113**	4452	4523
9:45 - 10:00			662	219	5	0	1	62	1	15	0	0	0	0	1.25	**964**	3856	**4278**
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**16640**	**2646**	**66**	**16**	**47**	**757**	**11**	**129**	**1**	**3**	**23**	**1**		**20329**		
		Percentage:	81.9%	13.0%	0.3%	0.1%	0.2%	3.7%	0.1%	0.6%	0.0%	0.0%	0.1%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**16640**	**5292**	**224**	**168**	**47**	**908**	**12**	**142**	**5**	**25**	**454**	**48**		**23954**		**1.18**
PEAK HOUR																		
6:30 - 7:30		**Totals:**	**5372**	**769**	**17**	**6**	**15**	**162**	**2**	**26**	**0**	**1**	**9**	**0**		**6378**		
		Percentage:	84.2%	12.1%	0.3%	0.1%	0.2%	2.5%	0.0%	0.4%	0.0%	0.0%	0.1%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**5372**	**1539**	**59**	**63**	**15**	**194**	**2**	**29**	**1**	**13**	**176**	**5**		**7465**		**1.17**
MIN. HOURLY VOL.																		
9:00 - 10:00		**Totals:**	**3256**	**725**	**21**	**4**	**11**	**217**	**7**	**40**	**0**	**3**	**3**	**1**		**4281**		
		Percentage:	76.1%	16.9%	0.5%	0.1%	0.3%	5.1%	0.2%	0.9%	0.0%	0.1%	0.1%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**3256**	**1450**	**71**	**42**	**11**	**260**	**8**	**44**	**0**	**30**	**60**	**40**		**5265**		**1.23**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
2932	1944		954	302	17095
14.4%		**9.6%**	**32.5%**	**12.5%**	**98.3%**
844	709		103	125	5409
13.2%		**11.1%**	**12.2%**	**13.5%**	**97.7%**
808	355		503	40	3433
18.9%		**8.3%**	**62.3%**	**9.5%**	**98.8%**

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:	6-7AM from 1/31/2012		

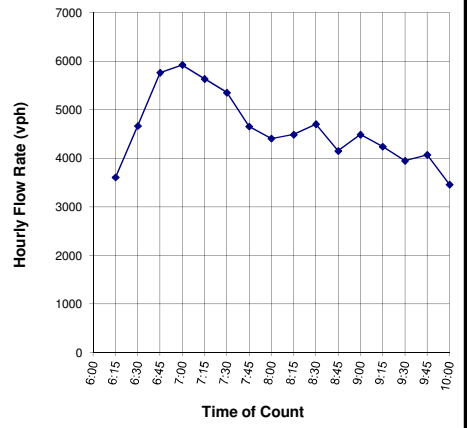
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	815	44	2	0	0	41	1	0	0	0	1	0	1.08	**902**	3608	
6:15 - 6:30	ESTIMATED	1052	57	2	1	1	50	0	0	0	0	4	0	1.13	**1167**	4668	
6:30 - 6:45	ESTIMATED	1324	70	3	1	1	39	1	0	0	1	2	0	1.10	**1441**	5764	
6:45 - 7:00	ESTIMATED	1359	75	3	1	1	40	1	0	0	0	2	0	1.10	**1481**	5924	4991
7:00 - 7:15		1309	53	2	0	0	44	0	0	0	0	1	0	1.06	**1409**	5636	5498
7:15 - 7:30		1263	35	1	1	0	38	0	0	0	0	0	0	1.04	**1338**	5352	5669
7:30 - 7:45		1080	32	2	0	2	46	1	0	1	0	1	0	1.06	**1164**	4656	5392
7:45 - 8:00		1006	45	3	0	1	46	0	0	0	0	1	0	1.07	**1102**	4408	5013
8:00 - 8:15		1030	40	0	0	1	51	0	0	0	0	0	0	1.04	**1122**	4488	4726
8:15 - 8:30		1062	59	2	1	0	52	0	0	0	0	0	0	1.07	**1176**	4704	4564
8:30 - 8:45		930	50	2	1	1	53	0	0	0	0	1	0	1.09	**1038**	4152	4438
8:45 - 9:00		989	86	5	1	2	38	0	0	0	0	1	0	1.12	**1122**	4488	4458
9:00 - 9:15		915	99	2	2	2	40	0	0	0	0	0	0	1.12	**1060**	4240	4396
9:15 - 9:30		819	100	3	1	2	59	0	0	0	0	3	0	1.19	**987**	3948	4207
9:30 - 9:45		829	126	5	0	1	56	0	0	0	0	0	1	1.18	**1018**	4072	4187
9:45 - 10:00		647	151	4	0	1	62	0	0	0	0	0	0	1.20	**865**	3460	3930
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**16429**	**1122**	**40**	**10**	**16**	**755**	**4**	**0**	**1**	**1**	**17**	**1**		**18392**		
	Percentage:	89.3%	6.1%	0.2%	0.1%	0.1%	4.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
	Vehicle Occupants:	**16429**	**2243**	**135**	**105**	**16**	**906**	**4**	**0**	**5**	**12**	**330**	**48**		**20230**		**Occ. 1.10**
PEAK HOUR																	
6:30 - 7:30	**Totals:**	**5255**	**233**	**8**	**3**	**2**	**161**	**2**	**0**	**0**	**1**	**5**	**0**		**5669**		
	Percentage:	92.7%	4.1%	0.1%	0.1%	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
	Vehicle Occupants:	**5255**	**466**	**28**	**32**	**2**	**193**	**2**	**0**	**1**	**11**	**102**	**5**		**6094**		**Occ. 1.07**
MIN. HOURLY VOL.																	
9:00 - 10:00	**Totals:**	**3210**	**476**	**14**	**3**	**6**	**217**	**0**	**0**	**0**	**3**	**3**	**1**		**3933**		
	Percentage:	81.6%	12.1%	0.4%	0.1%	0.2%	5.5%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
	Vehicle Occupants:	**3210**	**952**	**48**	**32**	**6**	**260**	**0**	**0**	**0**	**30**	**60**	**40**		**4638**		**Occ. 1.18**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1208					
6.6%					
253					
4.5%					
506					
12.9%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:	6-7AM from 1/31/2012		

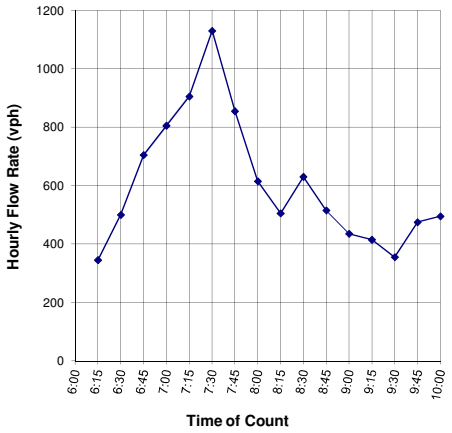
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

VEHICLE TYPE			COUNT CLASSIFICATION																
			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15		ESTIMATED	17	48	2	0	1	0	0	0	0	0	1	0	2.08	**69**	276	
6:15 - 6:30		ESTIMATED	24	71	4	0	0	0	0	0	0	0	0	0	1.86	**100**	400	
6:30 - 6:45		ESTIMATED	35	100	2	0	4	0	0	0	0	0	0	0	1.79	**141**	564	
6:45 - 7:00		ESTIMATED	35	119	3	1	1	0	0	1	0	0	1	0	2.00	**161**	644	471
7:00 - 7:15			26	137	2	1	3	1	0	9	0	0	2	0	2.05	**181**	724	583
7:15 - 7:30			27	174	3	1	5	0	0	16	0	0	0	0	1.85	**226**	904	709
7:30 - 7:45			11	136	1	1	5	0	0	15	0	1	1	0	2.04	**171**	684	739
7:45 - 8:00			7	104	0	0	1	0	0	11	0	0	0	0	1.85	**123**	492	701
8:00 - 8:15			2	84	1	1	0	0	0	13	0	0	0	0	1.96	**101**	404	621
8:15 - 8:30			4	105	0	0	3	0	0	14	0	0	0	0	1.84	**126**	504	521
8:30 - 8:45			5	85	1	0	3	1	0	8	0	0	0	0	1.86	**103**	412	453
8:45 - 9:00			1	83	1	0	0	0	0	2	0	0	0	0	1.98	**87**	348	417
9:00 - 9:15			6	67	0	0	4	0	0	6	0	0	0	0	1.81	**83**	332	399
9:15 - 9:30			15	43	4	1	0	0	1	8	0	0	0	0	1.89	**71**	284	344
9:30 - 9:45			10	71	2	0	1	0	5	11	0	0	0	0	1.81	**95**	380	336
9:45 - 10:00			15	68	1	0	0	0	1	15	0	0	0	0	1.73	**99**	396	348
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**240**	**1496**	**26**	**6**	**31**	**2**	**7**	**129**	**0**	**1**	**6**	**0**		**1937**		
		Percentage:	12.4%	77.2%	1.4%	0.3%	1.6%	0.1%	0.4%	6.7%	0.0%	0.1%	0.3%	0.0%		100%		
		Vehicle Occupants:	**240**	**2992**	**89**	**63**	**31**	**2**	**8**	**142**	**0**	**12**	**119**	**0**		**3691**		**Occ. 1.91**
PEAK HOUR																		
6:45 - 7:45		**Totals:**	**99**	**566**	**9**	**4**	**14**	**1**	**0**	**41**	**0**	**1**	**4**	**0**		**739**		
		Percentage:	13.4%	76.6%	1.2%	0.5%	1.9%	0.1%	0.0%	5.5%	0.0%	0.1%	0.6%	0.0%		100%		
		Vehicle Occupants:	**99**	**1132**	**29**	**42**	**14**	**1**	**0**	**45**	**0**	**11**	**86**	**0**		**1459**		**Occ. 1.97**
MIN. HOURLY VOL.																		
8:45 - 9:45		**Totals:**	**32**	**264**	**7**	**1**	**5**	**0**	**6**	**27**	**0**	**0**	**0**	**0**		**336**		
		Percentage:	9.5%	78.6%	2.1%	0.3%	1.5%	0.0%	1.8%	8.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**32**	**528**	**24**	**11**	**5**	**0**	**7**	**30**	**0**	**0**	**0**	**0**		**629**		**Occ. 1.87**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1695				242	
87.5%				**12.5%**	
639				100	
86.5%				**13.5%**	
304				32	
90.5%				**9.5%**	

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:	6-7AM from 1/31/2012		

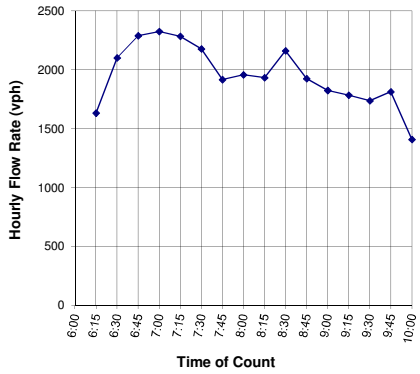
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	390	14	1	0	0	3	0	0	0	0	0	0	1.04	**408**	1632	
6:15 - 6:30	ESTIMATED	502	18	1	0	1	1	0	0	0	0	2	0	1.11	**525**	2100	
6:30 - 6:45	ESTIMATED	551	19	1	0	0	1	1	0	0	0	0	0	1.04	**572**	2288	
6:45 - 7:00	ESTIMATED	558	22	1	0	0	0	1	0	0	0	0	0	1.04	**581**	2324	2086
7:00 - 7:15		551	19	0	0	0	1	0	0	0	0	0	0	1.03	**571**	2284	2249
7:15 - 7:30		534	9	1	0	0	0	0	0	0	0	0	0	1.02	**544**	2176	2268
7:30 - 7:45		469	7	1	0	1	1	0	0	0	0	0	0	1.02	**479**	1916	2175
7:45 - 8:00		471	14	3	0	1	0	0	0	0	0	0	0	1.04	**489**	1956	2083
8:00 - 8:15		471	12	0	0	0	0	0	0	0	0	0	0	1.02	**483**	1932	1995
8:15 - 8:30		520	18	1	0	0	1	0	0	0	0	0	0	1.04	**540**	2160	1991
8:30 - 8:45		466	14	0	1	0	0	0	0	0	0	0	0	1.05	**481**	1924	1993
8:45 - 9:00		439	14	0	0	2	1	0	0	0	0	0	0	1.03	**456**	1824	1960
9:00 - 9:15		423	22	0	0	1	0	0	0	0	0	0	0	1.05	**446**	1784	1923
9:15 - 9:30		402	27	1	0	1	3	0	0	0	0	0	0	1.07	**434**	1736	1817
9:30 - 9:45		392	55	4	0	1	1	0	0	0	0	0	0	1.14	**453**	1812	1789
9:45 - 10:00		272	76	3	0	1	0	0	0	0	0	0	0	1.24	**352**	1408	1685
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**7411**	**361**	**17**	**1**	**9**	**13**	**2**	**0**	**0**	**0**	**2**	**0**		**7814**		
	Percentage:	94.8%	4.6%	0.2%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**7411**	**721**	**59**	**11**	**9**	**16**	**2**	**0**	**0**	**0**	**46**	**0**		**8272**		**1.06**
PEAK HOUR																	
6:30 - 7:30	**Totals:**	**2194**	**69**	**3**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**		**2268**		
	Percentage:	96.7%	3.0%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**2194**	**138**	**9**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**3**	**0**		**2347**		**1.03**
MIN. HOURLY VOL.																	
9:00 - 10:00	**Totals:**	**1489**	**180**	**8**	**0**	**4**	**4**	**0**	**0**	**0**	**0**	**0**	**0**		**1685**		
	Percentage:	88.4%	10.7%	0.5%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1489**	**360**	**27**	**0**	**4**	**5**	**0**	**0**	**0**	**0**	**0**	**0**		**1885**		**1.12**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
390					
5.0%					
72					
3.2%					
192					
11.4%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:	6-7AM from 1/31/2012		

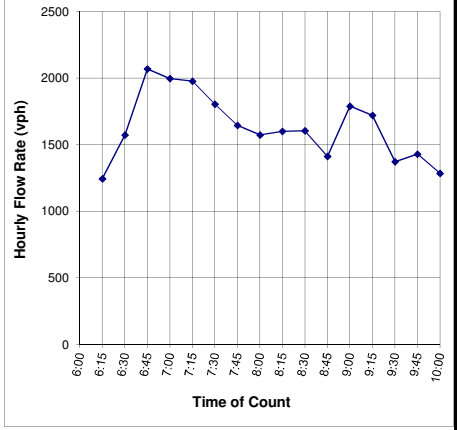
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #3 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	285	18	0	0	0	8	0	0	0	0	0	0	1.07	**311**	1244	
6:15 - 6:30	ESTIMATED	360	23	0	0	0	10	0	0	0	0	0	0	1.07	**393**	1572	
6:30 - 6:45	ESTIMATED	477	30	0	0	1	9	0	0	0	0	0	0	1.07	**517**	2068	
6:45 - 7:00	ESTIMATED	458	29	0	1	0	11	0	0	0	0	0	0	1.09	**499**	1996	1720
7:00 - 7:15		475	15	0	0	0	3	0	0	0	0	1	0	1.07	**494**	1976	1903
7:15 - 7:30		428	10	0	0	0	13	0	0	0	0	0	0	1.03	**451**	1804	1961
7:30 - 7:45		378	18	0	0	1	14	0	0	0	0	0	0	1.05	**411**	1644	1855
7:45 - 8:00		361	18	0	0	0	14	0	0	0	0	0	0	1.05	**393**	1572	1749
8:00 - 8:15		368	18	0	0	0	14	0	0	0	0	0	0	1.05	**400**	1600	1655
8:15 - 8:30		360	27	0	0	0	14	0	0	0	0	0	0	1.07	**401**	1604	1605
8:30 - 8:45		319	23	0	0	1	10	0	0	0	0	0	0	1.07	**353**	1412	1547
8:45 - 9:00		391	50	4	1	0	1	0	0	0	0	0	0	1.16	**447**	1788	1601
9:00 - 9:15		370	55	1	2	1	1	0	0	0	0	0	0	1.18	**430**	1720	1631
9:15 - 9:30		286	38	0	1	1	17	0	0	0	0	0	0	1.15	**343**	1372	1573
9:30 - 9:45		305	45	0	0	0	7	0	0	0	0	0	0	1.13	**357**	1428	1577
9:45 - 10:00		249	51	0	0	0	21	0	0	0	0	0	0	1.17	**321**	1284	1451
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**5869**	**467**	**6**	**5**	**5**	**167**	**0**	**0**	**0**	**0**	**1**	**0**		**6521**		
	Percentage:	90.0%	7.2%	0.1%	0.1%	0.1%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**5869**	**934**	**22**	**53**	**5**	**200**	**0**	**0**	**0**	**0**	**25**	**0**		**7108**		**1.09**
PEAK HOUR																	
6:30 - 7:30	**Totals:**	**1837**	**84**	**1**	**1**	**1**	**36**	**0**	**0**	**0**	**0**	**1**	**0**		**1961**		
	Percentage:	93.7%	4.3%	0.0%	0.1%	0.1%	1.8%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1837**	**167**	**3**	**11**	**1**	**43**	**0**	**0**	**0**	**0**	**23**	**0**		**2085**		**1.06**
MIN. HOURLY VOL.																	
9:00 - 10:00	**Totals:**	**1210**	**189**	**1**	**3**	**2**	**46**	**0**	**0**	**0**	**0**	**0**	**0**		**1451**		
	Percentage:	83.4%	13.0%	0.1%	0.2%	0.1%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1210**	**378**	**3**	**32**	**2**	**55**	**0**	**0**	**0**	**0**	**0**	**0**		**1680**		**1.16**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
485 **7.4%**					
88 **4.5%**					
195 **13.4%**					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:	6-7AM from 1/31/2012		

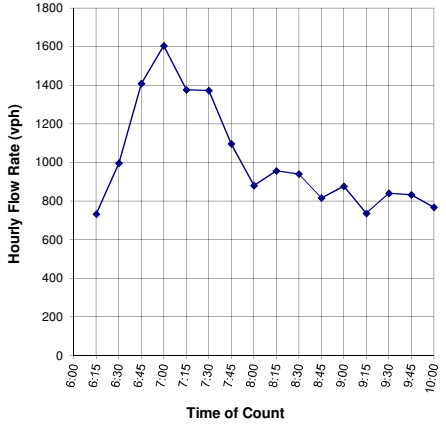
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #4 ONLY

		COUNT CLASSIFICATION																
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	140	11	1	0	0	30	1	0	0	0	0	0	1.16	**183**	732	
6:15 - 6:30	ESTIMATED	191	15	1	1	0	39	0	0	0	0	2	0	1.28	**249**	996	
6:30 - 6:45	ESTIMATED	294	24	1	1	0	29	0	0	0	1	2	0	1.27	**352**	1408	
6:45 - 7:00	ESTIMATED	340	27	2	0	1	29	0	0	0	0	2	0	1.21	**401**	1604	1185
7:00 - 7:15		283	19	2	0	0	40	0	0	0	0	0	0	1.09	**344**	1376	1346
7:15 - 7:30		301	16	0	1	0	25	0	0	0	0	0	0	1.09	**343**	1372	1440
7:30 - 7:45		233	7	1	0	0	31	1	0	1	0	1	0	1.14	**274**	1096	1362
7:45 - 8:00		174	13	0	0	0	32	0	0	0	0	1	0	1.17	**220**	880	1181
8:00 - 8:15		191	10	0	0	1	37	0	0	0	0	0	0	1.07	**239**	956	1076
8:15 - 8:30		182	14	1	1	0	37	0	0	0	0	0	0	1.14	**235**	940	968
8:30 - 8:45		145	13	2	0	0	43	0	0	0	0	1	0	1.22	**204**	816	898
8:45 - 9:00		159	22	1	0	0	36	0	0	0	0	1	0	1.23	**219**	876	897
9:00 - 9:15		122	22	1	0	0	39	0	0	0	0	0	0	1.18	**184**	736	842
9:15 - 9:30		131	35	2	0	0	39	0	0	0	0	3	0	1.50	**210**	840	817
9:30 - 9:45		132	26	1	0	0	48	0	0	0	0	0	1	1.37	**208**	832	821
9:45 - 10:00		126	24	1	0	0	41	0	0	0	0	0	0	1.18	**192**	768	794
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**3144**	**299**	**16**	**4**	**2**	**575**	**2**	**0**	**1**	**1**	**13**	**1**		**4057**		
	Percentage:	77.5%	7.4%	0.4%	0.1%	0.0%	14.2%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**3144**	**597**	**56**	**42**	**2**	**690**	**2**	**0**	**5**	**12**	**267**	**50**		**4865**		**1.20**
PEAK HOUR																	
6:30 - 7:30	**Totals:**	**1218**	**86**	**5**	**2**	**1**	**123**	**0**	**0**	**0**	**1**	**4**	**0**		**1440**		
	Percentage:	84.5%	6.0%	0.3%	0.1%	0.1%	8.5%	0.0%	0.0%	0.0%	0.1%	0.3%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1218**	**172**	**17**	**21**	**1**	**148**	**0**	**0**	**1**	**11**	**84**	**7**		**1678**		**1.17**
MIN. HOURLY VOL.																	
9:00 - 10:00	**Totals:**	**511**	**107**	**5**	**0**	**0**	**167**	**0**	**0**	**0**	**3**	**3**	**1**		**797**		
	Percentage:	64.1%	13.4%	0.6%	0.0%	0.0%	21.0%	0.0%	0.0%	0.0%	0.4%	0.4%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**511**	**214**	**17**	**0**	**0**	**200**	**0**	**0**	**0**	**30**	**60**	**40**		**1072**		**1.35**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
338					
8.3%					
99					
6.9%					
119					
14.9%					

AM/PM PEAK:	**PM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**80**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Auburn Boulevard**		
DIRECTION:	**WB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:		**y**	**Y or N**
NO. LANES COUNTED:	**4**		
DATE:	**1/31/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Tuesday**
RECORDER(S):	**WJ,BA,ER,GJ,TW**		
REMARKS:			

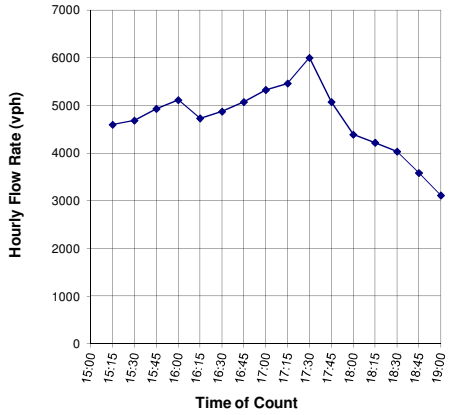
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES
(HOV LANE)

			COUNT CLASSIFICATION																
VEHICLE TYPE			**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL COUNTS**	**FLOW RATE (vph)**	**HOURLY VOL**
TIME			**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**				
15:00 -	15:15		795	236	31	2	4	80	0	2	0	0	0	0	1.30	**1150**	4600	
15:15 -	15:30		866	199	26	2	7	62	1	9	0	0	1	0	1.27	**1172**	4688	
15:30 -	15:45		899	254	15	0	4	57	1	2	0	1	1	0	1.27	**1233**	4932	
15:45 -	16:00		909	271	20	0	7	64	0	6	0	0	2	0	1.29	**1279**	5116	**4834**
16:00 -	16:15		873	240	9	0	4	51	1	5	0	1	0	0	1.24	**1183**	4732	4867
16:15 -	16:30		929	223	14	1	5	41	1	3	0	0	3	0	1.27	**1219**	4876	4914
16:30 -	16:45		977	217	20	1	4	47	1	3	0	0	0	0	1.22	**1269**	5076	4950
16:45 -	17:00		1039	229	14	0	5	40	0	5	0	0	0	0	1.20	**1332**	5328	**5003**
17:00 -	17:15		1111	198	11	0	5	35	0	4	0	0	2	0	1.20	**1366**	5464	5186
17:15 -	17:30		1224	215	10	0	2	42	0	7	0	0	1	0	1.18	**1501**	6004	5468
17:30 -	17:45		1111	124	2	0	3	27	0	2	0	0	0	0	1.11	**1269**	5076	5468
17:45 -	18:00	ESTIMATED	890	158	9	0	1	35	0	1	0	0	4	0	1.25	**1098**	4392	**5234**
18:00 -	18:15	ESTIMATED	856	133	8	1	3	49	0	0	0	0	4	0	1.24	**1055**	4220	4923
18:15 -	18:30	ESTIMATED	840	129	8	0	3	24	0	0	0	1	3	0	1.23	**1009**	4036	4431
18:30 -	18:45	ESTIMATED	729	112	8	2	2	38	0	0	0	0	5	0	1.29	**897**	3588	4059
18:45 -	19:00	ESTIMATED	635	98	6	0	2	35	0	0	0	1	2	0	1.22	**779**	3116	**3740**
PEAK PERIOD																		
15:00 - 19:00		**Totals:**	**14683**	**3036**	**212**	**9**	**61**	**727**	**5**	**49**	**0**	**5**	**29**	**0**		**18811**		
		Percentage:	78.1%	16.1%	1.1%	0.0%	0.3%	3.9%	0.0%	0.3%	0.0%	0.0%	0.2%	0.0%		100%		**Occ.**
		Vehicle Occupants:	**14683**	**6071**	**721**	**95**	**61**	**872**	**6**	**54**	**0**	**49**	**584**	**0**		**23191**		**1.23**
PEAK HOUR																		
16:45 - 17:45		**Totals:**	**4485**	**766**	**37**	**0**	**15**	**144**	**0**	**18**	**0**	**0**	**3**	**0**		**5468**		
		Percentage:	82.0%	14.0%	0.7%	0.0%	0.3%	2.6%	0.0%	0.3%	0.0%	0.0%	0.1%	0.0%		100%		**Occ.**
		Vehicle Occupants:	**4485**	**1532**	**126**	**0**	**15**	**173**	**0**	**20**	**0**	**0**	**60**	**0**		**6410**		**1.17**
MIN. HOURLY VOL.																		
18:00 - 19:00		**Totals:**	**3060**	**472**	**31**	**3**	**10**	**146**	**0**	**0**	**0**	**15**	**15**	**0**		**3752**		
		Percentage:	81.6%	12.6%	0.8%	0.1%	0.3%	3.9%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%		100%		**Occ.**
		Vehicle Occupants:	**3060**	**944**	**106**	**32**	**10**	**175**	**0**	**0**	**0**	**148**	**296**	**0**		**4772**		**1.27**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
3401	1871		1670	741	14669
18.1%		**9.9%**	**49.1%**	**31.7%**	**95.2%**
839	571		480	218	4412
15.3%		**10.4%**	**57.2%**	**30.1%**	**95.3%**
546	319		20	185	3021
14.5%		**8.5%**	**3.7%**	**46.3%**	**94.2%**

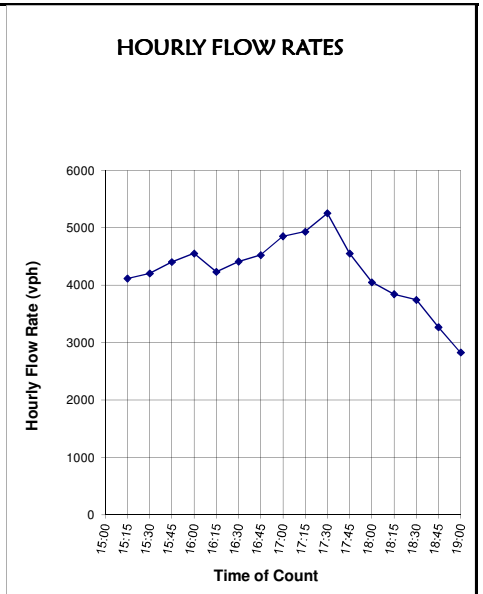
AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:			

CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

VEHICLE TYPE		COUNT CLASSIFICATION															
		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		776	149	20	2	2	80	0	0	0	0	0	0	1.23	**1029**	4116	
15:15 - 15:30		826	134	20	2	6	62	1	0	0	0	1	0	1.22	**1051**	4204	
15:30 - 15:45		870	161	11	0	0	57	0	0	0	1	1	0	1.21	**1101**	4404	
15:45 - 16:00		871	179	16	0	7	64	0	0	0	0	1	0	1.22	**1138**	4552	4319
16:00 - 16:15		850	147	6	0	4	50	1	0	0	1	0	0	1.17	**1058**	4232	4348
16:15 - 16:30		909	136	13	1	2	41	1	0	0	0	1	0	1.18	**1103**	4412	4400
16:30 - 16:45		946	122	14	1	1	47	0	0	0	0	0	0	1.15	**1131**	4524	4430
16:45 - 17:00		1002	155	13	0	3	40	0	0	0	0	0	0	1.16	**1213**	4852	4505
17:00 - 17:15		1066	118	10	0	2	35	0	0	0	0	2	0	1.15	**1233**	4932	4680
17:15 - 17:30		1164	99	7	0	1	41	0	0	0	0	1	0	1.11	**1313**	5252	4890
17:30 - 17:45		1042	67	0	0	2	27	0	0	0	0	0	0	1.06	**1138**	4552	4897
17:45 - 18:00	ESTIMATED	875	90	7	0	1	35	0	0	0	0	4	0	1.19	**1013**	4052	4697
18:00 - 18:15	ESTIMATED	819	81	7	1	0	49	0	0	0	0	4	0	1.21	**961**	3844	4425
18:15 - 18:30	ESTIMATED	818	80	7	0	3	24	0	0	0	1	3	0	1.18	**936**	3744	4048
18:30 - 18:45	ESTIMATED	699	69	7	1	0	37	0	0	0	0	5	0	1.24	**817**	3268	3727
18:45 - 19:00	ESTIMATED	604	59	5	0	1	35	0	0	0	1	2	0	1.17	**707**	2828	3421
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**14136**	**1847**	**162**	**8**	**35**	**724**	**3**	**0**	**0**	**5**	**25**	**0**		**16942**		
	Percentage:	83.4%	10.9%	1.0%	0.0%	0.2%	4.3%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**14136**	**3694**	**551**	**84**	**35**	**869**	**3**	**0**	**0**	**49**	**507**	**0**		**19925**		**1.18**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**4274**	**439**	**30**	**0**	**8**	**143**	**0**	**0**	**0**	**0**	**3**	**0**		**4897**		
	Percentage:	87.3%	9.0%	0.6%	0.0%	0.2%	2.9%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**4274**	**878**	**102**	**0**	**8**	**172**	**0**	**0**	**0**	**0**	**60**	**0**		**5494**		**1.12**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**2938**	**290**	**25**	**2**	**4**	**145**	**0**	**0**	**0**	**14**	**14**	**0**		**3432**		
	Percentage:	85.6%	8.4%	0.7%	0.1%	0.1%	4.2%	0.0%	0.0%	0.0%	0.4%	0.4%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**2938**	**580**	**84**	**21**	**4**	**174**	**0**	**0**	**0**	**141**	**283**	**0**		**4226**		**1.23**



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
2082					
12.3%					
480					
9.8%					
349					
10.2%					

AM/PM PEAK:	**PM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**80**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Auburn Boulevard**		
DIRECTION:	**WB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**y**	**Y/ N**
NO. LANES COUNTED:	**4**		
DATE:	**1/31/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Tuesday**
RECORDER(S):	**WJ,BA,ER,GJ,TW**		
REMARKS:			

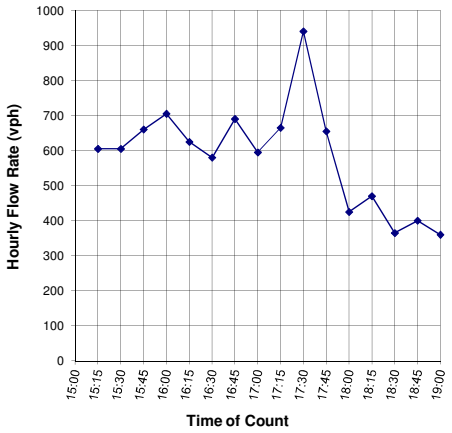
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

			COUNT CLASSIFICATION																
VEHICLE TYPE			**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL COUNTS**	**FLOW RATE (vph)**	**HOURLY VOL**
TIME			**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**				
15:00 -	15:15		19	87	11	0	2	0	0	2	0	0	0	0	1.94	**121**	484	
15:15 -	15:30		40	65	6	0	1	0	0	9	0	0	0	0	1.66	**121**	484	
15:30 -	15:45		29	93	4	0	4	0	1	2	0	0	0	0	1.78	**132**	528	
15:45 -	16:00		38	92	4	0	0	0	0	6	0	0	1	0	1.86	**141**	564	515
16:00 -	16:15		23	93	3	0	0	1	0	5	0	0	0	0	1.81	**125**	500	519
16:15 -	16:30		20	87	1	0	3	0	0	3	0	0	2	0	2.10	**116**	464	514
16:30 -	16:45		31	95	6	0	3	0	1	3	0	0	0	0	1.79	**138**	552	520
16:45 -	17:00		37	74	1	0	2	0	0	5	0	0	0	0	1.65	**119**	476	498
17:00 -	17:15		45	80	1	0	3	0	0	4	0	0	0	0	1.62	**133**	532	506
17:15 -	17:30		60	116	3	0	1	1	0	7	0	0	0	0	1.66	**188**	752	578
17:30 -	17:45		69	57	2	0	1	0	0	2	0	0	0	0	1.47	**131**	524	571
17:45 -	18:00	ESTIMATED	32	51	1	0	0	0	0	1	0	0	0	0	1.66	**85**	340	537
18:00 -	18:15	ESTIMATED	43	46	2	0	3	0	0	0	0	0	0	0	1.57	**94**	376	498
18:15 -	18:30	ESTIMATED	35	37	1	0	0	0	0	0	0	0	0	0	1.59	**73**	292	383
18:30 -	18:45	ESTIMATED	36	39	1	1	2	1	0	0	0	0	0	0	1.68	**80**	320	332
18:45 -	19:00	ESTIMATED	34	36	1	0	1	0	0	0	0	0	0	0	1.58	**72**	288	319
PEAK PERIOD																		
15:00 -	**19:00**	**Totals:**	**590**	**1148**	**49**	**1**	**26**	**3**	**2**	**49**	**0**	**0**	**4**	**0**		**1869**		
		Percentage:	31.5%	61.4%	2.6%	0.1%	1.4%	0.2%	0.1%	2.6%	0.0%	0.0%	0.2%	0.0%		100%		
		Vehicle Occupants:	**590**	**2296**	**166**	**11**	**26**	**4**	**2**	**54**	**0**	**0**	**75**	**0**		**3220**		**Occ. 1.72**
PEAK HOUR																		
16:30 -	**17:30**	**Totals:**	**173**	**365**	**11**	**0**	**9**	**1**	**1**	**19**	**0**	**0**	**0**	**0**		**578**		
		Percentage:	29.9%	63.1%	1.9%	0.0%	1.6%	0.2%	0.2%	3.3%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**173**	**730**	**37**	**0**	**9**	**1**	**1**	**21**	**0**	**0**	**0**	**0**		**972**		**Occ. 1.68**
MIN. HOURLY VOL.																		
18:00 -	**19:00**	**Totals:**	**147**	**158**	**6**	**1**	**6**	**1**	**0**	**0**	**0**	**1**	**1**	**0**		**320**		
		Percentage:	46.0%	49.4%	1.7%	0.3%	1.9%	0.3%	0.0%	0.0%	0.0%	0.2%	0.2%	0.0%		100%		
		Vehicle Occupants:	**147**	**316**	**19**	**11**	**6**	**1**	**0**	**0**	**0**	**6**	**12**	**0**		**518**		**Occ. 1.62**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1276				593	
68.3%				**31.7%**	
404				174	
69.9%				**30.1%**	
172				148	
53.7%				**46.3%**	

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:			

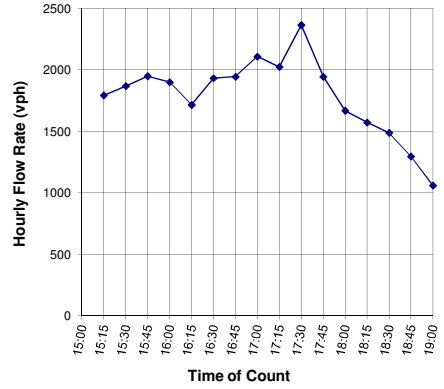
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

VEHICLE TYPE			COUNT CLASSIFICATION															
			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 -	15:15		373	57	16	0	2	0	0	0	0	0	0	0	1.21	**448**	1792	
15:15 -	15:30		409	43	13	0	0	2	0	0	0	0	0	0	1.16	**467**	1868	
15:30 -	15:45		424	60	3	0	0	0	0	0	0	0	0	0	1.14	**487**	1948	
15:45 -	16:00		391	70	12	0	0	2	0	0	0	0	0	0	1.21	**475**	1900	1877
16:00 -	16:15		389	35	4	0	0	1	0	0	0	0	0	0	1.10	**429**	1716	1858
16:15 -	16:30		417	58	5	0	0	3	0	0	0	0	0	0	1.15	**483**	1932	1874
16:30 -	16:45		430	48	6	0	1	1	0	0	0	0	0	0	1.13	**486**	1944	1873
16:45 -	17:00		457	60	5	0	2	3	0	0	0	0	0	0	1.14	**527**	2108	1925
17:00 -	17:15		446	53	4	0	0	3	0	0	0	0	0	0	1.12	**506**	2024	2002
17:15 -	17:30		562	28	1	0	0	0	0	0	0	0	0	0	1.05	**591**	2364	2110
17:30 -	17:45		462	23	0	0	1	0	0	0	0	0	0	0	1.05	**486**	1944	2110
17:45 -	18:00	ESTIMATED	383	30	3	0	0	0	0	0	0	0	0	0	1.09	**417**	1668	2000
18:00 -	18:15	ESTIMATED	361	29	3	0	0	0	0	0	0	0	0	0	1.10	**393**	1572	1887
18:15 -	18:30	ESTIMATED	339	27	3	0	0	2	0	0	0	0	1	0	1.15	**372**	1488	1668
18:30 -	18:45	ESTIMATED	295	23	3	0	0	3	0	0	0	0	0	0	1.10	**324**	1296	1506
18:45 -	19:00	ESTIMATED	243	19	2	0	0	1	0	0	0	0	0	0	1.09	**265**	1060	1354
PEAK PERIOD																		
15:00 -	**19:00**	**Totals:**	**6381**	**663**	**83**	**0**	**6**	**21**	**0**	**0**	**0**	**0**	**1**	**0**		**7156**		
		Percentage:	89.2%	9.3%	1.2%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**6381**	**1326**	**283**	**0**	**6**	**25**	**0**	**0**	**0**	**0**	**25**	**0**		**8047**		**Occ. 1.12**
PEAK HOUR																		
16:45 -	**17:45**	**Totals:**	**1927**	**164**	**10**	**0**	**3**	**6**	**0**	**0**	**0**	**0**	**0**	**0**		**2110**		
		Percentage:	91.3%	7.8%	0.5%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**1927**	**328**	**34**	**0**	**3**	**7**	**0**	**0**	**0**	**0**	**0**	**0**		**2299**		**Occ. 1.09**
MIN. HOURLY VOL.																		
18:00 -	**19:00**	**Totals:**	**1238**	**98**	**11**	**0**	**0**	**6**	**0**	**0**	**0**	**1**	**1**	**0**		**1355**		
		Percentage:	91.3%	7.2%	0.8%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
		Vehicle Occupants:	**1238**	**196**	**37**	**0**	**0**	**7**	**0**	**0**	**0**	**12**	**24**	**0**		**1514**		**Occ. 1.12**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
754					
10.5%					
177					
8.4%					
111					
8.2%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:			

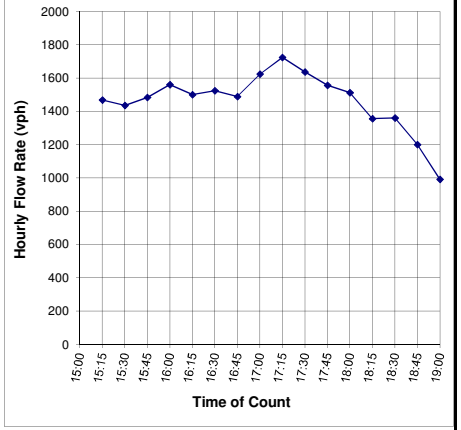
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #3 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		279	59	0	2	0	27	0	0	0	0	0	0	1.23	**367**	1468	
15:15 - 15:30		267	67	0	1	0	24	0	0	0	0	0	0	1.23	**359**	1436	
15:30 - 15:45		278	64	2	0	0	27	0	0	0	0	0	0	1.20	**371**	1484	
15:45 - 16:00		306	58	0	0	2	23	0	0	0	0	1	0	1.21	**390**	1560	1487
16:00 - 16:15		286	64	0	0	2	23	0	0	0	0	0	0	1.18	**375**	1500	1495
16:15 - 16:30		321	45	0	0	1	13	0	0	0	0	1	0	1.17	**381**	1524	1517
16:30 - 16:45		319	34	0	0	0	19	0	0	0	0	0	0	1.10	**372**	1488	1518
16:45 - 17:00		355	37	1	0	0	13	0	0	0	0	0	0	1.10	**406**	1624	1534
17:00 - 17:15		381	33	5	0	1	9	0	0	0	0	2	0	1.20	**431**	1724	1590
17:15 - 17:30		356	27	6	0	1	19	0	0	0	0	0	0	1.11	**409**	1636	1618
17:30 - 17:45		372	9	0	0	0	8	0	0	0	0	0	0	1.03	**389**	1556	1635
17:45 - 18:00	ESTIMATED	339	32	1	0	0	6	0	0	0	0	1	0	1.13	**378**	1512	1607
18:00 - 18:15	ESTIMATED	293	27	1	0	0	15	0	0	0	0	3	0	1.24	**339**	1356	1515
18:15 - 18:30	ESTIMATED	302	28	1	0	1	7	0	0	0	0	1	0	1.13	**340**	1360	1446
18:30 - 18:45	ESTIMATED	258	24	1	1	0	11	0	0	0	0	5	0	1.41	**300**	1200	1357
18:45 - 19:00	ESTIMATED	219	21	1	0	0	6	0	0	0	0	1	0	1.21	**248**	992	1227
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**4932**	**629**	**18**	**4**	**8**	**250**	**0**	**0**	**0**	**0**	**14**	**0**		**5855**		
	Percentage:	84.2%	10.7%	0.3%	0.1%	0.1%	4.3%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**4932**	**1259**	**61**	**42**	**8**	**300**	**0**	**0**	**0**	**0**	**278**	**0**		**6880**		**1.18**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**1464**	**106**	**12**	**0**	**2**	**49**	**0**	**0**	**0**	**0**	**2**	**0**		**1635**		
	Percentage:	89.5%	6.5%	0.7%	0.0%	0.1%	3.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1464**	**212**	**41**	**0**	**2**	**59**	**0**	**0**	**0**	**0**	**40**	**0**		**1818**		**1.11**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**1073**	**101**	**3**	**1**	**1**	**39**	**0**	**0**	**0**	**9**	**9**	**0**		**1236**		
	Percentage:	86.8%	8.1%	0.3%	0.1%	0.1%	3.2%	0.0%	0.0%	0.0%	0.7%	0.7%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1073**	**201**	**11**	**11**	**1**	**47**	**0**	**0**	**0**	**92**	**184**	**0**		**1619**		**1.31**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
673					
11.5%					
122					
7.5%					
124					
10.0%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Auburn Boulevard		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	y	Y/ N
NO. LANES COUNTED:	4		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	WJ,BA,ER,GJ,TW		
REMARKS:			

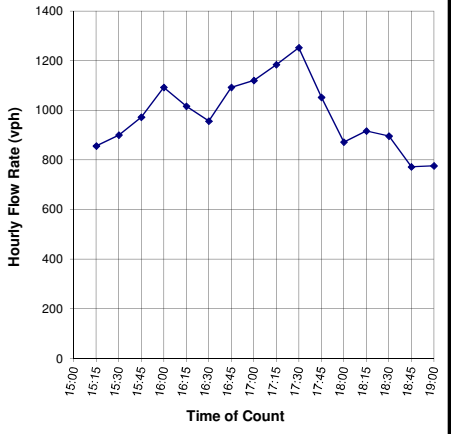
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #4 ONLY

		COUNT CLASSIFICATION																
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		124	33	4	0	0	53	0	0	0	0	0	0	1.25	**214**	856	
15:15 - 15:30		150	24	7	1	6	36	1	0	0	0	1	0	1.34	**225**	900	
15:30 - 15:45		168	37	6	0	0	30	0	0	0	1	1	0	1.35	**243**	972	
15:45 - 16:00		174	51	4	0	5	39	0	0	0	0	0	0	1.25	**273**	1092	955
16:00 - 16:15		175	48	2	0	2	26	1	0	0	1	0	0	1.26	**254**	1016	995
16:15 - 16:30		171	33	8	1	1	25	1	0	0	0	0	0	1.28	**239**	956	1009
16:30 - 16:45		197	40	8	1	0	27	0	0	0	0	0	0	1.27	**273**	1092	1039
16:45 - 17:00		190	58	7	0	1	24	0	0	0	0	0	0	1.28	**280**	1120	1046
17:00 - 17:15		239	32	1	0	1	23	0	0	0	0	0	0	1.13	**296**	1184	1088
17:15 - 17:30		246	44	0	0	0	22	0	0	0	0	1	0	1.22	**313**	1252	1162
17:30 - 17:45		208	35	0	0	1	19	0	0	0	0	0	0	1.15	**263**	1052	1152
17:45 - 18:00	ESTIMATED	155	27	2	0	1	29	0	0	0	0	3	0	1.49	**218**	872	1090
18:00 - 18:15	ESTIMATED	165	25	3	1	0	34	0	0	0	0	2	0	1.34	**229**	916	1023
18:15 - 18:30	ESTIMATED	175	26	3	0	2	15	0	0	0	1	2	0	1.34	**224**	896	934
18:30 - 18:45	ESTIMATED	144	22	3	0	0	23	0	0	0	0	0	0	1.23	**193**	772	864
18:45 - 19:00	ESTIMATED	140	21	2	0	1	28	0	0	0	1	0	0	1.26	**194**	776	840
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**2822**	**556**	**60**	**4**	**21**	**453**	**3**	**0**	**0**	**5**	**10**	**0**		**3931**		
	Percentage:	71.8%	14.1%	1.5%	0.1%	0.5%	11.5%	0.1%	0.0%	0.0%	0.1%	0.3%	0.0%		100%		**Occ.**
	Vehicle Occupants:	**2822**	**1111**	**206**	**42**	**21**	**544**	**3**	**0**	**0**	**49**	**208**	**0**		**5002**		**1.27**
PEAK HOUR																	
16:30 - 17:30	**Totals:**	**872**	**174**	**16**	**1**	**2**	**96**	**0**	**0**	**0**	**0**	**1**	**0**		**1162**		
	Percentage:	75.0%	15.0%	1.4%	0.1%	0.2%	8.3%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		**Occ.**
	Vehicle Occupants:	**872**	**348**	**54**	**11**	**2**	**115**	**0**	**0**	**0**	**0**	**20**	**0**		**1422**		**1.22**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**625**	**94**	**11**	**1**	**3**	**100**	**0**	**0**	**0**	**4**	**4**	**0**		**841**		
	Percentage:	74.3%	11.1%	1.3%	0.1%	0.4%	11.9%	0.0%	0.0%	0.0%	0.5%	0.5%	0.0%		100%		**Occ.**
	Vehicle Occupants:	**625**	**187**	**37**	**11**	**3**	**120**	**0**	**0**	**0**	**39**	**79**	**0**		**1101**		**1.31**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
656					
16.7%					
194					
16.7%					
116					
13.8%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:		N	Y or N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	GN,TN,TS,BC		
REMARKS:	6-7AM from 1/31/2012		

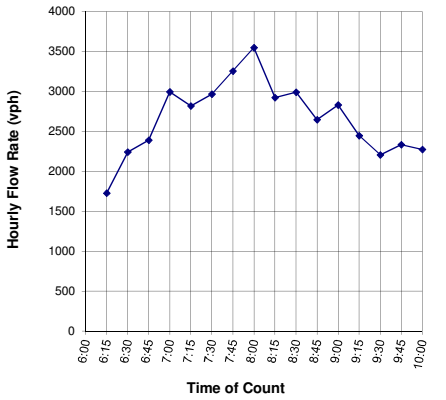
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES

			COUNT CLASSIFICATION																
VEHICLE TYPE			CARS			MISC					BUSES				OCC.	(15/15) TOTAL COUNTS	FLOW RATE (vph)	HOURLY VOL
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL				
6:00 - 6:15	ESTIMATED		357	43	2	7	0	22	1	0	0	0	0	0	1.29	**432**	1728	
6:15 - 6:30	ESTIMATED		474	57	2	2	2	22	0	0	0	0	1	0	1.20	**561**	2244	
6:30 - 6:45	ESTIMATED		505	61	3	0	5	22	2	0	0	1	0	0	1.15	**598**	2392	
6:45 - 7:00	ESTIMATED		640	77	3	1	2	22	1	0	0	0	2	0	1.20	**749**	2996	**2340**
7:00 - 7:15			612	59	0	0	4	29	2	0	1	0	0	0	1.10	**705**	2820	2613
7:15 - 7:30			633	77	2	0	3	27	2	0	0	0	0	0	1.12	**742**	2968	2794
7:30 - 7:45			687	94	3	1	1	27	2	0	1	0	0	0	1.15	**814**	3256	3010
7:45 - 8:00			766	79	3	0	3	36	2	0	0	0	0	0	1.11	**887**	3548	**3148**
8:00 - 8:15			605	83	5	0	0	38	2	0	0	0	0	0	1.14	**731**	2924	3174
8:15 - 8:30			613	103	1	0	0	30	2	0	0	1	0	0	1.16	**748**	2992	3180
8:30 - 8:45			527	88	4	1	3	38	0	0	1	0	0	0	1.18	**662**	2648	3028
8:45 - 9:00			561	97	5	1	2	42	1	0	0	0	0	0	1.18	**708**	2832	**2849**
9:00 - 9:15			483	86	9	3	0	27	0	0	2	0	2	0	1.30	**612**	2448	2730
9:15 - 9:30			404	95	4	0	1	48	1	0	0	0	0	0	1.21	**552**	2208	2534
9:30 - 9:45			442	103	5	0	0	32	2	0	1	1	0	0	1.23	**584**	2336	2456
9:45 - 10:00			429	105	4	0	1	30	0	0	0	0	0	0	1.21	**569**	2276	**2317**
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**8739**	**1308**	**55**	**16**	**27**	**492**	**20**	**0**	**7**	**4**	**6**	**0**		**10654**		
		Percentage:	82.0%	12.3%	0.5%	0.2%	0.3%	4.6%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%		100%		
		Vehicle Occupants:	**8739**	**2615**	**188**	**168**	**27**	**590**	**22**	**0**	**30**	**36**	**124**	**0**		**12518**		**Occ. 1.17**
PEAK HOUR																		
7:30 - 8:30		**Totals:**	**2671**	**359**	**12**	**1**	**4**	**131**	**8**	**0**	**1**	**1**	**0**	**0**		**3180**		
		Percentage:	84.0%	11.3%	0.4%	0.0%	0.1%	4.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**2671**	**718**	**41**	**11**	**4**	**157**	**9**	**0**	**4**	**10**	**0**	**0**		**3616**		**Occ. 1.14**
MIN. HOURLY VOL.																		
9:00 - 10:00		**Totals:**	**1758**	**389**	**22**	**3**	**2**	**137**	**3**	**0**	**3**	**2**	**2**	**0**		**2318**		
		Percentage:	75.8%	16.8%	0.9%	0.1%	0.1%	5.9%	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%		100%		
		Vehicle Occupants:	**1758**	**778**	**75**	**32**	**2**	**164**	**3**	**0**	**12**	**20**	**40**	**0**		**2881**		**Occ. 1.24**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1423					
13.4%					
378					
11.9%					
423					
18.2%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	GN,TN,TS,BC		
REMARKS:	6-7AM from 1/31/2012		

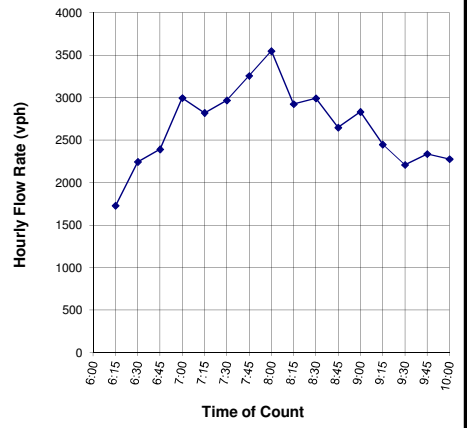
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION																
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	357	43	2	7	0	22	1	0	0	0	0	0	1.29	**432**	1728	
6:15 - 6:30	ESTIMATED	474	57	2	2	2	22	0	0	0	0	1	0	1.20	**561**	2244	
6:30 - 6:45	ESTIMATED	505	61	3	0	5	22	2	0	0	1	0	0	1.15	**598**	2392	
6:45 - 7:00	ESTIMATED	640	77	3	1	2	22	1	0	0	0	2	0	1.20	**749**	2996	2340
7:00 - 7:15		612	59	0	0	4	29	2	0	1	0	0	0	1.10	**705**	2820	2613
7:15 - 7:30		633	77	2	0	3	27	2	0	0	0	0	0	1.12	**742**	2968	2794
7:30 - 7:45		687	94	3	1	1	27	2	0	1	0	0	0	1.15	**814**	3256	3010
7:45 - 8:00		766	79	3	0	3	36	2	0	0	0	0	0	1.11	**887**	3548	3148
8:00 - 8:15		605	83	5	0	0	38	2	0	0	0	0	0	1.14	**731**	2924	3174
8:15 - 8:30		613	103	1	0	0	30	2	0	0	1	0	0	1.16	**748**	2992	3180
8:30 - 8:45		527	88	4	1	3	38	0	0	1	0	0	0	1.18	**662**	2648	3028
8:45 - 9:00		561	97	5	1	2	42	1	0	0	0	0	0	1.18	**708**	2832	2849
9:00 - 9:15		483	86	9	3	0	27	0	0	2	0	2	0	1.30	**612**	2448	2730
9:15 - 9:30		404	95	4	0	1	48	1	0	0	0	0	0	1.21	**552**	2208	2534
9:30 - 9:45		442	103	5	0	0	32	2	0	1	1	0	0	1.23	**584**	2336	2456
9:45 - 10:00		429	105	4	0	1	30	0	0	0	0	0	0	1.21	**569**	2276	2317
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**8739**	**1308**	**55**	**16**	**27**	**492**	**20**	**0**	**7**	**4**	**6**	**0**		**10654**		
	Percentage:	82.0%	12.3%	0.5%	0.2%	0.3%	4.6%	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%		100%		
	Vehicle Occupants:	**8739**	**2615**	**188**	**168**	**27**	**590**	**22**	**0**	**30**	**36**	**124**	**0**		**12518**		**Occ. 1.17**
PEAK HOUR																	
7:30 - 8:30	**Totals:**	**2671**	**359**	**12**	**1**	**4**	**131**	**8**	**0**	**1**	**1**	**0**	**0**		**3180**		
	Percentage:	84.0%	11.3%	0.4%	0.0%	0.1%	4.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**2671**	**718**	**41**	**11**	**4**	**157**	**9**	**0**	**4**	**10**	**0**	**0**		**3616**		**Occ. 1.14**
MIN. HOURLY VOL.																	
9:00 - 10:00	**Totals:**	**1758**	**389**	**22**	**3**	**2**	**137**	**3**	**0**	**3**	**2**	**2**	**0**		**2318**		
	Percentage:	75.8%	16.8%	0.9%	0.1%	0.1%	5.9%	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%		100%		
	Vehicle Occupants:	**1758**	**778**	**75**	**32**	**2**	**164**	**3**	**0**	**12**	**20**	**40**	**0**		**2881**		**Occ. 1.24**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1423					
13.4%					
378					
11.9%					
423					
18.2%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	GN,TN,TS,BC		
REMARKS:	6-7AM from 1/31/2012		

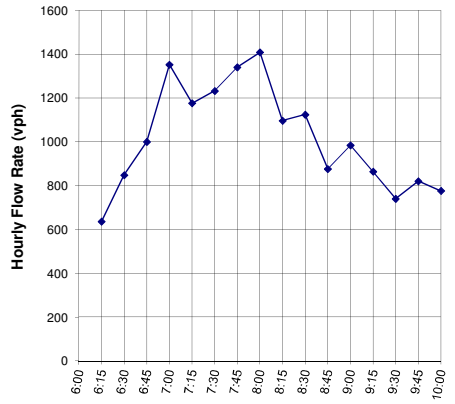
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

VEHICLE TYPE			COUNT CLASSIFICATION															
			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15		ESTIMATED	139	16	1	3	0	0	0	0	0	0	0	0	1.30	**159**	636	
6:15 - 6:30		ESTIMATED	188	21	1	0	0	0	0	0	0	0	1	0	1.22	**212**	848	
6:30 - 6:45		ESTIMATED	219	25	1	0	4	0	1	0	0	1	0	0	1.16	**250**	1000	
6:45 - 7:00		ESTIMATED	299	34	2	0	1	0	0	0	0	0	2	0	1.24	**338**	1352	959
7:00 - 7:15			273	18	0	0	3	0	2	0	0	0	0	0	1.06	**294**	1176	1094
7:15 - 7:30			262	44	2	0	0	0	0	0	0	0	0	0	1.16	**308**	1232	1190
7:30 - 7:45			285	48	1	0	1	0	0	0	0	0	0	0	1.15	**335**	1340	1275
7:45 - 8:00			322	28	1	0	1	0	2	0	0	0	0	0	1.09	**352**	1408	1289
8:00 - 8:15			246	26	2	0	0	0	2	0	0	0	0	0	1.11	**274**	1096	1269
8:15 - 8:30			242	38	1	0	0	0	2	0	0	0	0	0	1.14	**281**	1124	1242
8:30 - 8:45			188	30	0	0	1	0	0	0	0	0	0	0	1.14	**219**	876	1126
8:45 - 9:00			204	37	3	0	2	0	0	0	0	0	0	0	1.18	**246**	984	1020
9:00 - 9:15			185	29	2	0	0	0	0	0	0	0	0	0	1.16	**216**	864	962
9:15 - 9:30			158	25	2	0	0	0	0	0	0	0	0	0	1.16	**185**	740	866
9:30 - 9:45			170	33	2	0	0	0	1	0	0	0	0	0	1.18	**205**	820	852
9:45 - 10:00			149	41	3	0	1	0	0	0	0	0	0	0	1.25	**194**	776	800
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**3530**	**493**	**23**	**3**	**14**	**0**	**10**	**0**	**0**	**1**	**4**	**0**		**4068**		
		Percentage:	86.8%	12.1%	0.6%	0.1%	0.3%	0.0%	0.2%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**3530**	**986**	**80**	**32**	**14**	**0**	**11**	**0**	**0**	**12**	**72**	**0**		**4725**		**1.16**
PEAK HOUR																		
7:00 - 8:00		**Totals:**	**1142**	**138**	**4**	**0**	**5**	**0**	**4**	**0**	**0**	**0**	**0**	**0**		**1289**		
		Percentage:	88.6%	10.7%	0.3%	0.0%	0.4%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**1142**	**276**	**14**	**0**	**5**	**0**	**4**	**0**	**0**	**0**	**0**	**0**		**1437**		**1.11**
MIN. HOURLY VOL.																		
9:00 - 10:00		**Totals:**	**662**	**128**	**9**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**		**800**		
		Percentage:	82.8%	16.0%	1.1%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**662**	**256**	**31**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**		**950**		**1.19**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
538					
13.2%					
147					
11.4%					
138					
17.3%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	GN,TN,TS,BC		
REMARKS:	6-7AM from 1/31/2012		

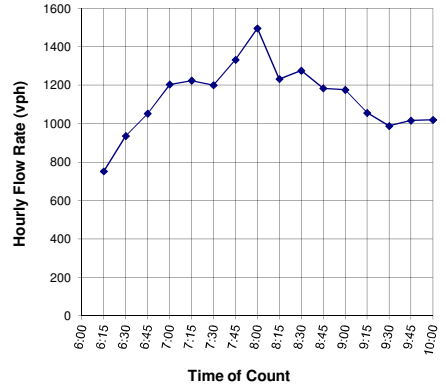
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

		COUNT CLASSIFICATION																
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	166	19	1	2	0	1	0	0	0	0	0	0	1.22	**188**	752	
6:15 - 6:30	ESTIMATED	206	23	1	2	1	1	0	0	0	0	0	0	1.20	**234**	936	
6:30 - 6:45	ESTIMATED	231	26	1	0	1	4	1	0	0	0	0	0	1.12	**263**	1052	
6:45 - 7:00	ESTIMATED	266	30	1	1	1	2	1	0	0	0	0	0	1.15	**301**	1204	986
7:00 - 7:15		272	31	0	0	1	2	0	0	0	0	0	0	1.10	**306**	1224	1104
7:15 - 7:30		273	20	0	0	2	5	1	0	0	0	0	0	1.07	**300**	1200	1170
7:30 - 7:45		296	28	2	0	0	7	1	0	0	0	0	0	1.10	**333**	1332	1240
7:45 - 8:00		340	30	1	0	1	2	0	0	0	0	0	0	1.09	**374**	1496	1313
8:00 - 8:15		265	37	1	0	0	5	0	0	0	0	0	0	1.13	**308**	1232	1315
8:15 - 8:30		273	41	0	0	0	5	0	0	0	0	0	0	1.13	**319**	1276	1334
8:30 - 8:45		254	34	3	0	2	3	0	0	0	0	0	0	1.14	**296**	1184	1297
8:45 - 9:00		257	31	1	0	0	5	1	0	0	0	0	0	1.12	**294**	1176	1217
9:00 - 9:15		215	37	6	0	0	4	0	0	0	0	2	0	1.34	**264**	1056	1173
9:15 - 9:30		187	57	0	0	0	3	0	0	0	0	0	0	1.23	**247**	988	1101
9:30 - 9:45		187	59	2	0	0	6	1	0	0	0	0	0	1.26	**254**	1016	1059
9:45 - 10:00		199	50	1	0	0	5	0	0	0	0	0	0	1.21	**255**	1020	1020
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**3886**	**552**	**21**	**5**	**9**	**60**	**6**	**0**	**0**	**0**	**3**	**0**		**4536**		
	Percentage:	85.7%	12.2%	0.5%	0.1%	0.2%	1.3%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%		100%		
	Vehicle Occupants:	**3886**	**1104**	**72**	**53**	**9**	**72**	**7**	**0**	**0**	**0**	**51**	**0**		**5247**		**Occ. 1.16**
PEAK HOUR																	
7:30 - 8:30	**Totals:**	**1174**	**136**	**4**	**0**	**1**	**19**	**1**	**0**	**0**	**0**	**0**	**0**		**1334**		
	Percentage:	88.0%	10.2%	0.3%	0.0%	0.1%	1.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**1174**	**272**	**14**	**0**	**1**	**23**	**1**	**0**	**0**	**0**	**0**	**0**		**1483**		**Occ. 1.11**
MIN. HOURLY VOL.																	
6:00 - 7:00	**Totals:**	**868**	**97**	**4**	**5**	**3**	**8**	**2**	**0**	**0**	**1**	**1**	**0**		**987**		
	Percentage:	88.0%	9.8%	0.4%	0.5%	0.3%	0.8%	0.2%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
	Vehicle Occupants:	**868**	**194**	**14**	**53**	**3**	**10**	**2**	**0**	**0**	**6**	**11**	**0**		**1158**		**Occ. 1.17**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
590					
13.0%					
141					
10.6%					
110					
11.2%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	2/14/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	GN,TN,TS,BC		
REMARKS:	6-7AM from 1/31/2012		

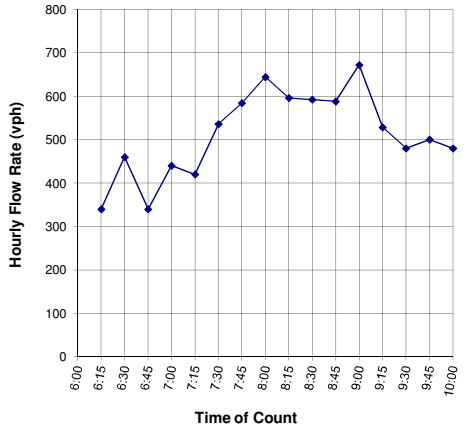
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #3 ONLY

VEHICLE TYPE			COUNT CLASSIFICATION															
			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15		ESTIMATED	53	8	0	2	0	21	1	0	0	0	0	0	1.40	**85**	340	
6:15 - 6:30		ESTIMATED	79	13	1	0	1	21	0	0	0	0	0	0	1.18	**115**	460	
6:30 - 6:45		ESTIMATED	57	9	0	0	0	18	0	0	0	0	0	0	1.18	**85**	340	
6:45 - 7:00		ESTIMATED	77	12	1	0	0	20	0	0	0	0	0	0	1.18	**110**	440	395
7:00 - 7:15			67	10	0	0	0	27	0	0	1	0	0	0	1.18	**105**	420	415
7:15 - 7:30			98	13	0	0	1	22	1	0	0	0	0	0	1.13	**134**	536	434
7:30 - 7:45			106	18	0	1	0	20	1	0	1	0	0	0	1.24	**146**	584	495
7:45 - 8:00			104	21	1	0	1	34	0	0	0	0	0	0	1.19	**161**	644	546
8:00 - 8:15			94	20	2	0	0	33	0	0	0	0	0	0	1.21	**149**	596	590
8:15 - 8:30			98	24	0	0	0	25	0	0	0	1	0	0	1.26	**148**	592	604
8:30 - 8:45			85	24	1	1	0	35	0	0	1	0	0	0	1.31	**147**	588	605
8:45 - 9:00			100	29	1	1	0	37	0	0	0	0	0	0	1.29	**168**	672	612
9:00 - 9:15			83	20	1	3	0	23	0	0	2	0	0	0	1.47	**132**	528	595
9:15 - 9:30			59	13	2	0	1	45	1	0	0	0	0	0	1.22	**120**	480	567
9:30 - 9:45			85	11	1	0	0	26	0	0	1	1	0	0	1.24	**125**	500	545
9:45 - 10:00			81	14	0	0	0	25	0	0	0	0	0	0	1.16	**120**	480	497
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**1326**	**260**	**11**	**8**	**4**	**432**	**4**	**0**	**7**	**2**	**0**	**0**		**2050**		
		Percentage:	64.7%	12.7%	0.5%	0.4%	0.2%	21.1%	0.2%	0.0%	0.4%	0.1%	0.0%	0.0%		100%		
		Vehicle Occupants:	**1326**	**519**	**37**	**84**	**4**	**518**	**4**	**0**	**29**	**23**	**0**	**0**		**2541**		**Occ. 1.24**
PEAK HOUR																		
8:00 - 9:00		**Totals:**	**377**	**97**	**4**	**2**	**0**	**130**	**0**	**0**	**1**	**1**	**0**	**0**		**612**		
		Percentage:	61.6%	15.8%	0.7%	0.3%	0.0%	21.2%	0.0%	0.0%	0.2%	0.2%	0.0%	0.0%		100%		
		Vehicle Occupants:	**377**	**194**	**14**	**21**	**0**	**156**	**0**	**0**	**4**	**10**	**0**	**0**		**776**		**Occ. 1.27**
MIN. HOURLY VOL.																		
6:00 - 7:00		**Totals:**	**266**	**43**	**2**	**2**	**1**	**80**	**1**	**0**	**1**	**0**	**0**	**0**		**395**		
		Percentage:	67.4%	10.8%	0.5%	0.5%	0.3%	20.3%	0.3%	0.0%	0.3%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**266**	**85**	**6**	**21**	**1**	**96**	**1**	**0**	**5**	**0**	**0**	**0**		**481**		**Occ. 1.22**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
292 **14.2%**					
105 **17.2%**					
49 **12.4%**					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:		N	Y or N
NO. LANES COUNTED:	3		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	GN,TN,TS,BC		
REMARKS:			

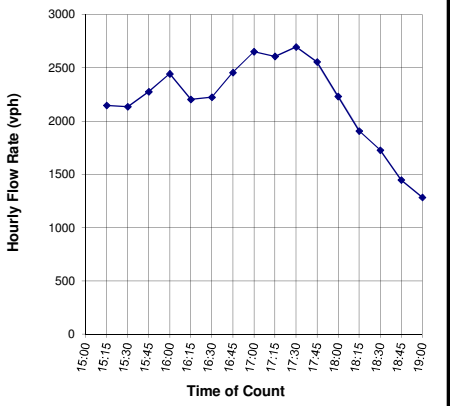
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES

		COUNT CLASSIFICATION																
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		357	116	13	1	2	47	0	0	0	1	0	0	1.33	**537**	2148	
15:15 - 15:30		352	127	2	1	3	47	0	0	0	1	1	0	1.33	**534**	2136	
15:30 - 15:45		393	123	9	1	2	38	2	0	0	1	0	2	1.44	**569**	2276	
15:45 - 16:00		430	135	7	0	2	36	2	0	0	1	0	0	1.27	**611**	2444	**2251**
16:00 - 16:15		383	120	13	0	2	31	2	0	0	0	1	1	1.39	**551**	2204	2265
16:15 - 16:30		389	124	11	0	3	27	1	0	0	0	0	2	1.42	**556**	2224	2287
16:30 - 16:45		415	150	8	1	2	37	4	0	0	1	0	0	1.32	**614**	2456	2332
16:45 - 17:00		491	136	7	0	1	26	1	0	2	0	0	0	1.25	**663**	2652	**2384**
17:00 - 17:15		481	127	12	1	2	29	8	0	0	0	0	0	1.26	**652**	2608	2485
17:15 - 17:30		498	126	6	0	1	43	2	0	0	0	0	0	1.22	**674**	2696	2603
17:30 - 17:45		527	82	0	1	1	27	1	0	0	0	0	1	1.21	**639**	2556	2628
17:45 - 18:00	ESTIMATED	420	99	5	0	1	31	0	0	0	0	1	0	1.29	**558**	2232	**2523**
18:00 - 18:15	ESTIMATED	368	75	5	1	2	23	0	0	0	1	1	0	1.32	**477**	1908	2348
18:15 - 18:30	ESTIMATED	327	65	4	2	1	31	0	0	0	1	0	0	1.30	**432**	1728	2106
18:30 - 18:45	ESTIMATED	285	56	4	1	1	12	1	0	0	0	2	0	1.37	**362**	1448	1829
18:45 - 19:00	ESTIMATED	250	49	3	0	1	17	2	0	0	0	0	0	1.24	**321**	1284	**1592**
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**6366**	**1710**	**109**	**10**	**27**	**502**	**26**	**0**	**2**	**9**	**8**	**8**		**8750**		
	Percentage:	72.8%	19.5%	1.2%	0.1%	0.3%	5.7%	0.3%	0.0%	0.0%	0.1%	0.1%	0.1%		100%		
	Vehicle Occupants:	**6366**	**3420**	**369**	**105**	**27**	**602**	**29**	**0**	**10**	**86**	**151**	**303**		**11440**		**Occ. 1.31**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**1997**	**471**	**25**	**2**	**5**	**125**	**12**	**0**	**2**	**0**	**0**	**1**		**2628**		
	Percentage:	76.0%	17.9%	1.0%	0.1%	0.2%	4.8%	0.5%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**1997**	**942**	**85**	**21**	**5**	**150**	**13**	**0**	**8**	**0**	**0**	**40**		**3248**		**Occ. 1.24**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**1231**	**245**	**15**	**4**	**5**	**83**	**3**	**0**	**0**	**4**	**4**	**1**		**1593**		
	Percentage:	77.2%	15.4%	1.0%	0.3%	0.3%	5.2%	0.2%	0.0%	0.0%	0.3%	0.3%	0.1%		100%		
	Vehicle Occupants:	**1231**	**490**	**52**	**42**	**5**	**100**	**3**	**0**	**1**	**41**	**83**	**47**		**2092**		**Occ. 1.31**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1882					
21.5%					
506					
19.3%					
279					
17.5%					

AM/PM PEAK:	PM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	80	15	OUT OF 15 MINUTES
LOCATION:	Sierra College Road		
DIRECTION:	WB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	3		
DATE:	1/31/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Tuesday
RECORDER(S):	GN,TN,TS,BC		
REMARKS:			

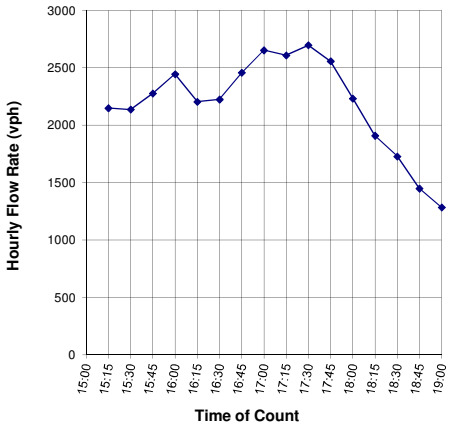
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		357	116	13	1	2	47	0	0	0	1	0	0	1.33	**537**	2148	
15:15 - 15:30		352	127	2	1	3	47	0	0	0	1	1	0	1.33	**534**	2136	
15:30 - 15:45		393	123	9	1	2	38	2	0	0	1	0	2	1.44	**569**	2276	
15:45 - 16:00		430	135	7	0	2	36	2	0	0	1	0	0	1.27	**611**	2444	2251
16:00 - 16:15		383	120	13	0	2	31	2	0	0	0	1	1	1.39	**551**	2204	2265
16:15 - 16:30		389	124	11	0	3	27	1	0	0	0	0	2	1.42	**556**	2224	2287
16:30 - 16:45		415	150	8	1	2	37	4	0	0	1	0	0	1.32	**614**	2456	2332
16:45 - 17:00		491	136	7	0	1	26	1	0	2	0	0	0	1.25	**663**	2652	2384
17:00 - 17:15		481	127	12	1	2	29	8	0	0	0	0	0	1.26	**652**	2608	2485
17:15 - 17:30		498	126	6	0	1	43	2	0	0	0	0	0	1.22	**674**	2696	2603
17:30 - 17:45		527	82	0	1	1	27	1	0	0	0	0	1	1.21	**639**	2556	2628
17:45 - 18:00	ESTIMATED	420	99	5	0	1	31	0	0	0	0	1	0	1.29	**558**	2232	2523
18:00 - 18:15	ESTIMATED	368	75	5	1	2	23	0	0	0	1	1	0	1.32	**477**	1908	2348
18:15 - 18:30	ESTIMATED	327	65	4	2	1	31	0	0	0	1	0	0	1.30	**432**	1728	2106
18:30 - 18:45	ESTIMATED	285	56	4	1	1	12	1	0	0	0	2	0	1.37	**362**	1448	1829
18:45 - 19:00	ESTIMATED	250	49	3	0	1	17	2	0	0	0	0	0	1.24	**321**	1284	1592
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**6366**	**1710**	**109**	**10**	**27**	**502**	**26**	**0**	**2**	**9**	**8**	**8**		**8750**		
	Percentage:	72.8%	19.5%	1.2%	0.1%	0.3%	5.7%	0.3%	0.0%	0.0%	0.1%	0.1%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**6366**	**3420**	**369**	**105**	**27**	**602**	**29**	**0**	**10**	**86**	**151**	**303**		**11440**		**1.31**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**1997**	**471**	**25**	**2**	**5**	**125**	**12**	**0**	**2**	**0**	**0**	**1**		**2628**		
	Percentage:	76.0%	17.9%	1.0%	0.1%	0.2%	4.8%	0.5%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1997**	**942**	**85**	**21**	**5**	**150**	**13**	**0**	**8**	**0**	**0**	**40**		**3248**		**1.24**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**1231**	**245**	**15**	**4**	**5**	**83**	**3**	**0**	**0**	**4**	**4**	**1**		**1593**		
	Percentage:	77.2%	15.4%	1.0%	0.3%	0.3%	5.2%	0.2%	0.0%	0.0%	0.3%	0.3%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**1231**	**490**	**52**	**42**	**5**	**100**	**3**	**0**	**1**	**41**	**83**	**47**		**2092**		**1.31**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1882					
21.5%					
506					
19.3%					
279					
17.5%					

AM/PM PEAK:	PM
COUNTY-RTE:	80
LOCATION:	Sierra College Road
DIRECTION:	WB
TYPE:	0
NO. LANES COUNTED:	3
DATE:	1/31/2012
START TIME:	15:00
END TIME:	19:00
WEATHER:	clear
RECORDER(S):	GN,TN,TS,BC
REMARKS:	

TIME INTERVAL FOR COUNT: 15 OUT OF 15 MINUTES

IS THERE AN EXISTING HOV LANE? N Y/ N

HOW MANY HOURS IN COUNT? 4 3 or 4

DAY: Tuesday

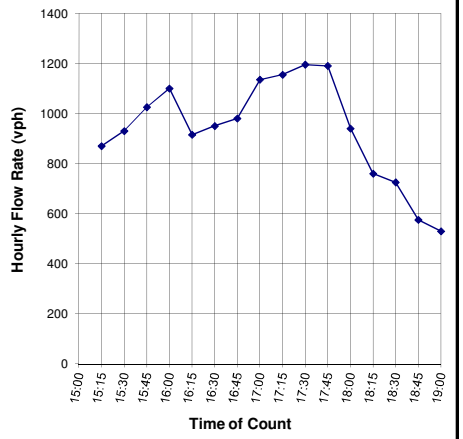
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

VEHICLE TYPE		COUNT CLASSIFICATION															
		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		124	44	5	0	0	0	0	0	0	1	0	0	1.37	**174**	696	
15:15 - 15:30		131	50	2	0	1	0	0	0	0	1	1	0	1.45	**186**	744	
15:30 - 15:45		153	44	3	0	2	0	1	0	0	1	0	2	1.67	**205**	820	
15:45 - 16:00		161	53	3	0	2	0	2	0	0	1	0	0	1.31	**220**	880	785
16:00 - 16:15		134	42	3	0	2	0	2	0	0	0	1	1	1.59	**183**	732	794
16:15 - 16:30		151	34	2	0	1	0	0	0	0	0	0	2	1.61	**190**	760	798
16:30 - 16:45		153	38	3	0	1	0	4	0	0	1	0	0	1.28	**196**	784	789
16:45 - 17:00		181	43	1	0	0	0	1	0	2	0	0	0	1.23	**227**	908	796
17:00 - 17:15		179	46	4	1	1	0	6	0	0	0	0	0	1.28	**231**	924	844
17:15 - 17:30		193	43	2	0	0	1	0	0	0	0	0	0	1.20	**239**	956	893
17:30 - 17:45		202	34	0	1	0	0	0	0	0	0	0	1	1.35	**238**	952	935
17:45 - 18:00	ESTIMATED	156	28	2	0	0	0	0	0	0	0	1	0	1.42	**188**	752	896
18:00 - 18:15	ESTIMATED	125	22	1	0	0	0	0	0	0	1	1	0	1.50	**152**	608	817
18:15 - 18:30	ESTIMATED	118	21	1	2	1	0	0	0	0	1	0	0	1.50	**145**	580	723
18:30 - 18:45	ESTIMATED	94	17	1	0	0	0	0	0	0	0	2	0	1.64	**115**	460	600
18:45 - 19:00	ESTIMATED	88	16	1	0	1	0	1	0	0	0	0	0	1.31	**106**	424	518
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**2344**	**574**	**34**	**4**	**12**	**1**	**17**	**0**	**2**	**9**	**8**	**7**		**2995**		
	Percentage:	78.3%	19.2%	1.1%	0.1%	0.4%	0.0%	0.6%	0.0%	0.1%	0.3%	0.3%	0.2%		100%		
																	Occ.
	Vehicle Occupants:	**2344**	**1148**	**115**	**42**	**12**	**1**	**19**	**0**	**10**	**86**	**151**	**299**		**4208**		**1.41**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**755**	**166**	**7**	**2**	**1**	**1**	**7**	**0**	**2**	**0**	**0**	**1**		**935**		
	Percentage:	80.7%	17.8%	0.7%	0.2%	0.1%	0.1%	0.7%	0.0%	0.2%	0.0%	0.0%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**755**	**332**	**24**	**21**	**1**	**1**	**8**	**0**	**8**	**0**	**0**	**40**		**1182**		**1.26**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**426**	**75**	**4**	**2**	**2**	**0**	**1**	**0**	**0**	**4**	**4**	**1**		**519**		
	Percentage:	82.0%	14.5%	0.8%	0.4%	0.4%	0.0%	0.2%	0.0%	0.1%	0.8%	0.8%	0.2%		100%		
																	Occ.
	Vehicle Occupants:	**426**	**151**	**15**	**21**	**2**	**0**	**1**	**0**	**1**	**41**	**83**	**43**		**783**		**1.51**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
650 **21.7%**					
179 **19.1%**					
93 **18.0%**					

AM/PM PEAK:	**PM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**80**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Sierra College Road**		
DIRECTION:	**WB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**N**	**Y/ N**
NO. LANES COUNTED:	**3**		
DATE:	**1/31/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Tuesday**
RECORDER(S):	**GN,TN,TS,BC**		
REMARKS:			

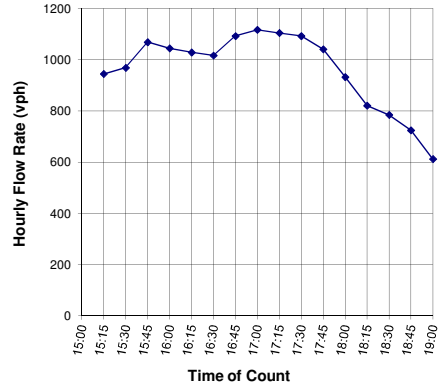
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL**	**FLOW RATE**	**HOURLY**
TIME		**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**		**COUNTS**	**(vph)**	**VOL**
15:00 - 15:15		160	58	6	1	2	9	0	0	0	0	0	0	1.35	**236**	944	
15:15 - 15:30		172	61	0	1	2	6	0	0	0	0	0	0	1.30	**242**	968	
15:30 - 15:45		186	65	5	0	0	11	0	0	0	0	0	0	1.30	**267**	1068	
15:45 - 16:00		184	68	4	0	0	5	0	0	0	0	0	0	1.30	**261**	1044	1006
16:00 - 16:15		186	55	9	0	0	7	0	0	0	0	0	0	1.30	**257**	1028	1027
16:15 - 16:30		175	65	6	0	1	7	1	0	0	0	0	0	1.32	**254**	1016	1039
16:30 - 16:45		191	72	3	0	1	6	0	0	0	0	0	0	1.29	**273**	1092	1045
16:45 - 17:00		209	60	1	0	1	8	0	0	0	0	0	0	1.23	**279**	1116	1063
17:00 - 17:15		204	60	6	0	1	5	0	0	0	0	0	0	1.27	**276**	1104	1082
17:15 - 17:30		206	55	3	0	1	8	2	0	0	0	0	0	1.23	**273**	1092	1101
17:30 - 17:45		213	44	0	0	1	2	0	0	0	0	0	0	1.17	**260**	1040	1088
17:45 - 18:00	ESTIMATED	170	53	2	0	1	6	0	0	0	0	0	0	1.26	**233**	932	1042
18:00 - 18:15	ESTIMATED	161	37	2	1	1	2	0	0	0	0	0	0	1.26	**205**	820	971
18:15 - 18:30	ESTIMATED	152	33	2	0	0	8	0	0	0	0	0	0	1.20	**196**	784	894
18:30 - 18:45	ESTIMATED	145	32	2	1	1	0	1	0	0	0	0	0	1.25	**181**	724	815
18:45 - 19:00	ESTIMATED	122	27	2	0	0	3	1	0	0	0	0	0	1.20	**153**	612	735
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**2837**	**846**	**53**	**4**	**13**	**93**	**5**	**0**	**0**	**0**	**0**	**0**		**3846**		
	Percentage:	73.8%	22.0%	1.4%	0.1%	0.3%	2.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**2837**	**1691**	**182**	**42**	**13**	**112**	**6**	**0**	**0**	**0**	**0**	**0**		**4876**		**1.27**
PEAK HOUR																	
16:30 - 17:30	**Totals:**	**810**	**247**	**13**	**0**	**4**	**27**	**2**	**0**	**0**	**0**	**0**	**0**		**1101**		
	Percentage:	73.6%	22.4%	1.2%	0.0%	0.4%	2.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**810**	**494**	**44**	**0**	**4**	**32**	**2**	**0**	**0**	**0**	**0**	**0**		**1385**		**1.26**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**581**	**129**	**8**	**2**	**2**	**13**	**2**	**0**	**0**	**0**	**0**	**0**		**735**		
	Percentage:	79.0%	17.6%	1.1%	0.3%	0.3%	1.8%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**581**	**259**	**27**	**21**	**2**	**16**	**2**	**0**	**0**	**0**	**0**	**0**		**905**		**1.23**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
916					
23.8%					
264					
24.0%					
141					
19.2%					

AM/PM PEAK:	**PM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**80**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Sierra College Road**		
DIRECTION:	**WB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**N**	**Y/ N**
NO. LANES COUNTED:	**3**		
DATE:	**1/31/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Tuesday**
RECORDER(S):	**GN,TN,TS,BC**		
REMARKS:			

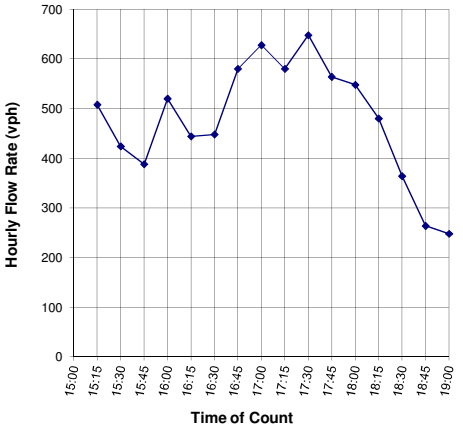
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #3 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL**	**FLOW RATE**	**HOURLY**
TIME		**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**		**COUNTS**	**(vph)**	**VOL**
15:00 - 15:15		73	14	2	0	0	38	0	0	0	0	0	0	1.21	**127**	508	
15:15 - 15:30		49	16	0	0	0	41	0	0	0	0	0	0	1.23	**106**	424	
15:30 - 15:45		54	14	1	1	0	27	1	0	0	0	0	0	1.32	**97**	388	
15:45 - 16:00		85	14	0	0	0	31	0	0	0	0	0	0	1.16	**130**	520	460
16:00 - 16:15		63	23	1	0	0	24	0	0	0	0	0	0	1.27	**111**	444	444
16:15 - 16:30		63	25	3	0	1	20	0	0	0	0	0	0	1.32	**112**	448	450
16:30 - 16:45		71	40	2	1	0	31	0	0	0	0	0	0	1.42	**145**	580	498
16:45 - 17:00		101	33	5	0	0	18	0	0	0	0	0	0	1.31	**157**	628	525
17:00 - 17:15		98	21	2	0	0	24	2	0	0	0	0	0	1.21	**145**	580	559
17:15 - 17:30		99	28	1	0	0	34	0	0	0	0	0	0	1.23	**162**	648	609
17:30 - 17:45		112	4	0	0	0	25	1	0	0	0	0	0	1.06	**141**	564	605
17:45 - 18:00	ESTIMATED	93	17	1	0	0	25	0	0	0	0	0	0	1.18	**137**	548	585
18:00 - 18:15	ESTIMATED	82	15	1	0	1	21	0	0	0	0	0	0	1.18	**120**	480	560
18:15 - 18:30	ESTIMATED	57	11	1	0	0	23	0	0	0	0	0	0	1.19	**91**	364	489
18:30 - 18:45	ESTIMATED	45	8	1	0	0	12	0	0	0	0	0	0	1.18	**66**	264	414
18:45 - 19:00	ESTIMATED	40	7	1	0	0	14	0	0	0	0	0	0	1.18	**62**	248	339
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**1185**	**291**	**21**	**2**	**2**	**408**	**4**	**0**	**0**	**0**	**0**	**0**		**1909**		
	Percentage:	62.1%	15.2%	1.1%	0.1%	0.1%	21.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1185**	**582**	**72**	**21**	**2**	**490**	**4**	**0**	**0**	**0**	**0**	**0**		**2351**		**1.23**
PEAK HOUR																	
16:30 - 17:30	**Totals:**	**369**	**122**	**10**	**1**	**0**	**107**	**2**	**0**	**0**	**0**	**0**	**0**		**609**		
	Percentage:	60.6%	20.0%	1.6%	0.2%	0.0%	17.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**369**	**244**	**34**	**11**	**0**	**128**	**2**	**0**	**0**	**0**	**0**	**0**		**786**		**1.29**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**224**	**42**	**3**	**0**	**1**	**70**	**0**	**0**	**0**	**0**	**0**	**0**		**339**		
	Percentage:	66.0%	12.2%	0.8%	0.0%	0.3%	20.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**224**	**83**	**10**	**0**	**1**	**84**	**0**	**0**	**0**	**0**	**0**	**0**		**401**		**1.18**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
316					
16.5%					
133					
21.8%					
45					
13.4%					

AM/PM PEAK:	**AM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**65**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Twelve Bridges Drive**		
DIRECTION:	**NB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:		**N**	**Y or N**
NO. LANES COUNTED:	**2**		
DATE:	**2/8/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**6:00**	**4**	**3 or 4**
END TIME:	**10:00**		
WEATHER:	**clear**	**DAY:**	**Wednesday**
RECORDER(S):	**DW,LT,TW**		
REMARKS:			

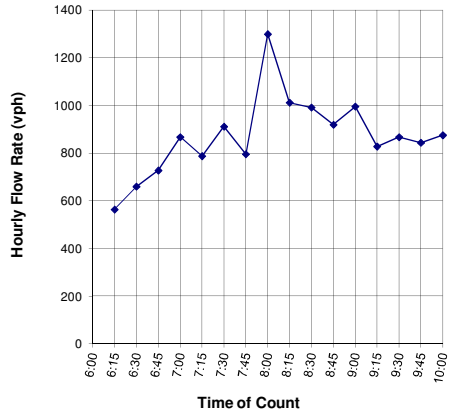
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES

		COUNT CLASSIFICATION																
VEHICLE TYPE		**CARS**			**MISC**					**BUSES**						(15/15)	FLOW	
TIME		**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**	**OCC.**	**TOTAL COUNTS**	**RATE (vph)**	**HOURLY VOL**
6:00 - 6:15	ESTIMATED	123	10	0	0	0	7	0	0	0	0	0	0	1.11	**141**	564	
6:15 - 6:30	ESTIMATED	148	12	0	0	0	1	0	0	0	0	3	0	1.45	**165**	660	
6:30 - 6:45	ESTIMATED	159	13	0	0	2	7	0	0	0	0	0	0	1.11	**182**	728	
6:45 - 7:00	ESTIMATED	183	28	1	0	0	4	0	0	0	0	1	0	1.25	**217**	868	**705**
7:00 - 7:15		179	9	1	0	3	5	0	0	0	0	0	0	1.06	**197**	788	761
7:15 - 7:30		199	24	1	0	1	3	0	0	0	0	0	0	1.12	**228**	912	824
7:30 - 7:45		165	24	2	0	0	8	0	0	0	0	0	0	1.15	**199**	796	841
7:45 - 8:00		290	23	4	1	0	7	0	0	0	0	0	0	1.13	**325**	1300	**949**
8:00 - 8:15		222	23	0	0	0	8	0	0	0	0	0	0	1.10	**253**	1012	1005
8:15 - 8:30		226	18	0	0	0	4	0	0	0	0	0	0	1.08	**248**	992	1025
8:30 - 8:45		206	14	1	1	1	6	0	0	0	1	0	0	1.16	**230**	920	1056
8:45 - 9:00		218	17	0	0	1	12	0	0	0	0	1	0	1.15	**249**	996	**980**
9:00 - 9:15		184	19	0	0	0	4	0	0	0	0	0	0	1.10	**207**	828	934
9:15 - 9:30		180	19	0	0	1	17	0	0	0	0	0	0	1.10	**217**	868	903
9:30 - 9:45		188	14	0	0	1	8	0	0	0	0	0	0	1.07	**211**	844	884
9:45 - 10:00		174	36	0	0	0	9	0	0	0	0	0	0	1.17	**219**	876	**854**
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**3046**	**302**	**11**	**2**	**10**	**110**	**0**	**0**	**0**	**1**	**6**	**0**		**3488**		
	Percentage:	87.3%	8.7%	0.3%	0.1%	0.3%	3.2%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**3046**	**604**	**37**	**21**	**10**	**132**	**0**	**0**	**0**	**12**	**119**	**0**		**3981**		**1.14**
PEAK HOUR																	
7:45 - 8:45	**Totals:**	**944**	**78**	**5**	**2**	**1**	**25**	**0**	**0**	**0**	**1**	**0**	**0**		**1056**		
	Percentage:	89.4%	7.4%	0.5%	0.2%	0.1%	2.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**944**	**156**	**17**	**21**	**1**	**30**	**0**	**0**	**0**	**10**	**0**	**0**		**1179**		**1.12**
MIN. HOURLY VOL.																	
6:00 - 7:00	**Totals:**	**615**	**62**	**2**	**0**	**2**	**19**	**0**	**0**	**0**	**5**	**5**	**0**		**710**		
	Percentage:	86.6%	8.8%	0.3%	0.0%	0.3%	2.7%	0.0%	0.0%	0.0%	0.7%	0.7%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**615**	**124**	**7**	**0**	**2**	**23**	**0**	**0**	**0**	**49**	**99**	**0**		**918**		**1.29**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
332					
9.5%					
87					
8.2%					
76					
10.7%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	NB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	DW,LT,TW		
REMARKS:			

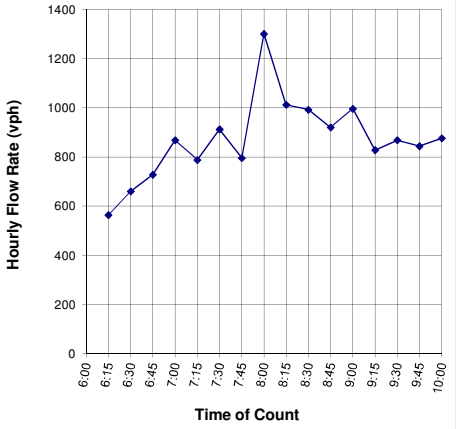
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	123	10	0	0	0	7	0	0	0	0	0	0	1.11	**141**	564	
6:15 - 6:30	ESTIMATED	148	12	0	0	0	1	0	0	0	0	3	0	1.45	**165**	660	
6:30 - 6:45	ESTIMATED	159	13	0	0	2	7	0	0	0	0	0	0	1.11	**182**	728	
6:45 - 7:00	ESTIMATED	183	28	1	0	0	4	0	0	0	0	1	0	1.25	**217**	868	705
7:00 - 7:15		179	9	1	0	3	5	0	0	0	0	0	0	1.06	**197**	788	761
7:15 - 7:30		199	24	1	0	1	3	0	0	0	0	0	0	1.12	**228**	912	824
7:30 - 7:45		165	24	2	0	0	8	0	0	0	0	0	0	1.15	**199**	796	841
7:45 - 8:00		290	23	4	1	0	7	0	0	0	0	0	0	1.13	**325**	1300	949
8:00 - 8:15		222	23	0	0	0	8	0	0	0	0	0	0	1.10	**253**	1012	1005
8:15 - 8:30		226	18	0	0	0	4	0	0	0	0	0	0	1.08	**248**	992	1025
8:30 - 8:45		206	14	1	1	1	6	0	0	0	1	0	0	1.16	**230**	920	1056
8:45 - 9:00		218	17	0	0	1	12	0	0	0	0	1	0	1.15	**249**	996	980
9:00 - 9:15		184	19	0	0	0	4	0	0	0	0	0	0	1.10	**207**	828	934
9:15 - 9:30		180	19	0	0	1	17	0	0	0	0	0	0	1.10	**217**	868	903
9:30 - 9:45		188	14	0	0	1	8	0	0	0	0	0	0	1.07	**211**	844	884
9:45 - 10:00		174	36	0	0	0	9	0	0	0	0	0	0	1.17	**219**	876	854
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**3046**	**302**	**11**	**2**	**10**	**110**	**0**	**0**	**0**	**1**	**6**	**0**		**3488**		
	Percentage:	87.3%	8.7%	0.3%	0.1%	0.3%	3.2%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**3046**	**604**	**37**	**21**	**10**	**132**	**0**	**0**	**0**	**12**	**119**	**0**		**3981**		**1.14**
PEAK HOUR																	
7:45 - 8:45	**Totals:**	**944**	**78**	**5**	**2**	**1**	**25**	**0**	**0**	**0**	**1**	**0**	**0**		**1056**		
	Percentage:	89.4%	7.4%	0.5%	0.2%	0.1%	2.4%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**944**	**156**	**17**	**21**	**1**	**30**	**0**	**0**	**0**	**10**	**0**	**0**		**1179**		**1.12**
MIN. HOURLY VOL.																	
6:00 - 7:00	**Totals:**	**615**	**62**	**2**	**0**	**2**	**19**	**0**	**0**	**0**	**5**	**5**	**0**		**710**		
	Percentage:	86.6%	8.8%	0.3%	0.0%	0.3%	2.7%	0.0%	0.0%	0.0%	0.7%	0.7%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**615**	**124**	**7**	**0**	**2**	**23**	**0**	**0**	**0**	**49**	**99**	**0**		**918**		**1.29**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
332					
9.5%					
87					
8.2%					
76					
10.7%					

AM/PM PEAK:	AM
COUNTY-RTE:	65
LOCATION:	Twelve Bridges Drive
DIRECTION:	NB
TYPE:	0
NO. LANES COUNTED:	2
DATE:	2/8/2012
START TIME:	6:00
END TIME:	10:00
WEATHER:	clear
RECORDER(S):	DW,LT,TW
REMARKS:	

TIME INTERVAL FOR COUNT: 15 OUT OF 15 MINUTES

IS THERE AN EXISTING HOV LANE? N Y/ N

HOW MANY HOURS IN COUNT? 4 3 or 4

DAY: Wednesday

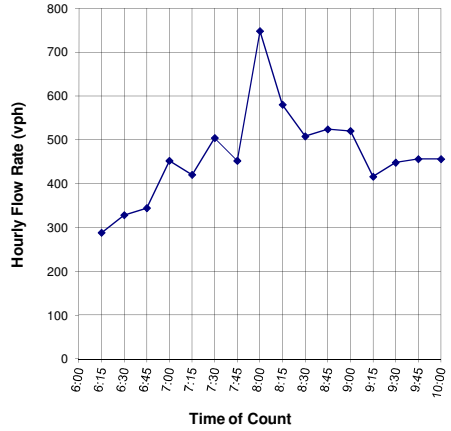
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

VEHICLE TYPE		COUNT CLASSIFICATION: CARS			MISC					BUSES				OCC.	(15/15) TOTAL COUNTS	FLOW RATE (vph)	HOURLY VOL
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL				
6:00 - 6:15	ESTIMATED	66	6	0	0	0	0	0	0	0	0	0	0	1.10	**72**	288	
6:15 - 6:30	ESTIMATED	75	7	0	0	0	0	0	0	0	0	0	0	1.10	**82**	328	
6:30 - 6:45	ESTIMATED	77	7	0	0	1	0	0	0	0	0	0	0	1.10	**86**	344	
6:45 - 7:00	ESTIMATED	97	15	0	0	0	0	0	0	0	0	0	0	1.15	**113**	452	353
7:00 - 7:15		94	7	1	0	3	0	0	0	0	0	0	0	1.09	**105**	420	386
7:15 - 7:30		108	16	0	0	1	1	0	0	0	0	0	0	1.13	**126**	504	430
7:30 - 7:45		98	13	1	0	0	1	0	0	0	0	0	0	1.14	**113**	452	457
7:45 - 8:00		167	17	3	0	0	0	0	0	0	0	0	0	1.13	**187**	748	531
8:00 - 8:15		126	18	0	0	0	1	0	0	0	0	0	0	1.13	**145**	580	571
8:15 - 8:30		113	13	0	0	0	1	0	0	0	0	0	0	1.10	**127**	508	572
8:30 - 8:45		114	13	0	1	1	1	0	0	0	1	0	0	1.24	**131**	524	590
8:45 - 9:00		118	10	0	0	1	1	0	0	0	0	0	0	1.08	**130**	520	533
9:00 - 9:15		95	8	0	0	0	1	0	0	0	0	0	0	1.08	**104**	416	492
9:15 - 9:30		95	15	0	0	1	1	0	0	0	0	0	0	1.14	**112**	448	477
9:30 - 9:45		106	6	0	0	0	2	0	0	0	0	0	0	1.06	**114**	456	460
9:45 - 10:00		92	19	0	0	0	3	0	0	0	0	0	0	1.17	**114**	456	444
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**1641**	**191**	**6**	**1**	**8**	**13**	**0**	**0**	**0**	**1**	**0**	**0**		**1861**		
	Percentage:	88.2%	10.2%	0.3%	0.1%	0.4%	0.7%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%		100%		
	Vehicle Occupants:	**1641**	**381**	**20**	**11**	**8**	**16**	**0**	**0**	**0**	**12**	**0**	**0**		**2089**		**Occ. 1.12**
PEAK HOUR																	
7:45 - 8:45	**Totals:**	**520**	**61**	**3**	**1**	**1**	**3**	**0**	**0**	**0**	**1**	**0**	**0**		**590**		
	Percentage:	88.1%	10.3%	0.5%	0.2%	0.2%	0.5%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%		100%		
	Vehicle Occupants:	**520**	**122**	**10**	**11**	**1**	**4**	**0**	**0**	**0**	**10**	**0**	**0**		**677**		**Occ. 1.15**
MIN. HOURLY VOL.																	
6:00 - 7:00	**Totals:**	**315**	**36**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**353**		
	Percentage:	89.3%	10.1%	0.3%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**315**	**71**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**391**		**Occ. 1.11**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
207					
11.1%					
67					
11.4%					
38					
10.7%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	NB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	DW,LT,TW		
REMARKS:			

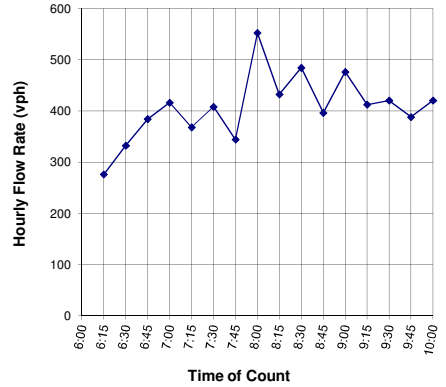
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	58	4	0	0	0	7	0	0	0	0	0	0	1.13	**69**	276	
6:15 - 6:30	ESTIMATED	74	5	0	0	0	1	0	0	0	0	3	0	1.80	**83**	332	
6:30 - 6:45	ESTIMATED	82	5	0	0	1	7	0	0	0	0	0	0	1.13	**96**	384	
6:45 - 7:00	ESTIMATED	86	12	0	0	0	4	0	0	0	0	1	0	1.36	**104**	416	352
7:00 - 7:15		85	2	0	0	0	5	0	0	0	0	0	0	1.03	**92**	368	375
7:15 - 7:30		91	8	1	0	0	2	0	0	0	0	0	0	1.11	**102**	408	394
7:30 - 7:45		67	11	1	0	0	7	0	0	0	0	0	0	1.17	**86**	344	384
7:45 - 8:00		123	6	1	1	0	7	0	0	0	0	0	0	1.14	**138**	552	418
8:00 - 8:15		96	5	0	0	0	7	0	0	0	0	0	0	1.06	**108**	432	434
8:15 - 8:30		113	5	0	0	0	3	0	0	0	0	0	0	1.05	**121**	484	453
8:30 - 8:45		92	1	1	0	0	5	0	0	0	0	0	0	1.04	**99**	396	466
8:45 - 9:00		100	7	0	0	0	11	0	0	0	0	1	0	1.24	**119**	476	447
9:00 - 9:15		89	11	0	0	0	3	0	0	0	0	0	0	1.11	**103**	412	442
9:15 - 9:30		85	4	0	0	0	16	0	0	0	0	0	0	1.07	**105**	420	426
9:30 - 9:45		82	8	0	0	1	6	0	0	0	0	0	0	1.09	**97**	388	424
9:45 - 10:00		82	17	0	0	0	6	0	0	0	0	0	0	1.17	**105**	420	410
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**1405**	**111**	**5**	**1**	**2**	**97**	**0**	**0**	**0**	**0**	**6**	**0**		**1627**		
	Percentage:	86.4%	6.8%	0.3%	0.1%	0.1%	6.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%		100%		**Occ.**
	Vehicle Occupants:	**1405**	**221**	**17**	**11**	**2**	**116**	**0**	**0**	**0**	**0**	**119**	**0**		**1891**		**1.16**
PEAK HOUR																	
7:45 - 8:45	**Totals:**	**424**	**17**	**2**	**1**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**0**		**466**		
	Percentage:	91.0%	3.6%	0.4%	0.2%	0.0%	4.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		**Occ.**
	Vehicle Occupants:	**424**	**34**	**7**	**11**	**0**	**26**	**0**	**0**	**0**	**0**	**0**	**0**		**502**		**1.08**
MIN. HOURLY VOL.																	
6:00 - 7:00	**Totals:**	**300**	**26**	**1**	**0**	**1**	**19**	**0**	**0**	**0**	**5**	**5**	**0**		**357**		
	Percentage:	84.2%	7.2%	0.3%	0.0%	0.3%	5.3%	0.0%	0.0%	0.0%	1.4%	1.4%	0.0%		100%		**Occ.**
	Vehicle Occupants:	**300**	**51**	**3**	**0**	**1**	**23**	**0**	**0**	**0**	**49**	**99**	**0**		**527**		**1.48**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
125					
7.7%					
20					
4.3%					
38					
10.5%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	NB	IS THERE AN EXISTING HOV LANE?	
TYPE:		N	Y or N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	DW,LT,TW		
REMARKS:			

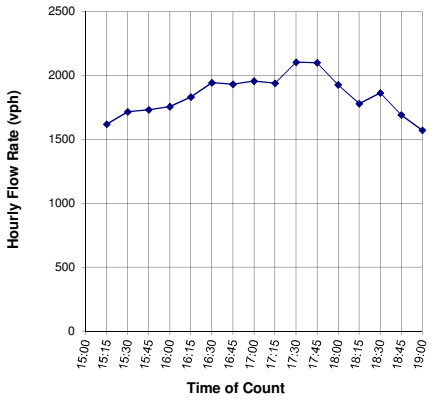
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		306	83	3	2	2	8	0	0	0	1	0	0	1.30	**405**	1620	
15:15 - 15:30		324	93	3	0	4	4	0	0	0	0	1	0	1.28	**429**	1716	
15:30 - 15:45		353	75	1	0	2	2	1	0	0	0	0	0	1.18	**433**	1732	
15:45 - 16:00		335	91	8	1	3	1	0	0	0	0	0	0	1.27	**439**	1756	**1706**
16:00 - 16:15		331	106	16	0	1	3	0	0	0	0	0	1	1.40	**458**	1832	1759
16:15 - 16:30		374	89	17	1	3	2	0	0	0	0	0	0	1.29	**486**	1944	1816
16:30 - 16:45		406	67	4	1	1	3	2	0	0	0	0	1	1.26	**483**	1932	1866
16:45 - 17:00		420	64	1	1	2	1	0	0	0	0	0	0	1.16	**489**	1956	**1916**
17:00 - 17:15		416	63	0	2	3	1	0	0	0	0	0	0	1.17	**485**	1940	1943
17:15 - 17:30		444	73	4	0	1	4	0	0	0	0	0	0	1.16	**526**	2104	1983
17:30 - 17:45		444	75	1	0	3	2	0	0	0	0	0	0	1.15	**525**	2100	2025
17:45 - 18:00	ESTIMATED	405	71	4	0	1	1	1	0	0	0	0	0	1.18	**482**	1928	**2018**
18:00 - 18:15	ESTIMATED	381	55	4	0	1	3	0	0	0	0	0	0	1.16	**445**	1780	1978
18:15 - 18:30	ESTIMATED	400	58	4	0	2	2	0	0	0	0	0	0	1.16	**466**	1864	1918
18:30 - 18:45	ESTIMATED	364	53	4	0	0	2	0	0	0	0	0	0	1.16	**423**	1692	1816
18:45 - 19:00	ESTIMATED	337	49	3	0	0	3	0	0	0	0	0	0	1.16	**393**	1572	**1727**
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**6040**	**1166**	**78**	**8**	**29**	**42**	**4**	**0**	**0**	**1**	**1**	**3**		**7367**		
	Percentage:	82.0%	15.8%	1.1%	0.1%	0.4%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**6040**	**2331**	**264**	**84**	**29**	**50**	**4**	**0**	**0**	**11**	**24**	**109**		**8942**		**Occ. 1.21**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**1724**	**275**	**6**	**3**	**9**	**8**	**0**	**0**	**0**	**0**	**0**	**0**		**2025**		
	Percentage:	85.1%	13.6%	0.3%	0.1%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**1724**	**550**	**20**	**32**	**9**	**10**	**0**	**0**	**0**	**0**	**0**	**0**		**2345**		**Occ. 1.16**
MIN. HOURLY VOL.																	
15:00 - 16:00	**Totals:**	**1318**	**342**	**15**	**3**	**11**	**15**	**1**	**0**	**0**	**1**	**1**	**0**		**1706**		
	Percentage:	77.3%	20.0%	0.9%	0.2%	0.6%	0.9%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
	Vehicle Occupants:	**1318**	**684**	**51**	**32**	**11**	**18**	**1**	**0**	**0**	**10**	**20**	**0**		**2144**		**Occ. 1.26**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1285					
17.4%					
293					
14.5%					
373					
21.9%					

AM/PM PEAK:	**AM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**65**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Twelve Bridges Drive**		
DIRECTION:	**NB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**N**	**Y/ N**
NO. LANES COUNTED:	**2**		
DATE:	**2/8/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Wednesday**
RECORDER(S):	**DW,LT,TW**		
REMARKS:			

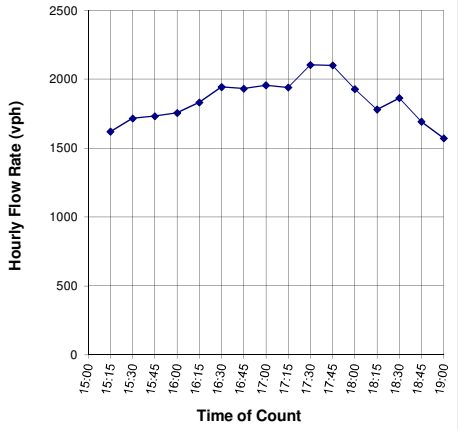
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL COUNTS**	**FLOW RATE (vph)**	**HOURLY VOL**
TIME		**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**				
15:00 - 15:15		306	83	3	2	2	8	0	0	0	1	0	0	1.30	**405**	1620	
15:15 - 15:30		324	93	3	0	4	4	0	0	0	0	1	0	1.28	**429**	1716	
15:30 - 15:45		353	75	1	0	2	2	1	0	0	0	0	0	1.18	**433**	1732	
15:45 - 16:00		335	91	8	1	3	1	0	0	0	0	0	0	1.27	**439**	1756	1706
16:00 - 16:15		331	106	16	0	1	3	0	0	0	0	0	1	1.40	**458**	1832	1759
16:15 - 16:30		374	89	17	1	3	2	0	0	0	0	0	0	1.29	**486**	1944	1816
16:30 - 16:45		406	67	4	1	1	3	2	0	0	0	0	1	1.26	**483**	1932	1866
16:45 - 17:00		420	64	1	1	2	1	0	0	0	0	0	0	1.16	**489**	1956	1916
17:00 - 17:15		416	63	0	2	3	1	0	0	0	0	0	0	1.17	**485**	1940	1943
17:15 - 17:30		444	73	4	0	1	4	0	0	0	0	0	0	1.16	**526**	2104	1983
17:30 - 17:45		444	75	1	0	3	2	0	0	0	0	0	0	1.15	**525**	2100	2025
17:45 - 18:00	ESTIMATED	405	71	4	0	1	1	1	0	0	0	0	0	1.18	**482**	1928	2018
18:00 - 18:15	ESTIMATED	381	55	4	0	1	3	0	0	0	0	0	0	1.16	**445**	1780	1978
18:15 - 18:30	ESTIMATED	400	58	4	0	2	2	0	0	0	0	0	0	1.16	**466**	1864	1918
18:30 - 18:45	ESTIMATED	364	53	4	0	0	2	0	0	0	0	0	0	1.16	**423**	1692	1816
18:45 - 19:00	ESTIMATED	337	49	3	0	0	3	0	0	0	0	0	0	1.16	**393**	1572	1727
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**6040**	**1166**	**78**	**8**	**29**	**42**	**4**	**0**	**0**	**1**	**1**	**3**		**7367**		
	Percentage:	82.0%	15.8%	1.1%	0.1%	0.4%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**6040**	**2331**	**264**	**84**	**29**	**50**	**4**	**0**	**0**	**11**	**24**	**109**		**8942**		**Occ. 1.21**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**1724**	**275**	**6**	**3**	**9**	**8**	**0**	**0**	**0**	**0**	**0**	**0**		**2025**		
	Percentage:	85.1%	13.6%	0.3%	0.1%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**1724**	**550**	**20**	**32**	**9**	**10**	**0**	**0**	**0**	**0**	**0**	**0**		**2345**		**Occ. 1.16**
MIN. HOURLY VOL.																	
15:00 - 16:00	**Totals:**	**1318**	**342**	**15**	**3**	**11**	**15**	**1**	**0**	**0**	**1**	**1**	**0**		**1706**		
	Percentage:	77.3%	20.0%	0.9%	0.2%	0.6%	0.9%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%		100%		
	Vehicle Occupants:	**1318**	**684**	**51**	**32**	**11**	**18**	**1**	**0**	**0**	**10**	**20**	**0**		**2144**		**Occ. 1.26**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1285					
17.4%					
293					
14.5%					
373					
21.9%					

AM/PM PEAK:	**AM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**65**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Twelve Bridges Drive**		
DIRECTION:	**NB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**N**	**Y/ N**
NO. LANES COUNTED:	**2**		
DATE:	**2/8/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**15:00**	**4**	**3 or 4**
END TIME:	**19:00**		
WEATHER:	**clear**	**DAY:**	**Wednesday**
RECORDER(S):	**DW,LT,TW**		
REMARKS:			

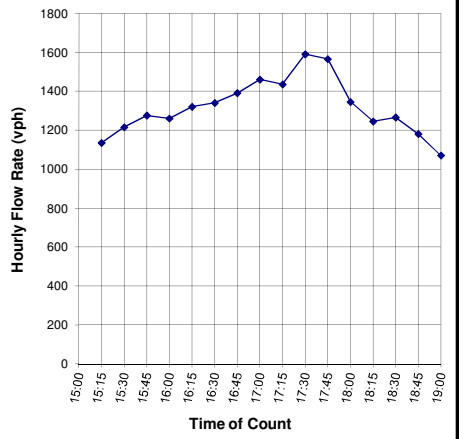
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

		COUNT CLASSIFICATION																
VEHICLE TYPE		**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL COUNTS**	**FLOW RATE (vph)**	**HOURLY VOL**
TIME		**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**				
15:00 - 15:15		179	45	2	0	0	0	0	0	0	1	0	0	1.26	**227**	908	
15:15 - 15:30		184	56	0	0	2	0	0	0	0	0	1	0	1.31	**243**	972	
15:30 - 15:45		208	46	0	0	1	0	1	0	0	0	0	0	1.18	**255**	1020	
15:45 - 16:00		187	55	8	0	2	0	0	0	0	0	0	0	1.29	**252**	1008	977
16:00 - 16:15		176	71	16	0	1	0	0	0	0	0	0	0	1.41	**264**	1056	1014
16:15 - 16:30		222	39	3	1	3	0	0	0	0	0	0	0	1.21	**268**	1072	1039
16:30 - 16:45		236	39	2	1	0	0	1	0	0	0	0	0	1.19	**278**	1112	1062
16:45 - 17:00		246	42	1	1	2	0	0	0	0	0	0	0	1.18	**292**	1168	1102
17:00 - 17:15		245	39	0	1	2	0	0	0	0	0	0	0	1.17	**287**	1148	1125
17:15 - 17:30		274	42	1	0	1	0	0	0	0	0	0	0	1.14	**318**	1272	1175
17:30 - 17:45		270	39	1	0	3	0	0	0	0	0	0	0	1.13	**313**	1252	1210
17:45 - 18:00	ESTIMATED	231	34	3	0	1	0	0	0	0	0	0	0	1.15	**269**	1076	1187
18:00 - 18:15	ESTIMATED	215	31	2	0	0	0	0	0	0	0	0	0	1.15	**249**	996	1149
18:15 - 18:30	ESTIMATED	218	31	2	0	1	0	0	0	0	0	0	0	1.15	**253**	1012	1084
18:30 - 18:45	ESTIMATED	204	29	2	0	0	0	0	0	0	0	0	0	1.15	**236**	944	1007
18:45 - 19:00	ESTIMATED	185	27	2	0	0	0	0	0	0	0	0	0	1.15	**214**	856	952
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**3481**	**666**	**46**	**4**	**19**	**0**	**2**	**0**	**0**	**1**	**1**	**0**		**4218**		
	Percentage:	82.5%	15.8%	1.1%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**3481**	**1332**	**155**	**42**	**19**	**0**	**2**	**0**	**0**	**11**	**24**	**0**		**5064**		**1.20**
PEAK HOUR																	
16:45 - 17:45	**Totals:**	**1035**	**162**	**3**	**2**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**1210**		
	Percentage:	85.5%	13.4%	0.2%	0.2%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**1035**	**324**	**10**	**21**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**1398**		**1.16**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**823**	**119**	**9**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**952**		
	Percentage:	86.4%	12.5%	0.9%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**823**	**238**	**31**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**3**	**0**		**1097**		**1.15**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
737					
17.5%					
175					
14.5%					
129					
13.6%					

AM/PM PEAK:	AM
COUNTY-RTE:	65
LOCATION:	Twelve Bridges Drive
DIRECTION:	NB
TYPE:	0
NO. LANES COUNTED:	2
DATE:	2/8/2012
START TIME:	15:00
END TIME:	19:00
WEATHER:	clear
RECORDER(S):	DW,LT,TW
REMARKS:	

TIME INTERVAL FOR COUNT	
15	OUT OF 15 MINUTES

IS THERE AN EXISTING HOV LANE?	
N	Y/ N

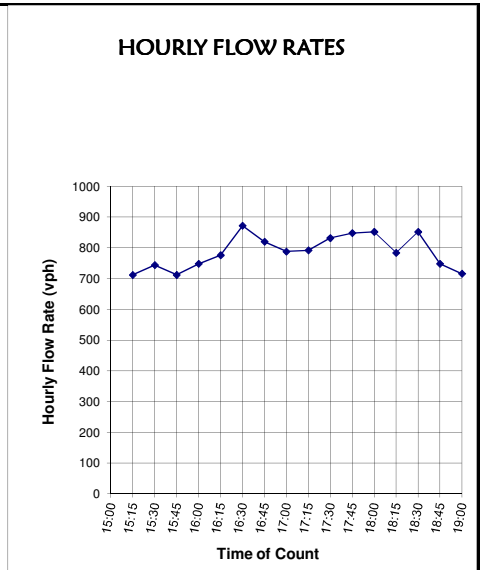
HOW MANY HOURS IN COUNT?	
4	3 or 4

DAY: Wednesday

CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY



VEHICLE TYPE		COUNT CLASSIFICATION													OCC.	(15/15) TOTAL COUNTS	FLOW RATE (vph)	HOURLY VOL
		CARS			MISC					BUSES								
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL					
15:00 - 15:15		127	38	1	2	2	8	0	0	0	0	0	0		1.34	**178**	712	
15:15 - 15:30		140	37	3	0	2	4	0	0	0	0	0	0		1.24	**186**	744	
15:30 - 15:45		145	29	1	0	1	2	0	0	0	0	0	0		1.18	**178**	712	
15:45 - 16:00		148	36	0	1	1	1	0	0	0	0	0	0		1.24	**187**	748	729
16:00 - 16:15		155	35	0	0	0	3	0	0	0	0	0	1		1.38	**194**	776	745
16:15 - 16:30		152	50	14	0	0	2	0	0	0	0	0	0		1.39	**218**	872	777
16:30 - 16:45		170	28	2	0	1	3	1	0	0	0	0	1		1.35	**205**	820	804
16:45 - 17:00		174	22	0	0	0	1	0	0	0	0	0	0		1.11	**197**	788	814
17:00 - 17:15		171	24	0	1	1	1	0	0	0	0	0	0		1.17	**198**	792	818
17:15 - 17:30		170	31	3	0	0	4	0	0	0	0	0	0		1.19	**208**	832	808
17:30 - 17:45		174	36	0	0	0	2	0	0	0	0	0	0		1.17	**212**	848	815
17:45 - 18:00	ESTIMATED	174	36	2	0	0	1	1	0	0	0	0	0		1.22	**213**	852	831
18:00 - 18:15	ESTIMATED	166	24	2	0	1	3	0	0	0	0	0	0		1.18	**196**	784	829
18:15 - 18:30	ESTIMATED	182	27	2	0	1	2	0	0	0	0	0	0		1.18	**213**	852	834
18:30 - 18:45	ESTIMATED	160	23	1	0	0	2	0	0	0	0	0	0		1.18	**187**	748	809
18:45 - 19:00	ESTIMATED	152	22	1	0	0	3	0	0	0	0	0	0		1.18	**179**	716	775
PEAK PERIOD																		
15:00 - 19:00	**Totals:**	**2560**	**499**	**32**	**4**	**10**	**42**	**2**	**0**	**0**	**0**	**0**	**3**			**3149**		
	Percentage:	81.3%	15.8%	1.0%	0.1%	0.3%	1.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%			100%		
	Vehicle Occupants:	**2560**	**998**	**108**	**42**	**10**	**50**	**2**	**0**	**0**	**0**	**0**	**110**			**3878**		**Occ. 1.23**
PEAK HOUR																		
17:30 - 18:30	**Totals:**	**695**	**123**	**5**	**0**	**2**	**8**	**1**	**0**	**0**	**0**	**0**	**0**			**834**		
	Percentage:	83.4%	14.8%	0.6%	0.0%	0.2%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%			100%		
	Vehicle Occupants:	**695**	**247**	**16**	**0**	**2**	**10**	**1**	**0**	**0**	**0**	**0**	**19**			**989**		**Occ. 1.19**
MIN. HOURLY VOL.																		
15:00 - 16:00	**Totals:**	**560**	**140**	**5**	**3**	**6**	**15**	**0**	**0**	**0**	**0**	**0**	**0**			**729**		
	Percentage:	76.8%	19.2%	0.7%	0.4%	0.8%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			100%		
	Vehicle Occupants:	**560**	**280**	**17**	**32**	**6**	**18**	**0**	**0**	**0**	**0**	**0**	**0**			**913**		**Occ. 1.25**

HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
547					
17.4%					
131					
15.7%					
154					
21.1%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	SB	IS THERE AN EXISTING HOV LANE?	
TYPE:		N	Y or N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	BA,GJ,RL		
REMARKS:			

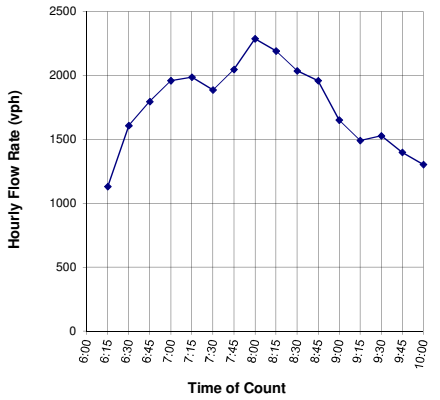
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES

			COUNT CLASSIFICATION																
VEHICLE TYPE			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15		ESTIMATED	240	32	2	3	0	6	1	0	0	0	0	0	1.24	**283**	1132	
6:15 - 6:30		ESTIMATED	343	44	3	0	3	9	0	0	0	0	0	0	1.14	**402**	1608	
6:30 - 6:45		ESTIMATED	391	50	3	0	0	5	0	0	0	0	0	0	1.14	**449**	1796	
6:45 - 7:00		ESTIMATED	406	69	4	1	0	10	0	0	0	0	0	0	1.20	**490**	1960	**1624**
7:00 - 7:15			442	47	2	0	0	6	0	0	0	0	0	0	1.11	**497**	1988	1838
7:15 - 7:30			390	71	2	0	0	8	0	0	0	0	1	0	1.20	**472**	1888	1908
7:30 - 7:45			462	41	2	0	0	7	0	0	0	0	0	0	1.09	**512**	2048	1971
7:45 - 8:00			513	50	0	0	0	7	0	0	1	0	0	1	1.16	**572**	2288	**2053**
8:00 - 8:15			479	56	5	2	0	6	1	0	0	0	0	0	1.16	**548**	2192	2104
8:15 - 8:30			426	72	3	0	2	5	0	0	0	0	1	0	1.19	**509**	2036	2141
8:30 - 8:45			403	74	7	0	1	5	0	0	0	0	0	0	1.19	**490**	1960	2119
8:45 - 9:00			338	65	2	0	1	6	0	0	1	0	0	0	1.18	**413**	1652	**1960**
9:00 - 9:15			298	61	7	0	0	7	0	0	0	0	0	0	1.21	**373**	1492	1785
9:15 - 9:30			304	67	4	0	1	6	0	0	0	0	0	0	1.20	**382**	1528	1658
9:30 - 9:45			270	59	6	0	0	14	0	0	1	0	0	0	1.23	**350**	1400	1518
9:45 - 10:00			256	63	2	0	1	4	1	0	0	0	0	0	1.21	**326**	1304	**1431**
PEAK PERIOD																		
6:00 - 10:00	**Totals:**		**5962**	**919**	**53**	**6**	**9**	**111**	**3**	**0**	**4**	**0**	**3**	**1**		**7068**		
	Percentage:		84.4%	13.0%	0.8%	0.1%	0.1%	1.6%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:		**5962**	**1838**	**182**	**63**	**9**	**133**	**3**	**0**	**15**	**0**	**50**	**49**		**8301**		**Occ. 1.17**
PEAK HOUR																		
7:30 - 8:30	**Totals:**		**1880**	**219**	**10**	**2**	**2**	**25**	**1**	**0**	**1**	**0**	**1**	**1**		**2141**		
	Percentage:		87.8%	10.2%	0.5%	0.1%	0.1%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:		**1880**	**438**	**34**	**21**	**2**	**30**	**1**	**0**	**4**	**0**	**20**	**40**		**2469**		**Occ. 1.15**
MIN. HOURLY VOL.																		
9:00 - 10:00	**Totals:**		**1128**	**250**	**19**	**0**	**2**	**31**	**1**	**0**	**1**	**0**	**0**	**0**		**1431**		
	Percentage:		78.8%	17.5%	1.3%	0.0%	0.1%	2.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:		**1128**	**500**	**65**	**0**	**2**	**37**	**1**	**0**	**4**	**0**	**0**	**0**		**1736**		**Occ. 1.21**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
995					
14.1%					
236					
11.0%					
272					
19.0%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	SB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	BA,GJ,RL		
REMARKS:			

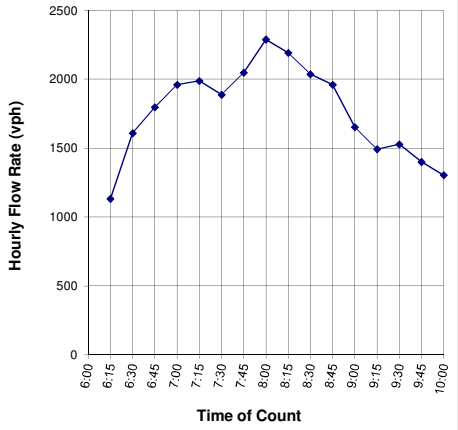
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	240	32	2	3	0	6	1	0	0	0	0	0	1.24	**283**	1132	
6:15 - 6:30	ESTIMATED	343	44	3	0	3	9	0	0	0	0	0	0	1.14	**402**	1608	
6:30 - 6:45	ESTIMATED	391	50	3	0	0	5	0	0	0	0	0	0	1.14	**449**	1796	
6:45 - 7:00	ESTIMATED	406	69	4	1	0	10	0	0	0	0	0	0	1.20	**490**	1960	1624
7:00 - 7:15		442	47	2	0	0	6	0	0	0	0	0	0	1.11	**497**	1988	1838
7:15 - 7:30		390	71	2	0	0	8	0	0	0	0	1	0	1.20	**472**	1888	1908
7:30 - 7:45		462	41	2	0	0	7	0	0	0	0	0	0	1.09	**512**	2048	1971
7:45 - 8:00		513	50	0	0	0	7	0	0	1	0	0	1	1.16	**572**	2288	2053
8:00 - 8:15		479	56	5	2	0	6	1	0	0	0	0	0	1.16	**548**	2192	2104
8:15 - 8:30		426	72	3	0	2	5	0	0	0	0	1	0	1.19	**509**	2036	2141
8:30 - 8:45		403	74	7	0	1	5	0	0	0	0	0	0	1.19	**490**	1960	2119
8:45 - 9:00		338	65	2	0	1	6	0	0	1	0	0	0	1.18	**413**	1652	1960
9:00 - 9:15		298	61	7	0	0	7	0	0	0	0	0	0	1.21	**373**	1492	1785
9:15 - 9:30		304	67	4	0	1	6	0	0	0	0	0	0	1.20	**382**	1528	1658
9:30 - 9:45		270	59	6	0	0	14	0	0	1	0	0	0	1.23	**350**	1400	1518
9:45 - 10:00		256	63	2	0	1	4	1	0	0	0	0	0	1.21	**326**	1304	1431
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**5962**	**919**	**53**	**6**	**9**	**111**	**3**	**0**	**4**	**0**	**3**	**1**		**7068**		
	Percentage:	84.4%	13.0%	0.8%	0.1%	0.1%	1.6%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**5962**	**1838**	**182**	**63**	**9**	**133**	**3**	**0**	**15**	**0**	**50**	**49**		**8301**		**Occ. 1.17**
PEAK HOUR																	
7:30 - 8:30	**Totals:**	**1880**	**219**	**10**	**2**	**2**	**25**	**1**	**0**	**1**	**0**	**1**	**1**		**2141**		
	Percentage:	87.8%	10.2%	0.5%	0.1%	0.1%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**1880**	**438**	**34**	**21**	**2**	**30**	**1**	**0**	**4**	**0**	**20**	**40**		**2469**		**Occ. 1.15**
MIN. HOURLY VOL.																	
9:00 - 10:00	**Totals:**	**1128**	**250**	**19**	**0**	**2**	**31**	**1**	**0**	**1**	**0**	**0**	**0**		**1431**		
	Percentage:	78.8%	17.5%	1.3%	0.0%	0.1%	2.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**1128**	**500**	**65**	**0**	**2**	**37**	**1**	**0**	**4**	**0**	**0**	**0**		**1736**		**Occ. 1.21**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
995					
14.1%					
236					
11.0%					
272					
19.0%					

AM/PM PEAK:	**AM**	**TIME INTERVAL FOR COUNT**	
COUNTY-RTE:	**65**	**15**	**OUT OF 15 MINUTES**
LOCATION:	**Twelve Bridges Drive**		
DIRECTION:	**SB**	**IS THERE AN EXISTING HOV LANE?**	
TYPE:	**0**	**N**	**Y/ N**
NO. LANES COUNTED:	**2**		
DATE:	**2/8/2012**	**HOW MANY HOURS IN COUNT?**	
START TIME:	**6:00**	**4**	**3 or 4**
END TIME:	**10:00**		
WEATHER:	**clear**	**DAY:**	**Wednesday**
RECORDER(S):	**BA,GJ,RL**		
REMARKS:			

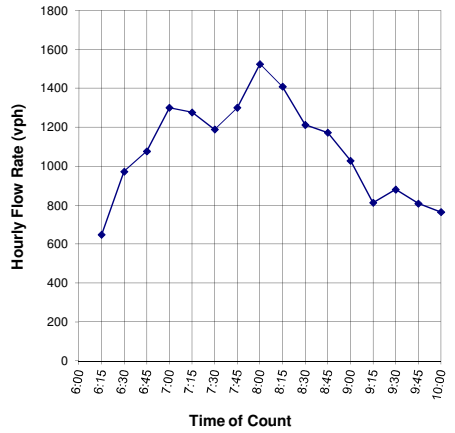
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

			COUNT CLASSIFICATION																
VEHICLE TYPE			**CARS**			**MISC**					**BUSES**				**OCC.**	**(15/15) TOTAL COUNTS**	**FLOW RATE (vph)**	**HOURLY VOL**
TIME			**1**	**2**	**3+**	**VP**	**MC**	**TRK**	**CHP**	**CLN AIR**	**EMP**	**QTR**	**HALF**	**FULL**				
6:00 - 6:15		ESTIMATED	141	18	1	2	0	0	1	0	0	0	0	0	1.24	**162**	648	
6:15 - 6:30		ESTIMATED	213	27	1	0	1	0	0	0	0	0	0	0	1.13	**243**	972	
6:30 - 6:45		ESTIMATED	237	30	2	0	0	0	0	0	0	0	0	0	1.13	**269**	1076	
6:45 - 7:00		ESTIMATED	282	41	2	0	0	0	0	0	0	0	0	0	1.14	**325**	1300	999
7:00 - 7:15			293	25	1	0	0	0	0	0	0	0	0	0	1.09	**319**	1276	1156
7:15 - 7:30			254	40	2	0	0	1	0	0	0	0	0	0	1.15	**297**	1188	1210
7:30 - 7:45			291	33	1	0	0	0	0	0	0	0	0	0	1.11	**325**	1300	1266
7:45 - 8:00			337	44	0	0	0	0	0	0	0	0	0	0	1.12	**381**	1524	1322
8:00 - 8:15			308	41	2	1	0	0	1	0	0	0	0	0	1.16	**352**	1408	1355
8:15 - 8:30			247	53	2	0	1	0	0	0	0	0	0	0	1.19	**303**	1212	1361
8:30 - 8:45			234	54	5	0	0	0	0	0	0	0	0	0	1.23	**293**	1172	1329
8:45 - 9:00			223	32	2	0	0	0	0	0	0	0	0	0	1.14	**257**	1028	1205
9:00 - 9:15			167	32	3	0	0	1	0	0	0	0	0	0	1.19	**203**	812	1056
9:15 - 9:30			179	37	2	0	1	1	0	0	0	0	0	0	1.19	**220**	880	973
9:30 - 9:45			166	33	1	0	0	2	0	0	0	0	0	0	1.18	**202**	808	882
9:45 - 10:00			154	35	1	0	1	0	0	0	0	0	0	0	1.20	**191**	764	816
PEAK PERIOD																		
6:00 - 10:00		**Totals:**	**3727**	**575**	**28**	**3**	**4**	**5**	**2**	**0**	**0**	**0**	**0**	**0**		**4342**		
		Percentage:	85.8%	13.3%	0.6%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**3727**	**1151**	**94**	**32**	**4**	**6**	**2**	**0**	**0**	**0**	**0**	**0**		**5014**		**1.15**
PEAK HOUR																		
7:30 - 8:30		**Totals:**	**1183**	**171**	**5**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**		**1361**		
		Percentage:	86.9%	12.6%	0.4%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**1183**	**342**	**17**	**11**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**		**1554**		**1.14**
MIN. HOURLY VOL.																		
9:00 - 10:00		**Totals:**	**666**	**137**	**7**	**0**	**2**	**4**	**0**	**0**	**0**	**0**	**0**	**0**		**816**		
		Percentage:	81.6%	16.8%	0.9%	0.0%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
																		Occ.
		Vehicle Occupants:	**666**	**274**	**24**	**0**	**2**	**5**	**0**	**0**	**0**	**0**	**0**	**0**		**971**		**1.19**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
610					
14.1%					
178					
13.1%					
146					
17.9%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	SB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	6:00	4	3 or 4
END TIME:	10:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	BA,GJ,RL		
REMARKS:			

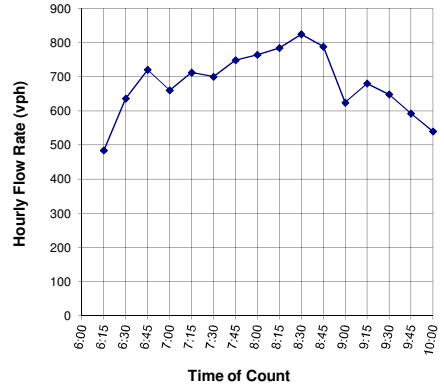
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
6:00 - 6:15	ESTIMATED	99	14	1	1	0	6	0	0	0	0	0	0	1.25	**121**	484	
6:15 - 6:30	ESTIMATED	130	16	1	0	2	9	0	0	0	0	0	0	1.17	**159**	636	
6:30 - 6:45	ESTIMATED	154	19	1	0	0	5	0	0	0	0	0	0	1.17	**180**	720	
6:45 - 7:00	ESTIMATED	124	28	2	1	0	10	0	0	0	0	0	0	1.30	**165**	660	625
7:00 - 7:15		149	22	1	0	0	6	0	0	0	0	0	0	1.14	**178**	712	682
7:15 - 7:30		136	31	0	0	0	7	0	0	0	0	1	0	1.29	**175**	700	698
7:30 - 7:45		171	8	1	0	0	7	0	0	0	0	0	0	1.06	**187**	748	705
7:45 - 8:00		176	6	0	0	0	7	0	0	1	0	0	1	1.26	**191**	764	731
8:00 - 8:15		171	15	3	1	0	6	0	0	0	0	0	0	1.17	**196**	784	749
8:15 - 8:30		179	19	1	0	1	5	0	0	0	0	1	0	1.20	**206**	824	780
8:30 - 8:45		169	20	2	0	1	5	0	0	0	0	0	0	1.13	**197**	788	790
8:45 - 9:00		115	33	0	0	1	6	0	0	1	0	0	0	1.24	**156**	624	755
9:00 - 9:15		131	29	4	0	0	6	0	0	0	0	0	0	1.23	**170**	680	729
9:15 - 9:30		125	30	2	0	0	5	0	0	0	0	0	0	1.22	**162**	648	685
9:30 - 9:45		104	26	5	0	0	12	0	0	1	0	0	0	1.29	**148**	592	636
9:45 - 10:00		102	28	1	0	0	4	1	0	0	0	0	0	1.23	**135**	540	615
PEAK PERIOD																	
6:00 - 10:00	**Totals:**	**2235**	**344**	**26**	**3**	**5**	**106**	**1**	**0**	**4**	**0**	**2**	**1**		**2726**		
	Percentage:	82.0%	12.6%	0.9%	0.1%	0.2%	3.9%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**2235**	**688**	**87**	**32**	**5**	**127**	**1**	**0**	**15**	**0**	**50**	**50**		**3288**		**1.21**
PEAK HOUR																	
7:45 - 8:45	**Totals:**	**695**	**60**	**6**	**1**	**2**	**23**	**0**	**0**	**1**	**0**	**1**	**1**		**790**		
	Percentage:	88.0%	7.6%	0.8%	0.1%	0.3%	2.9%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**695**	**120**	**20**	**11**	**2**	**28**	**0**	**0**	**4**	**0**	**20**	**40**		**940**		**1.19**
MIN. HOURLY VOL.																	
9:00 - 10:00	**Totals:**	**462**	**113**	**12**	**0**	**0**	**27**	**1**	**0**	**1**	**0**	**0**	**0**		**615**		
	Percentage:	75.1%	18.4%	2.0%	0.0%	0.0%	4.4%	0.2%	0.0%	0.2%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**462**	**226**	**41**	**0**	**0**	**32**	**1**	**0**	**4**	**0**	**0**	**0**		**765**		**1.24**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
385					
14.1%					
72					
9.1%					
126					
20.5%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	SB	IS THERE AN EXISTING HOV LANE?	
TYPE:		N	Y or N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	BA,GJ,RL		
REMARKS:			

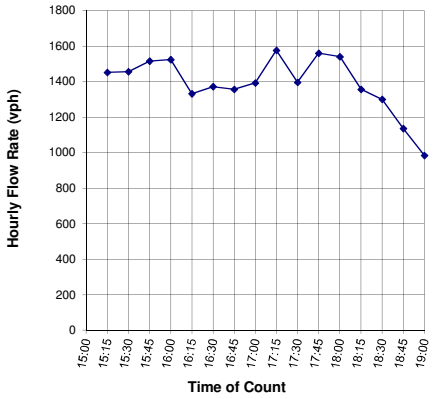
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

ALL LANES

		COUNT CLASSIFICATION																
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		255	79	24	0	1	4	0	0	0	0	0	0	1.38	**363**	1452	
15:15 - 15:30		239	92	28	0	1	4	0	0	0	0	0	0	1.44	**364**	1456	
15:30 - 15:45		255	88	21	0	4	10	0	0	1	0	0	0	1.38	**379**	1516	
15:45 - 16:00		249	100	23	0	2	7	0	0	0	0	0	0	1.41	**381**	1524	**1487**
16:00 - 16:15		240	72	15	1	0	4	0	0	1	0	0	0	1.36	**333**	1332	1457
16:15 - 16:30		252	75	14	1	1	0	0	0	0	0	0	0	1.34	**343**	1372	1436
16:30 - 16:45		242	76	18	0	1	2	0	0	0	0	0	0	1.35	**339**	1356	1396
16:45 - 17:00		254	69	17	1	1	6	0	0	0	0	0	0	1.35	**348**	1392	**1363**
17:00 - 17:15		249	106	32	1	3	3	0	0	0	0	0	0	1.49	**394**	1576	1424
17:15 - 17:30		246	80	17	1	1	4	0	0	0	0	0	0	1.38	**349**	1396	1430
17:30 - 17:45		270	103	12	0	0	3	0	0	1	0	0	1	1.45	**390**	1560	1481
17:45 - 18:00		266	104	7	1	2	5	0	0	0	0	0	0	1.34	**385**	1540	**1518**
18:00 - 18:15	ESTIMATED	199	123	12	0	0	4	1	0	0	0	0	0	1.46	**339**	1356	1463
18:15 - 18:30	ESTIMATED	239	68	13	0	1	4	0	0	0	0	0	0	1.32	**325**	1300	1439
18:30 - 18:45	ESTIMATED	206	58	11	0	3	5	0	0	0	0	0	0	1.31	**284**	1136	1333
18:45 - 19:00	ESTIMATED	179	51	10	0	1	5	0	0	0	0	0	0	1.32	**246**	984	**1194**
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**3840**	**1344**	**274**	**6**	**22**	**70**	**1**	**0**	**4**	**0**	**0**	**1**		**5562**		
	Percentage:	69.0%	24.2%	4.9%	0.1%	0.4%	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**3840**	**2689**	**933**	**63**	**22**	**84**	**1**	**0**	**15**	**0**	**0**	**49**		**7695**		**1.38**
PEAK HOUR																	
17:00 - 18:00	**Totals:**	**1031**	**393**	**68**	**3**	**6**	**15**	**0**	**0**	**1**	**0**	**0**	**1**		**1518**		
	Percentage:	67.9%	25.9%	4.5%	0.2%	0.4%	1.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**1031**	**786**	**231**	**32**	**6**	**18**	**0**	**0**	**4**	**0**	**0**	**40**		**2148**		**1.41**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**823**	**300**	**46**	**0**	**5**	**18**	**1**	**0**	**1**	**0**	**0**	**0**		**1194**		
	Percentage:	69.0%	25.2%	3.9%	0.0%	0.4%	1.5%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**823**	**601**	**158**	**0**	**5**	**22**	**1**	**0**	**3**	**0**	**0**	**9**		**1620**		**1.36**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1652					
29.7%					
472					
31.1%					
353					
29.5%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	SB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	BA,GJ,RL		
REMARKS:			

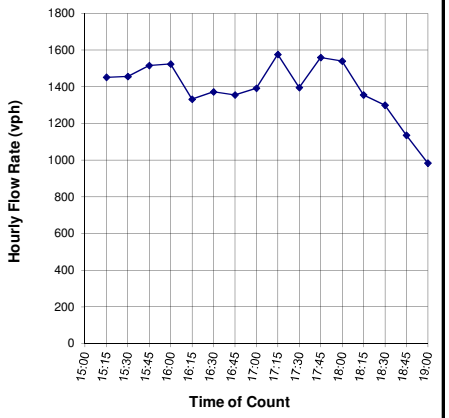
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

MIXED FLOW ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		255	79	24	0	1	4	0	0	0	0	0	0	1.38	**363**	1452	
15:15 - 15:30		239	92	28	0	1	4	0	0	0	0	0	0	1.44	**364**	1456	
15:30 - 15:45		255	88	21	0	4	10	0	0	1	0	0	0	1.38	**379**	1516	
15:45 - 16:00		249	100	23	0	2	7	0	0	0	0	0	0	1.41	**381**	1524	1487
16:00 - 16:15		240	72	15	1	0	4	0	0	1	0	0	0	1.36	**333**	1332	1457
16:15 - 16:30		252	75	14	1	1	0	0	0	0	0	0	0	1.34	**343**	1372	1436
16:30 - 16:45		242	76	18	0	1	2	0	0	0	0	0	0	1.35	**339**	1356	1396
16:45 - 17:00		254	69	17	1	1	6	0	0	0	0	0	0	1.35	**348**	1392	1363
17:00 - 17:15		249	106	32	1	3	3	0	0	0	0	0	0	1.49	**394**	1576	1424
17:15 - 17:30		246	80	17	1	1	4	0	0	0	0	0	0	1.38	**349**	1396	1430
17:30 - 17:45		270	103	12	0	0	3	0	0	1	0	0	1	1.45	**390**	1560	1481
17:45 - 18:00		266	104	7	1	2	5	0	0	0	0	0	0	1.34	**385**	1540	1518
18:00 - 18:15	ESTIMATED	199	123	12	0	0	4	1	0	0	0	0	0	1.46	**339**	1356	1463
18:15 - 18:30	ESTIMATED	239	68	13	0	1	4	0	0	0	0	0	0	1.32	**325**	1300	1439
18:30 - 18:45	ESTIMATED	206	58	11	0	3	5	0	0	0	0	0	0	1.31	**284**	1136	1333
18:45 - 19:00	ESTIMATED	179	51	10	0	1	5	0	0	0	0	0	0	1.32	**246**	984	1194
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**3840**	**1344**	**274**	**6**	**22**	**70**	**1**	**0**	**4**	**0**	**0**	**1**		**5562**		
	Percentage:	69.0%	24.2%	4.9%	0.1%	0.4%	1.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**3840**	**2689**	**933**	**63**	**22**	**84**	**1**	**0**	**15**	**0**	**0**	**49**		**7695**		**Occ. 1.38**
PEAK HOUR																	
17:00 - 18:00	**Totals:**	**1031**	**393**	**68**	**3**	**6**	**15**	**0**	**0**	**1**	**0**	**0**	**1**		**1518**		
	Percentage:	67.9%	25.9%	4.5%	0.2%	0.4%	1.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%		100%		
	Vehicle Occupants:	**1031**	**786**	**231**	**32**	**6**	**18**	**0**	**0**	**4**	**0**	**0**	**40**		**2148**		**Occ. 1.41**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**823**	**300**	**46**	**0**	**5**	**18**	**1**	**0**	**1**	**0**	**0**	**0**		**1194**		
	Percentage:	69.0%	25.2%	3.9%	0.0%	0.4%	1.5%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
	Vehicle Occupants:	**823**	**601**	**158**	**0**	**5**	**22**	**1**	**0**	**3**	**0**	**0**	**9**		**1620**		**Occ. 1.36**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
1652 **29.7%**					
472 **31.1%**					
353 **29.5%**					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	SB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	BA,GJ,RL		
REMARKS:			

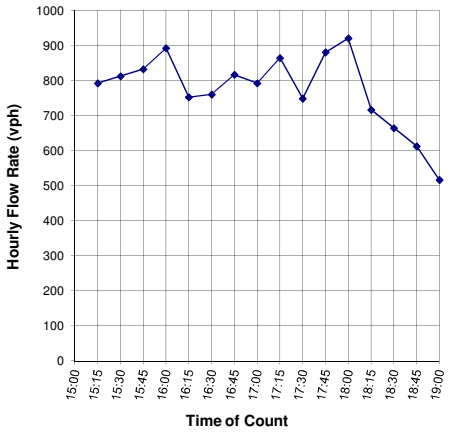
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #1 ONLY
HOV LANE

VEHICLE TYPE			COUNT CLASSIFICATION															
			CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME			1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 -	15:15		134	47	15	0	1	1	0	0	0	0	0	0	1.42	**198**	792	
15:15 -	15:30		142	43	16	0	1	1	0	0	0	0	0	0	1.40	**203**	812	
15:30 -	15:45		147	48	9	0	2	1	0	0	1	0	0	0	1.35	**208**	832	
15:45 -	16:00		142	69	10	0	1	1	0	0	0	0	0	0	1.42	**223**	892	832
16:00 -	16:15		143	36	8	1	0	0	0	0	0	0	0	0	1.34	**188**	752	822
16:15 -	16:30		147	41	1	1	0	0	0	0	0	0	0	0	1.28	**190**	760	809
16:30 -	16:45		152	42	9	0	1	0	0	0	0	0	0	0	1.31	**204**	816	805
16:45 -	17:00		147	40	8	1	0	2	0	0	0	0	0	0	1.35	**198**	792	780
17:00 -	17:15		132	58	22	1	3	0	0	0	0	0	0	0	1.56	**216**	864	808
17:15 -	17:30		140	41	3	1	1	1	0	0	0	0	0	0	1.31	**187**	748	805
17:30 -	17:45		168	50	2	0	0	0	0	0	0	0	0	0	1.25	**220**	880	821
17:45 -	18:00		172	52	3	1	2	0	0	0	0	0	0	0	1.30	**230**	920	853
18:00 -	18:15	ESTIMATED	112	62	5	0	0	0	1	0	0	0	0	0	1.41	**179**	716	816
18:15 -	18:30	ESTIMATED	127	33	5	0	1	0	0	0	0	0	0	0	1.28	**166**	664	795
18:30 -	18:45	ESTIMATED	115	30	5	0	2	1	0	0	0	0	0	0	1.27	**153**	612	728
18:45 -	19:00	ESTIMATED	99	26	4	0	0	0	0	0	0	0	0	0	1.28	**129**	516	627
PEAK PERIOD																		
15:00 -	**19:00**	**Totals:**	**2218**	**719**	**125**	**6**	**15**	**8**	**1**	**0**	**1**	**0**	**0**	**0**		**3092**		
		Percentage:	71.7%	23.2%	4.0%	0.2%	0.5%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**2218**	**1437**	**424**	**63**	**15**	**10**	**1**	**0**	**5**	**0**	**0**	**0**		**4172**		**Occ. 1.35**
PEAK HOUR																		
17:00 -	**18:00**	**Totals:**	**612**	**201**	**30**	**3**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**		**853**		
		Percentage:	71.7%	23.6%	3.5%	0.4%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**612**	**402**	**102**	**32**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**0**		**1155**		**Occ. 1.35**
MIN. HOURLY VOL.																		
18:00 -	**19:00**	**Totals:**	**452**	**152**	**19**	**0**	**3**	**1**	**1**	**0**	**0**	**0**	**0**	**0**		**627**		
		Percentage:	72.2%	24.2%	3.0%	0.0%	0.5%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%		100%		
		Vehicle Occupants:	**452**	**303**	**64**	**0**	**3**	**1**	**1**	**0**	**1**	**0**	**0**	**0**		**824**		**Occ. 1.31**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
866					
28.0%					
240					
28.1%					
174					
27.7%					

AM/PM PEAK:	AM	TIME INTERVAL FOR COUNT	
COUNTY-RTE:	65	15	OUT OF 15 MINUTES
LOCATION:	Twelve Bridges Drive		
DIRECTION:	SB	IS THERE AN EXISTING HOV LANE?	
TYPE:	0	N	Y/ N
NO. LANES COUNTED:	2		
DATE:	2/8/2012	HOW MANY HOURS IN COUNT?	
START TIME:	15:00	4	3 or 4
END TIME:	19:00		
WEATHER:	clear	DAY:	Wednesday
RECORDER(S):	BA,GJ,RL		
REMARKS:			

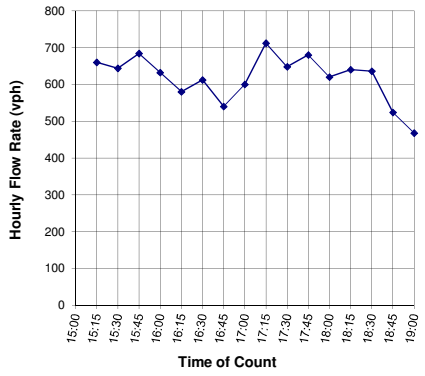
CALIFORNIA DEPARTMENT OF TRANPORTATION
DISTRICT 03-OFFICE OF TRAFFIC OPERATIONS, RANCHO CORDOVA

OCCUPANCY COUNT SHEET FOR

LANE #2 ONLY

		COUNT CLASSIFICATION															
VEHICLE TYPE		CARS			MISC					BUSES				OCC.	(15/15) TOTAL	FLOW RATE	HOURLY
TIME		1	2	3+	VP	MC	TRK	CHP	CLN AIR	EMP	QTR	HALF	FULL		COUNTS	(vph)	VOL
15:00 - 15:15		121	32	9	0	0	3	0	0	0	0	0	0	1.33	**165**	660	
15:15 - 15:30		97	49	12	0	0	3	0	0	0	0	0	0	1.49	**161**	644	
15:30 - 15:45		108	40	12	0	2	9	0	0	0	0	0	0	1.41	**171**	684	
15:45 - 16:00		107	31	13	0	1	6	0	0	0	0	0	0	1.40	**158**	632	655
16:00 - 16:15		97	36	7	0	0	4	0	0	1	0	0	0	1.39	**145**	580	635
16:15 - 16:30		105	34	13	0	1	0	0	0	0	0	0	0	1.43	**153**	612	627
16:30 - 16:45		90	34	9	0	0	2	0	0	0	0	0	0	1.41	**135**	540	591
16:45 - 17:00		107	29	9	0	1	4	0	0	0	0	0	0	1.34	**150**	600	583
17:00 - 17:15		117	48	10	0	0	3	0	0	0	0	0	0	1.41	**178**	712	616
17:15 - 17:30		106	39	14	0	0	3	0	0	0	0	0	0	1.45	**162**	648	625
17:30 - 17:45		102	53	10	0	0	3	0	0	1	0	0	1	1.70	**170**	680	660
17:45 - 18:00		94	52	4	0	0	5	0	0	0	0	0	0	1.40	**155**	620	665
18:00 - 18:15	ESTIMATED	87	61	7	0	0	4	0	0	0	0	0	0	1.52	**160**	640	647
18:15 - 18:30	ESTIMATED	111	35	8	0	0	4	0	0	0	0	0	0	1.37	**159**	636	644
18:30 - 18:45	ESTIMATED	91	28	7	0	1	4	0	0	0	0	0	0	1.37	**131**	524	605
18:45 - 19:00	ESTIMATED	80	25	6	0	1	5	0	0	0	0	0	0	1.36	**117**	468	567
PEAK PERIOD																	
15:00 - 19:00	**Totals:**	**1620**	**627**	**151**	**0**	**7**	**62**	**0**	**0**	**3**	**0**	**0**	**1**		**2470**		
	Percentage:	65.6%	25.4%	6.1%	0.0%	0.3%	2.5%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%		100%		
																	Occ.
	Vehicle Occupants:	**1620**	**1254**	**512**	**0**	**7**	**74**	**0**	**0**	**10**	**0**	**0**	**49**		**3526**		**1.43**
PEAK HOUR																	
17:00 - 18:00	**Totals:**	**419**	**192**	**38**	**0**	**0**	**14**	**0**	**0**	**1**	**0**	**0**	**1**		**665**		
	Percentage:	63.0%	28.9%	5.7%	0.0%	0.0%	2.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%		100%		
																	Occ.
	Vehicle Occupants:	**419**	**384**	**129**	**0**	**0**	**17**	**0**	**0**	**4**	**0**	**0**	**40**		**993**		**1.49**
MIN. HOURLY VOL.																	
18:00 - 19:00	**Totals:**	**369**	**150**	**29**	**0**	**2**	**17**	**0**	**0**	**1**	**0**	**0**	**0**		**567**		
	Percentage:	65.1%	26.4%	5.0%	0.0%	0.4%	3.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%		100%		
																	Occ.
	Vehicle Occupants:	**369**	**300**	**97**	**0**	**2**	**20**	**0**	**0**	**2**	**0**	**0**	**9**		**799**		**1.41**

HOURLY FLOW RATES



HOV-RELATED INFORMATION

HOV's in the Lane(s)	HOVL Volume	%HOVL Vol. of Total Vol.	HOV'S in Mix Flow Lanes	Violators in the HOV Lane	Compliance of the Non-HOV's
788					
31.9%					
232					
34.9%					
181					
31.9%					

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-005 I-80 EB on from Auburn
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	Southbound				I-80 eastbound on-ramp from Auburn Blvd. Westbound				Northbound				I-80 eastbound on-ramp from Auburn Blvd. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Autos	Trucks	App. Total	Int. Total
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	50	5	55	55
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	68	5	73	73
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	94	4	98	98
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	108	3	111	111
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	320	17	337	337
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	124	5	129	129
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	160	8	168	168
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	218	4	222	222
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	232	6	238	238
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	734	23	757	757
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	187	3	190	190
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	177	6	183	183
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	174	4	178	178
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	156	6	162	162
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	694	19	713	713
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	164	5	169	169
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	114	6	120	120
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	133	2	135	135
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	140	3	143	143
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	551	16	567	567
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	175	2	177	177
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	181	3	184	184
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	169	3	172	172
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	172	2	174	174
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	697	10	707	707
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	200	1	201	201
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	192	2	194	194

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-005 I-80 EB on from Auburn
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	Southbound				I-80 eastbound on-ramp from Auburn Blvd. Westbound				Northbound				I-80 eastbound on-ramp from Auburn Blvd. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Autos	Trucks	App. Total	Int. Total
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	182	5	187	187
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	169	1	170	170
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	743	9	752	752
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	160	1	161	161
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	158	4	162	162
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	164	2	166	166
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	156	3	159	159
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	638	10	648	648
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	144	1	145	145
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	139	0	139	139
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	118	0	118	118
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	115	1	116	116
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	516	2	518	518
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	4893	106	4999	4999
Apprch %	0	0	0		0	0	0		0	0	0		0	97.9	2.1		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	97.9	2.1	100	

	Southbound				I-80 eastbound on-ramp from Auburn Blvd. Westbound				Northbound				I-80 eastbound on-ramp from Auburn Blvd. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Autos	Trucks	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	218	4	222	222
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	**232**	**6**	**238**	**238**
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	187	3	190	190
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	177	6	183	183
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	814	19	833	833
% App. Total	0	0	0		0	0	0		0	0	0		0	97.7	2.3		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.877	.792	.875	.875

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-005 I-80 EB on from Auburn
Site Code : 00000000
Start Date : 1/31/2012

	Southbound				I-80 eastbound on-ramp from Auburn Blvd. Westbound				Northbound				I-80 eastbound on-ramp from Auburn Blvd. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Autos	Trucks	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	172	2	174	174
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**200**	1	**201**	**201**
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	192	2	194	194
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	182	**5**	187	187
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	746	10	756	756
% App. Total	0	0	0		0	0	0		0	0	0		0	98.7	1.3		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.933	.500	.940	.940

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-004 I-80 WB on from Taylor
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	Southbound				I-80 westbound on-ramp from Taylor Road Westbound				Northbound				I-80 westbound on-ramp from Taylor Road Eastbound				
Start Time	Left	Thru	Right	App. Total		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	0	0	0	73	1	74	0	0	0	0	0	0	0	0	74
06:15	0	0	0	0	0	95	2	97	0	0	0	0	0	0	0	0	97
06:30	0	0	0	0	0	105	1	106	0	0	0	0	0	0	0	0	106
06:45	0	0	0	0	0	127	3	130	0	0	0	0	0	0	0	0	130
Total	0	0	0	0	0	400	7	407	0	0	0	0	0	0	0	0	407
07:00	0	0	0	0	0	161	0	161	0	0	0	0	0	0	0	0	161
07:15	0	0	0	0	0	133	0	133	0	0	0	0	0	0	0	0	133
07:30	0	0	0	0	0	132	3	135	0	0	0	0	0	0	0	0	135
07:45	0	0	0	0	0	127	1	128	0	0	0	0	0	0	0	0	128
Total	0	0	0	0	0	553	4	557	0	0	0	0	0	0	0	0	557
08:00	0	0	0	0	0	139	1	140	0	0	0	0	0	0	0	0	140
08:15	0	0	0	0	0	120	4	124	0	0	0	0	0	0	0	0	124
08:30	0	0	0	0	0	107	4	111	0	0	0	0	0	0	0	0	111
08:45	0	0	0	0	0	90	6	96	0	0	0	0	0	0	0	0	96
Total	0	0	0	0	0	456	15	471	0	0	0	0	0	0	0	0	471
09:00	0	0	0	0	0	92	4	96	0	0	0	0	0	0	0	0	96
09:15	0	0	0	0	0	119	3	122	0	0	0	0	0	0	0	0	122
09:30	0	0	0	0	0	93	0	93	0	0	0	0	0	0	0	0	93
09:45	0	0	0	0	0	88	3	91	0	0	0	0	0	0	0	0	91
Total	0	0	0	0	0	392	10	402	0	0	0	0	0	0	0	0	402
15:00	0	0	0	0	0	92	0	92	0	0	0	0	0	0	0	0	92
15:15	0	0	0	0	0	111	1	112	0	0	0	0	0	0	0	0	112
15:30	0	0	0	0	0	104	0	104	0	0	0	0	0	0	0	0	104
15:45	0	0	0	0	0	112	0	112	0	0	0	0	0	0	0	0	112
Total	0	0	0	0	0	419	1	420	0	0	0	0	0	0	0	0	420
16:00	0	0	0	0	0	105	1	106	0	0	0	0	0	0	0	0	106
16:15	0	0	0	0	0	100	2	102	0	0	0	0	0	0	0	0	102

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-004 I-80 WB on from Taylor
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	Southbound				I-80 westbound on-ramp from Taylor Road Westbound				Northbound				I-80 westbound on-ramp from Taylor Road Eastbound				
Start Time	Left	Thru	Right	App. Total		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:30	0	0	0	0	0	110	0	110	0	0	0	0	0	0	0	0	110
16:45	0	0	0	0	0	117	3	120	0	0	0	0	0	0	0	0	120
Total	0	0	0	0	0	432	6	438	0	0	0	0	0	0	0	0	438
17:00	0	0	0	0	0	139	0	139	0	0	0	0	0	0	0	0	139
17:15	0	0	0	0	0	122	0	122	0	0	0	0	0	0	0	0	122
17:30	0	0	0	0	0	101	1	102	0	0	0	0	0	0	0	0	102
17:45	0	0	0	0	0	97	0	97	0	0	0	0	0	0	0	0	97
Total	0	0	0	0	0	459	1	460	0	0	0	0	0	0	0	0	460
18:00	0	0	0	0	0	84	1	85	0	0	0	0	0	0	0	0	85
18:15	0	0	0	0	0	81	0	81	0	0	0	0	0	0	0	0	81
18:30	0	0	0	0	0	60	0	60	0	0	0	0	0	0	0	0	60
18:45	0	0	0	0	0	59	1	60	0	0	0	0	0	0	0	0	60
Total	0	0	0	0	0	284	2	286	0	0	0	0	0	0	0	0	286
Grand Total	0	0	0	0	0	3395	46	3441	0	0	0	0	0	0	0	0	3441
Apprch %	0	0	0		0	98.7	1.3		0	0	0		0	0	0		
Total %	0	0	0	0	0	98.7	1.3	100	0	0	0	0	0	0	0	0	

	Southbound				I-80 westbound on-ramp from Taylor Road Westbound				Northbound				I-80 westbound on-ramp from Taylor Road Eastbound				
Start Time	Left	Thru	Right	App. Total		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45																	
06:45	0	0	0	0	0	127	**3**	130	0	0	0	0	0	0	0	0	130
07:00	0	0	0	0	0	**161**	0	**161**	0	0	0	0	0	0	0	0	**161**
07:15	0	0	0	0	0	133	0	133	0	0	0	0	0	0	0	0	133
07:30	0	0	0	0	0	132	3	135	0	0	0	0	0	0	0	0	135
Total Volume	0	0	0	0	0	553	6	559	0	0	0	0	0	0	0	0	559
% App. Total	0	0	0		0	98.9	1.1		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.859	.500	.868	.000	.000	.000	.000	.000	.000	.000	.000	.868

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-004 I-80 WB on from Taylor
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3

	Southbound				I-80 westbound on-ramp from Taylor Road Westbound				Northbound				I-80 westbound on-ramp from Taylor Road Eastbound				
Start Time	Left	Thru	Right	App. Total		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	0	0	0	0	110	0	110	0	0	0	0	0	0	0	0	110
16:45	0	0	0	0	0	117	**3**	120	0	0	0	0	0	0	0	0	120
17:00	0	0	0	0	0	**139**	0	**139**	0	0	0	0	0	0	0	0	**139**
17:15	0	0	0	0	0	122	0	122	0	0	0	0	0	0	0	0	122
Total Volume	0	0	0	0	0	488	3	491	0	0	0	0	0	0	0	0	491
% App. Total	0	0	0		0	99.4	0.6		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.878	.250	.883	.000	.000	.000	.000	.000	.000	.000	.000	.883

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-003 I-80 EB off to Taylor
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	Southbound				I-80 eastbound off-ramp to Taylor Road Westbound				Northbound				I-80 eastbound off-ramp to Taylor Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Autos	Trucks	App. Total	Int. Total
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	14	14
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	20	20
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	33	1	34	34
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0	44	44
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	111	1	112	112
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	35	2	37	37
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	42	1	43	43
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	45	2	47	47
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	65	1	66	66
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	187	6	193	193
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	62	62
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	56	1	57	57
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0	44	44
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	62	1	63	63
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	224	2	226	226
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	62	62
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	44	1	45	45
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	57	3	60	60
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	44	2	46	46
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	207	6	213	213
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	80	4	84	84
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	95	1	96	96
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	88	1	89	89
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	119	1	120	120
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	382	7	389	389
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	115	1	116	116
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	107	0	107	107

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-003 I-80 EB off to Taylor
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	Southbound				I-80 eastbound off-ramp to Taylor Road Westbound				Northbound				I-80 eastbound off-ramp to Taylor Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Autos	Trucks	App. Total	Int. Total
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	112	2	114	114
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	113	0	113	113
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	447	3	450	450
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	130	0	130	130
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	165	0	165	165
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	136	1	137	137
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	136	0	136	136
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	567	1	568	568
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	115	0	115	115
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	105	0	105	105
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	100	2	102	102
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	79	1	80	80
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	399	3	402	402
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	2524	29	2553	2553
Apprch %	0	0	0		0	0	0		0	0	0		0	98.9	1.1		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	98.9	1.1	100	

	Southbound				I-80 eastbound off-ramp to Taylor Road Westbound				Northbound				I-80 eastbound off-ramp to Taylor Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Autos	Trucks	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	45	**2**	47	47
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	**65**	1	**66**	**66**
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	62	62
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	56	1	57	57
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	228	4	232	232
% App. Total	0	0	0		0	0	0		0	0	0		0	98.3	1.7		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.877	.500	.879	.879

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-003 I-80 EB off to Taylor
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3

	Southbound				I-80 eastbound off-ramp to Taylor Road Westbound				Northbound				I-80 eastbound off-ramp to Taylor Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Autos	Trucks	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	130	0	130	130
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	**165**	0	**165**	**165**
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	136	**1**	137	137
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	136	0	136	136
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	567	1	568	568
% App. Total	0	0	0		0	0	0		0	0	0		0	99.8	0.2		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.859	.250	.861	.861

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-002 SR-65 SB to I-80 WB
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	SR-65 southbound to I-80 westbound Southbound				Westbound				SR-65 southbound to I-80 westbound Northbound				Eastbound				
Start Time		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	549	6	555	0	0	0	0	0	0	0	0	0	0	0	0	555
06:15	0	773	13	786	0	0	0	0	0	0	0	0	0	0	0	0	786
06:30	0	803	12	815	0	0	0	0	0	0	0	0	0	0	0	0	815
06:45	0	814	18	832	0	0	0	0	0	0	0	0	0	0	0	0	832
Total	0	2939	49	2988	0	0	0	0	0	0	0	0	0	0	0	0	2988
07:00	0	804	20	824	0	0	0	0	0	0	0	0	0	0	0	0	824
07:15	0	679	11	690	0	0	0	0	0	0	0	0	0	0	0	0	690
07:30	0	565	16	581	0	0	0	0	0	0	0	0	0	0	0	0	581
07:45	0	609	25	634	0	0	0	0	0	0	0	0	0	0	0	0	634
Total	0	2657	72	2729	0	0	0	0	0	0	0	0	0	0	0	0	2729
08:00	0	617	27	644	0	0	0	0	0	0	0	0	0	0	0	0	644
08:15	0	711	29	740	0	0	0	0	0	0	0	0	0	0	0	0	740
08:30	0	674	24	698	0	0	0	0	0	0	0	0	0	0	0	0	698
08:45	0	633	27	660	0	0	0	0	0	0	0	0	0	0	0	0	660
Total	0	2635	107	2742	0	0	0	0	0	0	0	0	0	0	0	0	2742
09:00	0	595	15	610	0	0	0	0	0	0	0	0	0	0	0	0	610
09:15	0	592	26	618	0	0	0	0	0	0	0	0	0	0	0	0	618
09:30	0	614	22	636	0	0	0	0	0	0	0	0	0	0	0	0	636
09:45	0	532	36	568	0	0	0	0	0	0	0	0	0	0	0	0	568
Total	0	2333	99	2432	0	0	0	0	0	0	0	0	0	0	0	0	2432
15:00	0	592	5	597	0	0	0	0	0	0	0	0	0	0	0	0	597
15:15	0	617	9	626	0	0	0	0	0	0	0	0	0	0	0	0	626
15:30	0	599	6	605	0	0	0	0	0	0	0	0	0	0	0	0	605
15:45	0	665	8	673	0	0	0	0	0	0	0	0	0	0	0	0	673
Total	0	2473	28	2501	0	0	0	0	0	0	0	0	0	0	0	0	2501
16:00	0	609	5	614	0	0	0	0	0	0	0	0	0	0	0	0	614
16:15	0	651	10	661	0	0	0	0	0	0	0	0	0	0	0	0	661

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-002 SR-65 SB to I-80 WB
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	SR-65 southbound to I-80 westbound Southbound				Westbound				SR-65 southbound to I-80 westbound Northbound				Eastbound				
Start Time		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:30	0	612	5	617	0	0	0	0	0	0	0	0	0	0	0	0	617
16:45	0	619	9	628	0	0	0	0	0	0	0	0	0	0	0	0	628
Total	0	2491	29	2520	0	0	0	0	0	0	0	0	0	0	0	0	2520
17:00	0	630	8	638	0	0	0	0	0	0	0	0	0	0	0	0	638
17:15	0	607	7	614	0	0	0	0	0	0	0	0	0	0	0	0	614
17:30	0	532	8	540	0	0	0	0	0	0	0	0	0	0	0	0	540
17:45	0	566	6	572	0	0	0	0	0	0	0	0	0	0	0	0	572
Total	0	2335	29	2364	0	0	0	0	0	0	0	0	0	0	0	0	2364
18:00	0	538	4	542	0	0	0	0	0	0	0	0	0	0	0	0	542
18:15	0	548	5	553	0	0	0	0	0	0	0	0	0	0	0	0	553
18:30	0	469	5	474	0	0	0	0	0	0	0	0	0	0	0	0	474
18:45	0	457	3	460	0	0	0	0	0	0	0	0	0	0	0	0	460
Total	0	2012	17	2029	0	0	0	0	0	0	0	0	0	0	0	0	2029
Grand Total	0	19875	430	20305	0	0	0	0	0	0	0	0	0	0	0	0	20305
Apprch %	0	97.9	2.1		0	0	0		0	0	0		0	0	0		
Total %	0	97.9	2.1	100	0	0	0	0	0	0	0	0	0	0	0	0	

	SR-65 southbound to I-80 westbound Southbound				Westbound				SR-65 southbound to I-80 westbound Northbound				Eastbound				
Start Time		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:15																	
06:15	0	773	13	786	0	0	0	0	0	0	0	0	0	0	0	0	786
06:30	0	803	12	815	0	0	0	0	0	0	0	0	0	0	0	0	815
06:45	0	**814**	18	**832**	0	0	0	0	0	0	0	0	0	0	0	0	**832**
07:00	0	804	**20**	824	0	0	0	0	0	0	0	0	0	0	0	0	824
Total Volume	0	3194	63	3257	0	0	0	0	0	0	0	0	0	0	0	0	3257
% App. Total	0	98.1	1.9		0	0	0		0	0	0		0	0	0		
PHF	.000	.981	.788	.979	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.979

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-002 SR-65 SB to I-80 WB
Site Code : 00000000
Start Date : 1/31/2012

	SR-65 southbound to I-80 westbound Southbound				Westbound				SR-65 southbound to I-80 westbound Northbound				Eastbound				
Start Time		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:45																	
15:45	0	**665**	8	**673**	0	0	0	0	0	0	0	0	0	0	0	0	**673**
16:00	0	609	5	614	0	0	0	0	0	0	0	0	0	0	0	0	614
16:15	0	651	**10**	661	0	0	0	0	0	0	0	0	0	0	0	0	661
16:30	0	612	5	617	0	0	0	0	0	0	0	0	0	0	0	0	617
Total Volume	0	2537	28	2565	0	0	0	0	0	0	0	0	0	0	0	0	2565
% App. Total	0	98.9	1.1		0	0	0		0	0	0		0	0	0		
PHF	.000	.954	.700	.953	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.953

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-001 I-80 EB to SR-65 NB
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	I-80 eastbound to SR-65 northbound								I-80 eastbound to SR-65 northbound								
	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	0	0	0	0	0	0	0	218	7	225	0	0	0	0	225
06:15	0	0	0	0	0	0	0	0	0	283	9	292	0	0	0	0	292
06:30	0	0	0	0	0	0	0	0	0	364	11	375	0	0	0	0	375
06:45	0	0	0	0	0	0	0	0	0	472	15	487	0	0	0	0	487
Total	0	0	0	0	0	0	0	0	0	1337	42	1379	0	0	0	0	1379
07:00	0	0	0	0	0	0	0	0	0	369	24	393	0	0	0	0	393
07:15	0	0	0	0	0	0	0	0	0	513	20	533	0	0	0	0	533
07:30	0	0	0	0	0	0	0	0	0	663	23	686	0	0	0	0	686
07:45	0	0	0	0	0	0	0	0	0	733	18	751	0	0	0	0	751
Total	0	0	0	0	0	0	0	0	0	2278	85	2363	0	0	0	0	2363
08:00	0	0	0	0	0	0	0	0	0	585	21	606	0	0	0	0	606
08:15	0	0	0	0	0	0	0	0	0	580	26	606	0	0	0	0	606
08:30	0	0	0	0	0	0	0	0	0	536	21	557	0	0	0	0	557
08:45	0	0	0	0	0	0	0	0	0	602	17	619	0	0	0	0	619
Total	0	0	0	0	0	0	0	0	0	2303	85	2388	0	0	0	0	2388
09:00	0	0	0	0	0	0	0	0	0	508	23	531	0	0	0	0	531
09:15	0	0	0	0	0	0	0	0	0	486	27	513	0	0	0	0	513
09:30	0	0	0	0	0	0	0	0	0	536	25	561	0	0	0	0	561
09:45	0	0	0	0	0	0	0	0	0	506	31	537	0	0	0	0	537
Total	0	0	0	0	0	0	0	0	0	2036	106	2142	0	0	0	0	2142
15:00	0	0	0	0	0	0	0	0	0	661	5	666	0	0	0	0	666
15:15	0	0	0	0	0	0	0	0	0	780	8	788	0	0	0	0	788
15:30	0	0	0	0	0	0	0	0	0	763	6	769	0	0	0	0	769
15:45	0	0	0	0	0	0	0	0	0	832	7	839	0	0	0	0	839
Total	0	0	0	0	0	0	0	0	0	3036	26	3062	0	0	0	0	3062
16:00	0	0	0	0	0	0	0	0	0	831	9	840	0	0	0	0	840
16:15	0	0	0	0	0	0	0	0	0	844	16	860	0	0	0	0	860
16:30	0	0	0	0	0	0	0	0	0	833	3	836	0	0	0	0	836

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-001 I-80 EB to SR-65 NB
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted

	I-80 eastbound to SR-65 northbound Southbound				Westbound				I-80 eastbound to SR-65 northbound Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	0	0	0	0	0	0	0	0	842	4	846	0	0	0	0	846
Total	0	0	0	0	0	0	0	0	0	3350	32	3382	0	0	0	0	3382
17:00	0	0	0	0	0	0	0	0	0	784	5	789	0	0	0	0	789
17:15	0	0	0	0	0	0	0	0	0	770	7	777	0	0	0	0	777
17:30	0	0	0	0	0	0	0	0	0	731	5	736	0	0	0	0	736
17:45	0	0	0	0	0	0	0	0	0	688	1	689	0	0	0	0	689
Total	0	0	0	0	0	0	0	0	0	2973	18	2991	0	0	0	0	2991
18:00	0	0	0	0	0	0	0	0	0	757	5	762	0	0	0	0	762
18:15	0	0	0	0	0	0	0	0	0	647	3	650	0	0	0	0	650
18:30	0	0	0	0	0	0	0	0	0	796	1	797	0	0	0	0	797
18:45	0	0	0	0	0	0	0	0	0	603	2	605	0	0	0	0	605
Total	0	0	0	0	0	0	0	0	0	2803	11	2814	0	0	0	0	2814
Grand Total	0	0	0	0	0	0	0	0	0	20116	405	20521	0	0	0	0	20521
Apprch %	0	0	0		0	0	0		0	98	2		0	0	0		
Total %	0	0	0	0	0	0	0	0	0	98	2	100	0	0	0	0	

	I-80 eastbound to SR-65 northbound Southbound				Westbound				I-80 eastbound to SR-65 northbound Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	0	0	0	0	663	23	686	0	0	0	0	686
07:45	0	0	0	0	0	0	0	0	0	**733**	18	**751**	0	0	0	0	**751**
08:00	0	0	0	0	0	0	0	0	0	585	21	606	0	0	0	0	606
08:15	0	0	0	0	0	0	0	0	0	580	**26**	606	0	0	0	0	606
Total Volume	0	0	0	0	0	0	0	0	0	2561	88	2649	0	0	0	0	2649
% App. Total	0	0	0		0	0	0		0	96.7	3.3		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.873	.846	.882	.000	.000	.000	.000	.882

All Traffic Data

(916) 771-8700

Placer County
7-10AM from 2/14/2012

File Name : 12-7002-001 I-80 EB to SR-65 NB
Site Code : 00000000
Start Date : 1/31/2012

	I-80 eastbound to SR-65 northbound Southbound				Westbound				I-80 eastbound to SR-65 northbound Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		Autos	Trucks	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:00																	
16:00	0	0	0	0	0	0	0	0	0	831	9	840	0	0	0	0	840
16:15	0	0	0	0	0	0	0	0	0	**844**	**16**	**860**	0	0	0	0	**860**
16:30	0	0	0	0	0	0	0	0	0	833	3	836	0	0	0	0	836
16:45	0	0	0	0	0	0	0	0	0	842	4	846	0	0	0	0	846
Total Volume	0	0	0	0	0	0	0	0	0	3350	32	3382	0	0	0	0	3382
% App. Total	0	0	0		0	0	0		0	99.1	0.9		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.992	.500	.983	.000	.000	.000	.000	.983

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-001 SR65-Sterling
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound				Sterling Parkway Westbound				SR-65 Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	185	0	185	147	0	0	147	0	143	19	162	0	0	0	0	494
06:15	1	241	0	242	213	0	1	214	0	154	29	183	0	0	0	0	639
06:30	0	237	0	237	261	0	0	261	0	150	45	195	0	0	0	0	693
06:45	2	330	0	332	201	0	3	204	0	180	57	237	0	0	0	0	773
Total	3	993	0	996	822	0	4	826	0	627	150	777	0	0	0	0	2599
07:00	0	270	0	270	275	0	3	278	0	191	47	238	0	0	0	0	786
07:15	0	325	0	325	251	0	1	252	0	218	54	272	0	0	0	0	849
07:30	2	345	0	347	275	0	2	277	0	196	50	246	0	0	0	0	870
07:45	4	438	0	442	255	0	4	259	0	328	103	431	0	0	0	0	1132
Total	6	1378	0	1384	1056	0	10	1066	0	933	254	1187	0	0	0	0	3637
08:00	4	351	0	355	255	0	10	265	0	235	103	338	0	0	0	0	958
08:15	7	336	0	343	259	0	1	260	0	204	86	290	0	0	0	0	893
08:30	7	321	0	328	227	0	5	232	0	224	89	313	0	0	0	0	873
08:45	7	288	0	295	179	0	4	183	0	228	83	311	0	0	0	0	789
Total	25	1296	0	1321	920	0	20	940	0	891	361	1252	0	0	0	0	3513
09:00	11	252	0	263	170	0	4	174	0	183	62	245	0	0	0	0	682
09:15	10	230	0	240	180	0	8	188	0	203	68	271	0	0	0	0	699
09:30	7	279	0	286	172	0	7	179	0	193	64	257	0	0	0	0	722
09:45	16	260	0	276	120	0	6	126	0	212	78	290	0	0	0	0	692
Total	44	1021	0	1065	642	0	25	667	0	791	272	1063	0	0	0	0	2795
15:00	7	314	0	321	136	0	17	153	0	312	157	469	0	0	0	0	943
15:15	5	294	0	299	131	0	7	138	0	399	169	568	0	0	0	0	1005
15:30	8	313	0	321	142	0	6	148	0	345	164	509	0	0	0	0	978
15:45	7	289	0	296	130	0	6	136	0	342	186	528	0	0	0	0	960
Total	27	1210	0	1237	539	0	36	575	0	1398	676	2074	0	0	0	0	3886
16:00	8	267	0	275	136	0	9	145	0	342	165	507	0	0	0	0	927
16:15	9	289	0	298	119	0	5	124	0	381	206	587	0	0	0	0	1009
16:30	16	306	0	322	125	0	6	131	0	363	193	556	0	0	0	0	1009

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-001 SR65-Sterling
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound				Sterling Parkway Westbound				SR-65 Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	6	280	0	286	122	0	7	129	0	382	230	612	0	0	0	0	1027
Total	39	1142	0	1181	502	0	27	529	0	1468	794	2262	0	0	0	0	3972
17:00	8	295	0	303	152	0	9	161	0	324	191	515	0	0	0	0	979
17:15	4	272	0	276	130	0	2	132	0	385	231	616	0	0	0	0	1024
17:30	4	280	0	284	162	0	6	168	0	376	243	619	0	0	0	0	1071
17:45	4	285	0	289	136	0	6	142	0	337	231	568	0	0	0	0	999
Total	20	1132	0	1152	580	0	23	603	0	1422	896	2318	0	0	0	0	4073
18:00	5	257	0	262	134	0	6	140	0	308	202	510	0	0	0	0	912
18:15	1	230	0	231	141	0	14	155	0	328	203	531	0	0	0	0	917
18:30	8	202	0	210	113	0	9	122	0	295	186	481	0	0	0	0	813
18:45	6	175	0	181	75	0	2	77	0	255	188	443	0	0	0	0	701
Total	20	864	0	884	463	0	31	494	0	1186	779	1965	0	0	0	0	3343
Grand Total	184	9036	0	9220	5524	0	176	5700	0	8716	4182	12898	0	0	0	0	27818
Apprch %	2	98	0		96.9	0	3.1		0	67.6	32.4		0	0	0		
Total %	0.7	32.5	0	33.1	19.9	0	0.6	20.5	0	31.3	15	46.4	0	0	0	0	
Unshifted	181	8754	0	8935	5459	0	169	5628	0	8411	4086	12497	0	0	0	0	27060
% Unshifted	98.4	96.9	0	96.9	98.8	0	96	98.7	0	96.5	97.7	96.9	0	0	0	0	97.3
Bank 2	3	282	0	285	65	0	7	72	0	305	96	401	0	0	0	0	758
% Bank 2	1.6	3.1	0	3.1	1.2	0	4	1.3	0	3.5	2.3	3.1	0	0	0	0	2.7

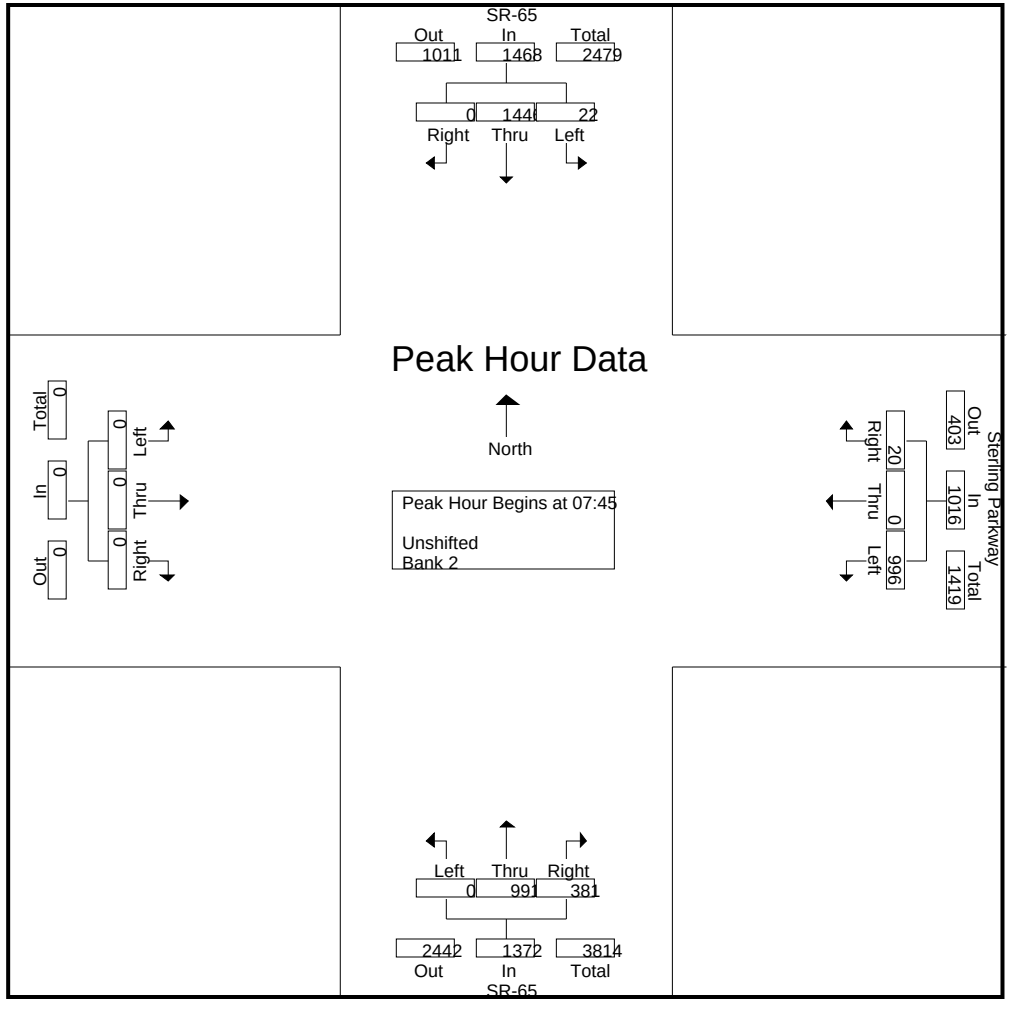
	SR-65 Southbound				Sterling Parkway Westbound				SR-65 Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	4	**438**	0	**442**	255	0	4	259	0	**328**	**103**	**431**	0	0	0	0	**1132**
08:00	4	351	0	355	255	0	**10**	**265**	0	235	103	338	0	0	0	0	958
08:15	**7**	336	0	343	**259**	0	1	260	0	204	86	290	0	0	0	0	893
08:30	7	321	0	328	227	0	5	232	0	224	89	313	0	0	0	0	873
Total Volume	22	1446	0	1468	996	0	20	1016	0	991	381	1372	0	0	0	0	3856
% App. Total	1.5	98.5	0		98	0	2		0	72.2	27.8		0	0	0		
PHF	.786	.825	.000	.830	.961	.000	.500	.958	.000	.755	.925	.796	.000	.000	.000	.000	.852

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-001 SR65-Sterling
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-001 SR65-Sterling
Site Code : 00000000
Start Date : 2/8/2012

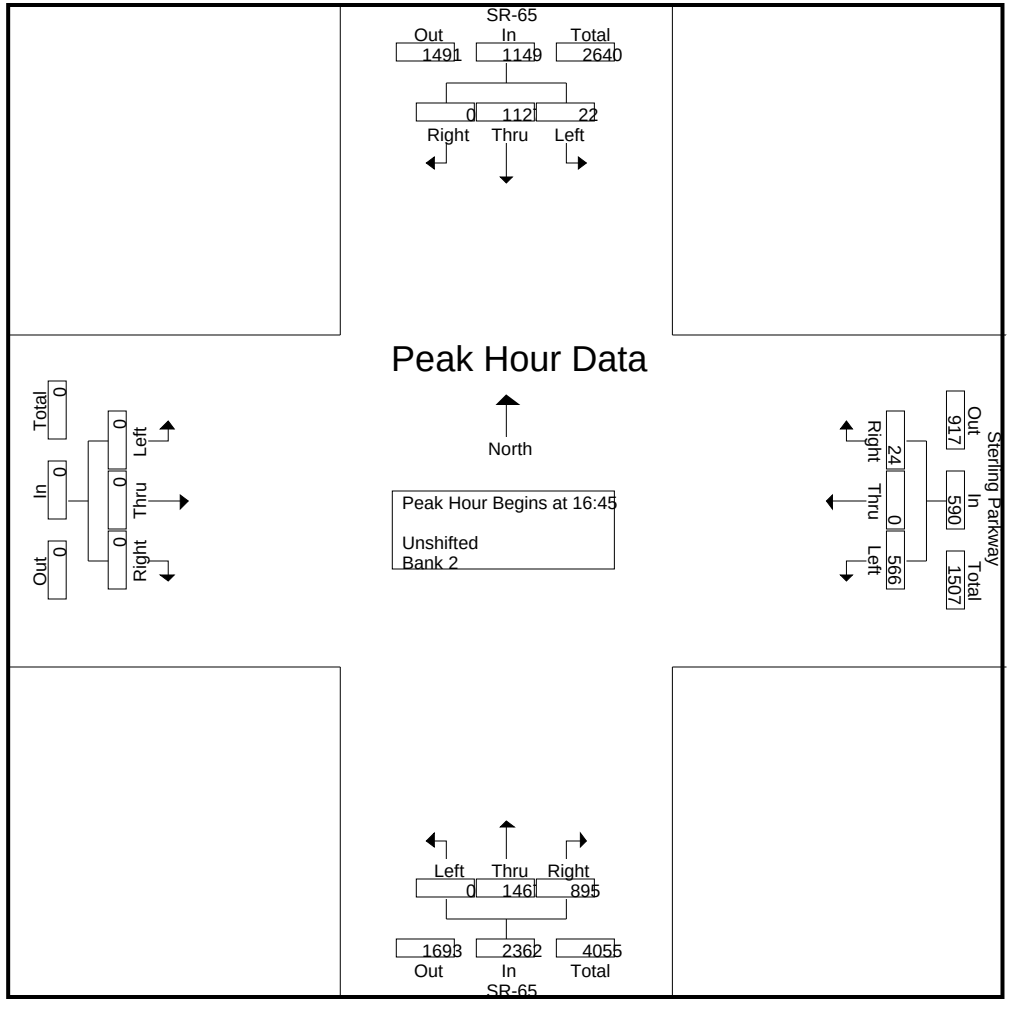
	SR-65 Southbound				Sterling Parkway Westbound				SR-65 Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	6	280	0	286	122	0	7	129	0	382	230	612	0	0	0	0	1027
17:00	**8**	**295**	0	**303**	152	0	**9**	161	0	324	191	515	0	0	0	0	979
17:15	4	272	0	276	130	0	2	132	0	**385**	231	616	0	0	0	0	1024
17:30	4	280	0	284	**162**	0	6	**168**	0	376	**243**	**619**	0	0	0	0	**1071**
Total Volume	22	1127	0	1149	566	0	24	590	0	1467	895	2362	0	0	0	0	4101
% App. Total	1.9	98.1	0		95.9	0	4.1		0	62.1	37.9		0	0	0		
PHF	.688	.955	.000	.948	.873	.000	.667	.878	.000	.953	.921	.954	.000	.000	.000	.000	.957

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-001 SR65-Sterling
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-003 SR65 SB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound Ramps Southbound				Twelve Bridges Drive Westbound				SR-65 Southbound Ramps Northbound				Twelve Bridges Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	2	0	22	24	0	9	69	78	1	1	0	2	3	5	0	8	112
06:15	3	0	17	20	0	5	66	71	0	0	0	0	5	4	0	9	100
06:30	4	0	26	30	0	9	91	100	0	0	0	0	3	9	0	12	142
06:45	11	0	21	32	0	21	93	114	0	0	0	0	3	16	2	21	167
Total	20	0	86	106	0	44	319	363	1	1	0	2	14	34	2	50	521
07:00	16	0	28	44	0	21	106	127	0	0	0	0	1	22	0	23	194
07:15	34	0	43	77	0	20	126	146	0	0	0	0	4	27	0	31	254
07:30	37	0	39	76	0	32	128	160	0	0	0	0	2	35	0	37	273
07:45	68	0	45	113	0	30	155	185	0	0	0	0	3	44	0	47	345
Total	155	0	155	310	0	103	515	618	0	0	0	0	10	128	0	138	1066
08:00	32	0	27	59	0	45	169	214	0	0	0	0	4	51	0	55	328
08:15	37	0	34	71	0	33	142	175	0	0	0	0	1	37	0	38	284
08:30	25	0	30	55	0	27	109	136	0	0	0	0	3	35	0	38	229
08:45	27	0	23	50	0	32	112	144	0	0	0	0	3	47	0	50	244
Total	121	0	114	235	0	137	532	669	0	0	0	0	11	170	0	181	1085
09:00	26	0	23	49	0	22	134	156	0	0	0	0	5	27	0	32	237
09:15	19	0	29	48	0	35	110	145	0	0	0	0	2	37	0	39	232
09:30	29	0	30	59	0	34	134	168	0	0	0	0	2	26	0	28	255
09:45	28	0	30	58	0	37	127	164	0	0	0	0	10	33	0	43	265
Total	102	0	112	214	0	128	505	633	0	0	0	0	19	123	0	142	989
15:00	49	0	29	78	0	39	123	162	0	0	0	0	12	77	0	89	329
15:15	46	0	35	81	0	41	117	158	0	0	0	0	12	59	0	71	310
15:30	35	0	34	69	0	38	96	134	0	0	0	0	15	72	0	87	290
15:45	29	0	27	56	0	27	99	126	0	0	0	0	9	73	0	82	264
Total	159	0	125	284	0	145	435	580	0	0	0	0	48	281	0	329	1193
16:00	17	0	29	46	0	54	82	136	0	0	0	0	15	83	0	98	280
16:15	22	0	45	67	0	46	109	155	0	0	0	0	9	60	0	69	291
16:30	37	0	31	68	0	28	81	109	0	0	0	0	7	65	0	72	249

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-003 SR65 SB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound Ramps Southbound				Twelve Bridges Drive Westbound				SR-65 Southbound Ramps Northbound				Twelve Bridges Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	27	2	24	53	0	33	79	112	0	0	0	0	7	67	0	74	239
Total	103	2	129	234	0	161	351	512	0	0	0	0	38	275	0	313	1059
17:00	24	0	26	50	0	37	105	142	0	0	0	0	6	77	0	83	275
17:15	28	0	16	44	0	32	82	114	0	0	0	0	11	87	0	98	256
17:30	29	0	22	51	0	27	79	106	0	0	0	0	10	112	0	122	279
17:45	20	0	17	37	0	23	75	98	0	0	0	0	4	73	0	77	212
Total	101	0	81	182	0	119	341	460	0	0	0	0	31	349	0	380	1022
18:00	33	0	19	52	0	27	71	98	0	0	0	0	7	49	0	56	206
18:15	19	0	25	44	0	18	62	80	0	0	0	0	9	68	0	77	201
18:30	11	0	18	29	0	34	64	98	0	0	0	0	6	48	0	54	181
18:45	17	0	15	32	0	23	47	70	0	0	0	0	9	44	0	53	155
Total	80	0	77	157	0	102	244	346	0	0	0	0	31	209	0	240	743
Grand Total	841	2	879	1722	0	939	3242	4181	1	1	0	2	202	1569	2	1773	7678
Apprch %	48.8	0.1	51		0	22.5	77.5		50	50	0		11.4	88.5	0.1		
Total %	11	0	11.4	22.4	0	12.2	42.2	54.5	0	0	0	0	2.6	20.4	0	23.1	
Unshifted	834	0	847	1681	0	930	3231	4161	0	0	0	0	194	1538	0	1732	7574
% Unshifted	99.2	0	96.4	97.6	0	99	99.7	99.5	0	0	0	0	96	98	0	97.7	98.6
Bank 2	7	2	32	41	0	9	11	20	1	1	0	2	8	31	2	41	104
% Bank 2	0.8	100	3.6	2.4	0	1	0.3	0.5	100	100	0	100	4	2	100	2.3	1.4

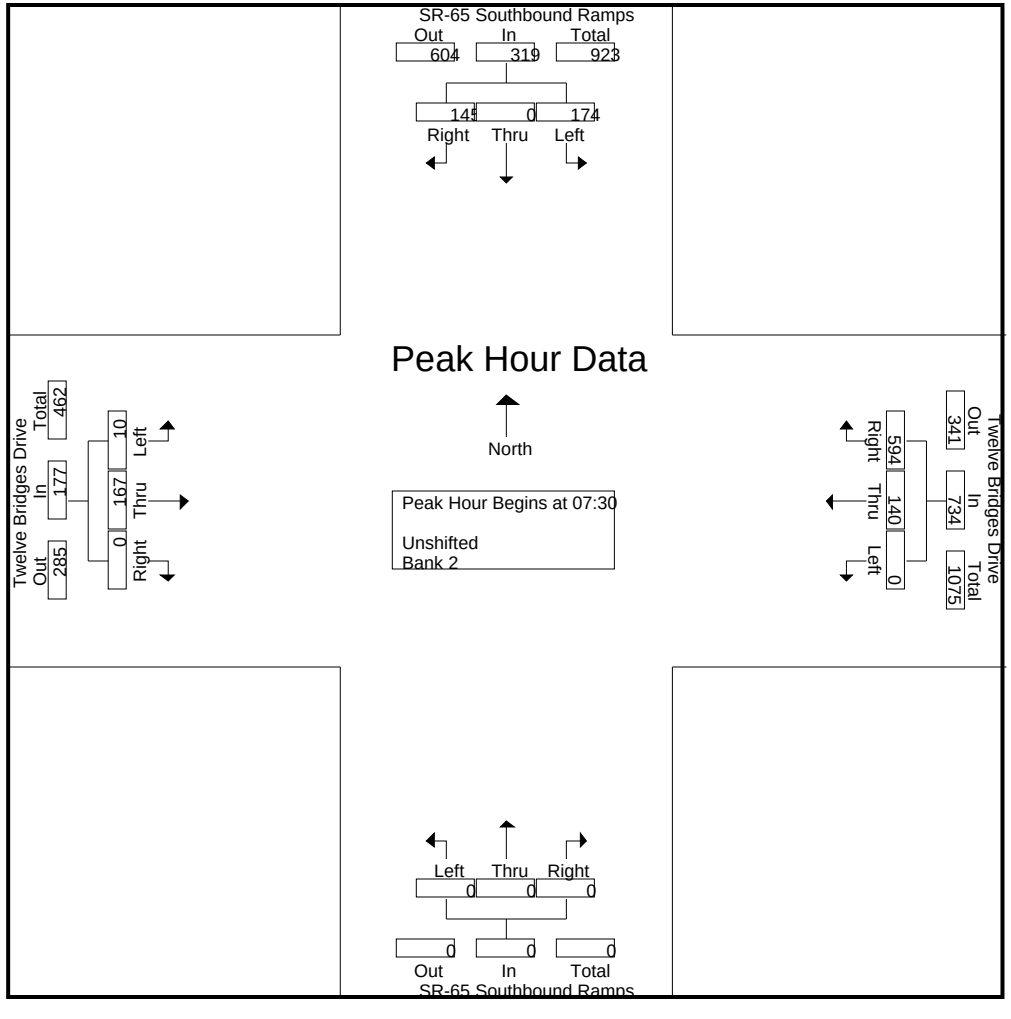
	SR-65 Southbound Ramps Southbound				Twelve Bridges Drive Westbound				SR-65 Southbound Ramps Northbound				Twelve Bridges Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	37	0	39	76	0	32	128	160	0	0	0	0	2	35	0	37	273
07:45	**68**	0	**45**	**113**	0	30	155	185	0	0	0	0	3	44	0	47	**345**
08:00	32	0	27	59	0	**45**	**169**	**214**	0	0	0	0	**4**	**51**	0	**55**	328
08:15	37	0	34	71	0	33	142	175	0	0	0	0	1	37	0	38	284
Total Volume	174	0	145	319	0	140	594	734	0	0	0	0	10	167	0	177	1230
% App. Total	54.5	0	45.5		0	19.1	80.9		0	0	0		5.6	94.4	0		
PHF	.640	.000	.806	.706	.000	.778	.879	.857	.000	.000	.000	.000	.625	.819	.000	.805	.891

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-003 SR65 SB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-003 SR65 SB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012

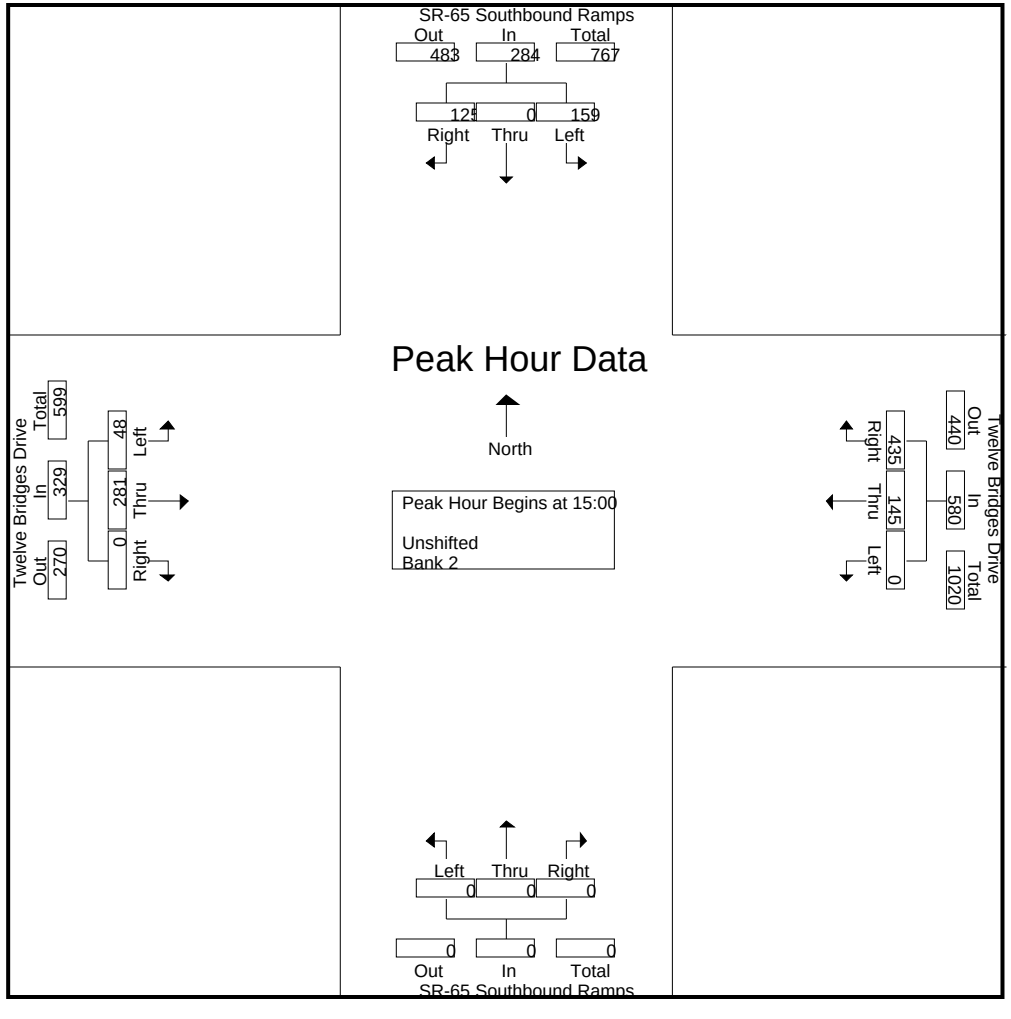
	SR-65 Southbound Ramps Southbound				Twelve Bridges Drive Westbound				SR-65 Southbound Ramps Northbound				Twelve Bridges Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:00																	
15:00	**49**	0	29	78	0	39	**123**	**162**	0	0	0	0	12	**77**	0	**89**	**329**
15:15	46	0	**35**	**81**	0	**41**	117	158	0	0	0	0	12	59	0	71	310
15:30	35	0	34	69	0	38	96	134	0	0	0	0	**15**	72	0	87	290
15:45	29	0	27	56	0	27	99	126	0	0	0	0	9	73	0	82	264
Total Volume	159	0	125	284	0	145	435	580	0	0	0	0	48	281	0	329	1193
% App. Total	56	0	44		0	25	75		0	0	0		14.6	85.4	0		
PHF	.811	.000	.893	.877	.000	.884	.884	.895	.000	.000	.000	.000	.800	.912	.000	.924	.907

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-003 SR65 SB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-002 SR65 NB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Northbound Ramps Southbound				Twelve Bridges Drive Westbound				SR-65 Northbound Ramps Northbound				Twelve Bridges Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	0	0	0	75	5	80	3	0	8	11	4	4	0	8	99
06:15	0	0	0	0	0	74	15	89	4	0	17	21	2	4	0	6	116
06:30	0	0	0	0	0	94	13	107	4	0	24	28	6	7	0	13	148
06:45	0	0	0	0	0	110	7	117	4	0	24	28	12	16	0	28	173
Total	0	0	0	0	0	353	40	393	15	0	73	88	24	31	0	55	536
07:00	0	0	0	0	0	126	16	142	3	0	30	33	16	23	0	39	214
07:15	0	0	0	0	0	141	22	163	3	1	45	49	15	48	0	63	275
07:30	0	0	0	0	0	156	43	199	4	1	61	66	21	55	0	76	341
07:45	0	0	0	0	0	182	53	235	7	1	58	66	20	90	0	110	411
Total	0	0	0	0	0	605	134	739	17	3	194	214	72	216	0	288	1241
08:00	0	0	0	0	0	207	24	231	8	2	78	88	33	56	0	89	408
08:15	0	0	0	0	0	164	18	182	9	4	77	90	20	57	0	77	349
08:30	0	0	0	0	0	123	20	143	13	1	73	87	28	35	0	63	293
08:45	0	0	0	0	0	135	18	153	10	0	83	93	27	43	0	70	316
Total	0	0	0	0	0	629	80	709	40	7	311	358	108	191	0	299	1366
09:00	0	0	0	0	0	153	13	166	6	0	69	75	18	44	0	62	303
09:15	0	0	0	0	0	126	27	153	19	0	74	93	21	39	0	60	306
09:30	0	0	0	0	0	166	23	189	11	0	72	83	15	35	0	50	322
09:45	0	0	0	0	0	148	27	175	8	0	60	68	19	42	0	61	304
Total	0	0	0	0	0	593	90	683	44	0	275	319	73	160	0	233	1235
15:00	0	0	0	0	0	173	47	220	10	1	126	137	39	91	0	130	487
15:15	0	0	0	0	0	129	29	158	21	1	132	154	41	72	0	113	425
15:30	0	0	0	0	0	117	37	154	24	0	143	167	41	60	0	101	422
15:45	0	0	0	0	0	109	26	135	17	1	131	149	48	65	0	113	397
Total	0	0	0	0	0	528	139	667	72	3	532	607	169	288	0	457	1731
16:00	0	0	0	0	0	111	34	145	24	0	118	142	57	44	0	101	388
16:15	0	0	0	0	0	138	24	162	18	0	143	161	35	49	0	84	407
16:30	0	0	0	0	0	99	29	128	14	0	124	138	40	59	0	99	365

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-002 SR65 NB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Northbound Ramps Southbound				Twelve Bridges Drive Westbound				SR-65 Northbound Ramps Northbound				Twelve Bridges Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	0	0	0	0	103	30	133	19	2	108	129	40	63	0	103	365
Total	0	0	0	0	0	451	117	568	75	2	493	570	172	215	0	387	1525
17:00	0	0	0	0	0	123	27	150	16	1	125	142	44	54	0	98	390
17:15	0	0	0	0	0	101	17	118	15	0	145	160	55	61	0	116	394
17:30	0	0	0	0	0	98	23	121	12	1	121	134	71	67	0	138	393
17:45	0	0	0	0	0	89	20	109	11	1	116	128	34	60	0	94	331
Total	0	0	0	0	0	411	87	498	54	3	507	564	204	242	0	446	1508
18:00	0	0	0	0	0	84	18	102	15	0	120	135	31	50	0	81	318
18:15	0	0	0	0	0	71	26	97	9	0	103	112	51	45	0	96	305
18:30	0	0	0	0	0	82	9	91	20	0	96	116	29	26	0	55	262
18:45	0	0	0	0	0	47	12	59	20	0	111	131	28	34	0	62	252
Total	0	0	0	0	0	284	65	349	64	0	430	494	139	155	0	294	1137
Grand Total	0	0	0	0	0	3854	752	4606	381	18	2815	3214	961	1498	0	2459	10279
Apprch %	0	0	0		0	83.7	16.3		11.9	0.6	87.6		39.1	60.9	0		
Total %	0	0	0	0	0	37.5	7.3	44.8	3.7	0.2	27.4	31.3	9.3	14.6	0	23.9	
Unshifted	0	0	0	0	0	3804	736	4540	366	15	2743	3124	920	1472	0	2392	10056
% Unshifted	0	0	0	0	0	98.7	97.9	98.6	96.1	83.3	97.4	97.2	95.7	98.3	0	97.3	97.8
Bank 2	0	0	0	0	0	50	16	66	15	3	72	90	41	26	0	67	223
% Bank 2	0	0	0	0	0	1.3	2.1	1.4	3.9	16.7	2.6	2.8	4.3	1.7	0	2.7	2.2

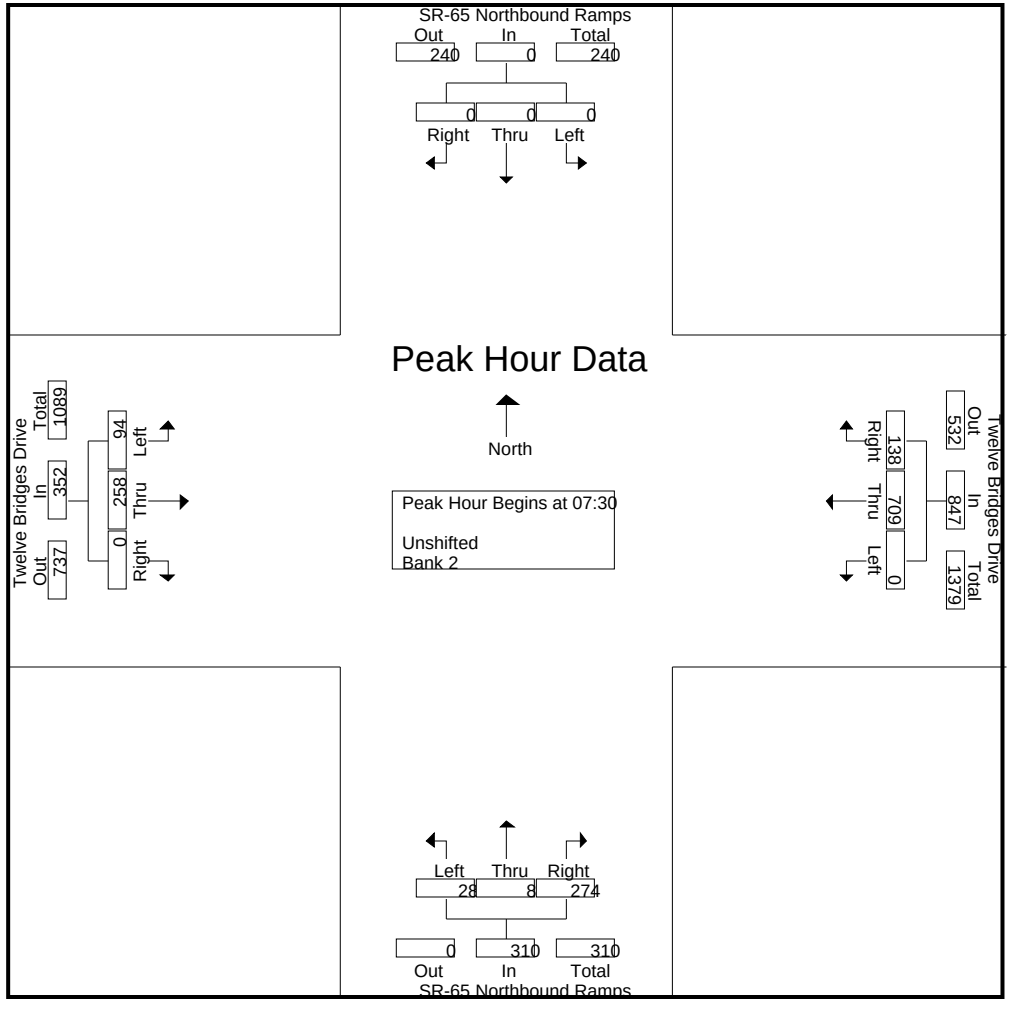
	SR-65 Northbound Ramps Southbound				Twelve Bridges Drive Westbound				SR-65 Northbound Ramps Northbound				Twelve Bridges Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	156	43	199	4	1	61	66	21	55	0	76	341
07:45	0	0	0	0	0	182	**53**	**235**	7	1	58	66	20	**90**	0	**110**	**411**
08:00	0	0	0	0	0	**207**	24	231	8	2	**78**	88	**33**	56	0	89	408
08:15	0	0	0	0	0	164	18	182	**9**	**4**	77	**90**	20	57	0	77	349
Total Volume	0	0	0	0	0	709	138	847	28	8	274	310	94	258	0	352	1509
% App. Total	0	0	0		0	83.7	16.3		9	2.6	88.4		26.7	73.3	0		
PHF	.000	.000	.000	.000	.000	.856	.651	.901	.778	.500	.878	.861	.712	.717	.000	.800	.918

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-002 SR65 NB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-002 SR65 NB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012

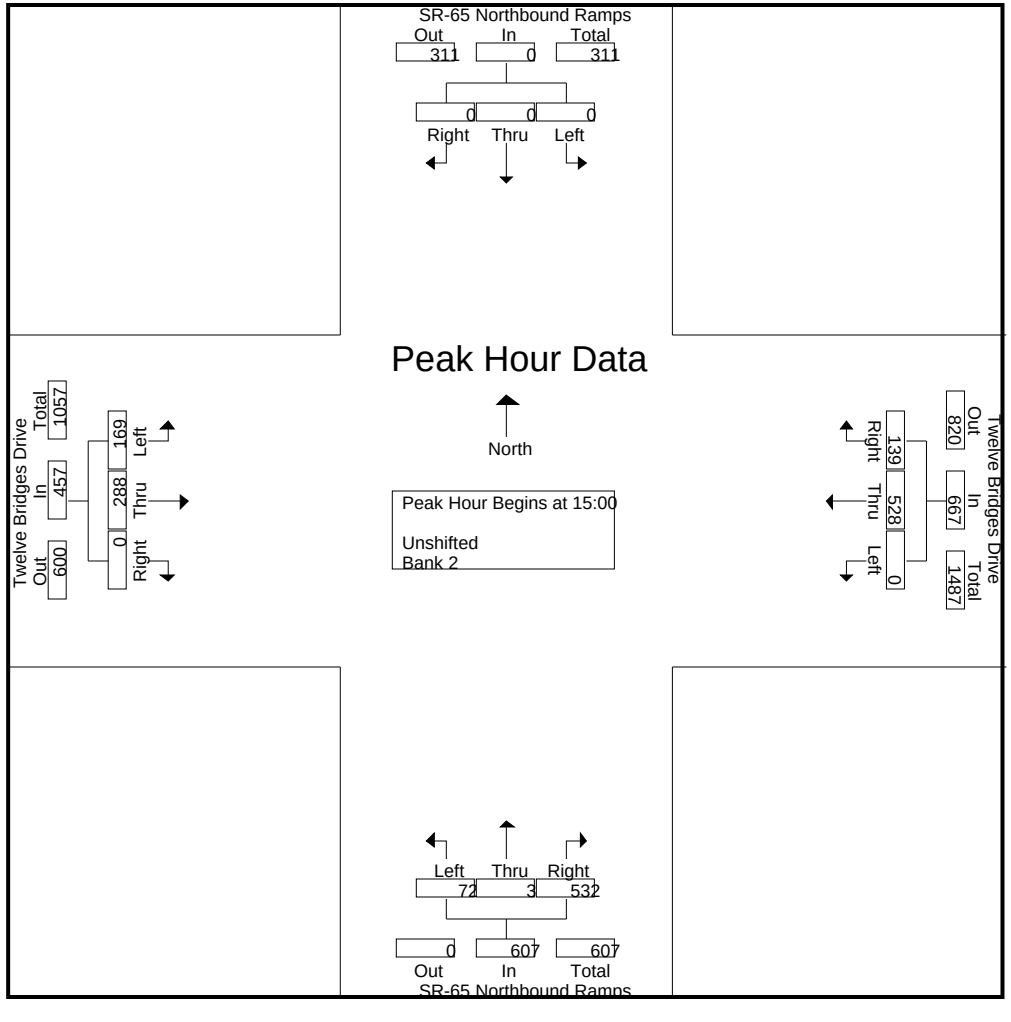
	SR-65 Northbound Ramps Southbound				Twelve Bridges Drive Westbound				SR-65 Northbound Ramps Northbound				Twelve Bridges Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 15:00																	
15:00	0	0	0	0	0	**173**	**47**	**220**	10	**1**	126	137	39	**91**	0	**130**	**487**
15:15	0	0	0	0	0	129	29	158	21	1	132	154	41	72	0	113	425
15:30	0	0	0	0	0	117	37	154	**24**	0	**143**	**167**	41	60	0	101	422
15:45	0	0	0	0	0	109	26	135	17	1	131	149	**48**	65	0	113	397
Total Volume	0	0	0	0	0	528	139	667	72	3	532	607	169	288	0	457	1731
% App. Total	0	0	0		0	79.2	20.8		11.9	0.5	87.6		37	63	0		
PHF	.000	.000	.000	.000	.000	.763	.739	.758	.750	.750	.930	.909	.880	.791	.000	.879	.889

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-002 SR65 NB-Twelve Bridges
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-005 SR65 SB-Sunset
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound Ramps Southbound				Sunset Boulevard Westbound				SR-65 Southbound Ramps Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	12	0	14	26	0	82	40	122	0	0	0	0	0	9	42	51	199
06:15	25	0	20	45	0	106	54	160	0	0	0	0	0	7	28	35	240
06:30	34	0	16	50	0	135	67	202	0	0	0	0	0	10	41	51	303
06:45	58	0	22	80	0	167	66	233	0	0	0	0	0	6	45	51	364
Total	129	0	72	201	0	490	227	717	0	0	0	0	0	32	156	188	1106
07:00	35	0	23	58	0	137	87	224	0	0	0	0	0	18	51	69	351
07:15	63	0	32	95	0	107	104	211	0	0	0	0	0	24	70	94	400
07:30	65	1	25	91	0	104	88	192	0	0	0	0	0	25	66	91	374
07:45	74	0	31	105	0	208	117	325	0	0	0	0	0	37	78	115	545
Total	237	1	111	349	0	556	396	952	0	0	0	0	0	104	265	369	1670
08:00	87	0	27	114	0	195	80	275	0	0	0	0	0	48	71	119	508
08:15	69	0	23	92	0	201	119	320	0	0	0	0	0	36	79	115	527
08:30	44	0	17	61	0	143	73	216	0	0	0	0	0	48	92	140	417
08:45	64	1	19	84	0	165	86	251	0	0	0	0	0	26	91	117	452
Total	264	1	86	351	0	704	358	1062	0	0	0	0	0	158	333	491	1904
09:00	31	0	11	42	0	142	65	207	0	0	0	0	0	37	81	118	367
09:15	40	0	17	57	0	163	59	222	0	0	0	0	0	27	75	102	381
09:30	25	0	11	36	0	159	49	208	0	0	0	0	0	48	79	127	371
09:45	29	0	16	45	0	161	70	231	0	0	0	0	0	29	84	113	389
Total	125	0	55	180	0	625	243	868	0	0	0	0	0	141	319	460	1508
15:00	48	1	6	55	0	125	117	242	0	0	0	0	0	45	163	208	505
15:15	39	0	12	51	0	153	106	259	0	0	0	0	0	63	154	217	527
15:30	47	1	7	55	0	119	152	271	0	0	0	0	0	57	172	229	555
15:45	54	0	8	62	0	128	98	226	0	0	0	0	0	61	146	207	495
Total	188	2	33	223	0	525	473	998	0	0	0	0	0	226	635	861	2082
16:00	43	0	6	49	0	130	111	241	0	0	0	0	0	82	172	254	544
16:15	46	0	13	59	0	135	105	240	0	0	0	0	0	51	163	214	513
16:30	43	0	14	57	0	121	151	272	0	0	0	0	0	86	168	254	583

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-005 SR65 SB-Sunset
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound Ramps Southbound				Sunset Boulevard Westbound				SR-65 Southbound Ramps Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	51	0	14	65	0	136	113	249	0	0	0	0	0	61	114	175	489
Total	183	0	47	230	0	522	480	1002	0	0	0	0	0	280	617	897	2129
17:00	59	0	12	71	0	86	183	269	0	0	0	0	0	77	158	235	575
17:15	60	0	14	74	0	134	127	261	0	0	0	0	0	78	167	245	580
17:30	52	0	10	62	0	102	134	236	0	0	0	0	0	84	142	226	524
17:45	46	0	5	51	0	90	87	177	0	0	0	0	0	58	116	174	402
Total	217	0	41	258	0	412	531	943	0	0	0	0	0	297	583	880	2081
18:00	40	0	8	48	0	114	91	205	0	0	0	0	0	62	115	177	430
18:15	34	1	27	62	0	161	70	231	0	0	0	0	0	43	132	175	468
18:30	32	0	13	45	0	116	82	198	0	0	0	0	0	65	117	182	425
18:45	34	0	12	46	0	136	55	191	0	0	0	0	0	28	97	125	362
Total	140	1	60	201	0	527	298	825	0	0	0	0	0	198	461	659	1685
Grand Total	1483	5	505	1993	0	4361	3006	7367	0	0	0	0	0	1436	3369	4805	14165
Apprch %	74.4	0.3	25.3		0	59.2	40.8		0	0	0		0	29.9	70.1		
Total %	10.5	0	3.6	14.1	0	30.8	21.2	52	0	0	0	0	0	10.1	23.8	33.9	
Unshifted	1459	5	475	1939	0	4107	2921	7028	0	0	0	0	0	1362	3108	4470	13437
% Unshifted	98.4	100	94.1	97.3	0	94.2	97.2	95.4	0	0	0	0	0	94.8	92.3	93	94.9
Bank 2	24	0	30	54	0	254	85	339	0	0	0	0	0	74	261	335	728
% Bank 2	1.6	0	5.9	2.7	0	5.8	2.8	4.6	0	0	0	0	0	5.2	7.7	7	5.1

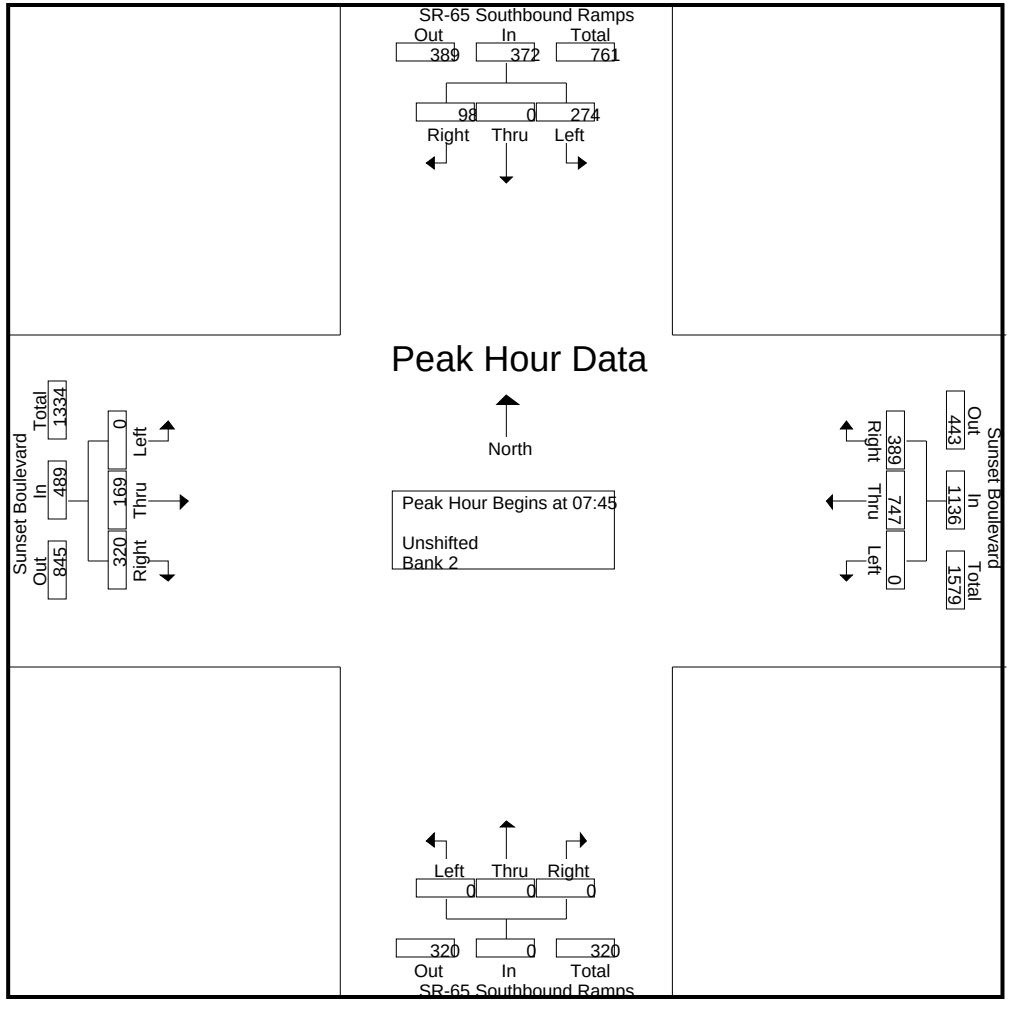
	SR-65 Southbound Ramps Southbound				Sunset Boulevard Westbound				SR-65 Southbound Ramps Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	74	0	**31**	105	0	**208**	117	**325**	0	0	0	0	0	37	78	115	**545**
08:00	**87**	0	27	**114**	0	195	80	275	0	0	0	0	0	**48**	71	119	508
08:15	69	0	23	92	0	201	**119**	320	0	0	0	0	0	36	79	115	527
08:30	44	0	17	61	0	143	73	216	0	0	0	0	0	48	**92**	**140**	417
Total Volume	274	0	98	372	0	747	389	1136	0	0	0	0	0	169	320	489	1997
% App. Total	73.7	0	26.3		0	65.8	34.2		0	0	0		0	34.6	65.4		
PHF	.787	.000	.790	.816	.000	.898	.817	.874	.000	.000	.000	.000	.000	.880	.870	.873	.916

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-005 SR65 SB-Sunset
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-005 SR65 SB-Sunset
Site Code : 00000000
Start Date : 2/8/2012

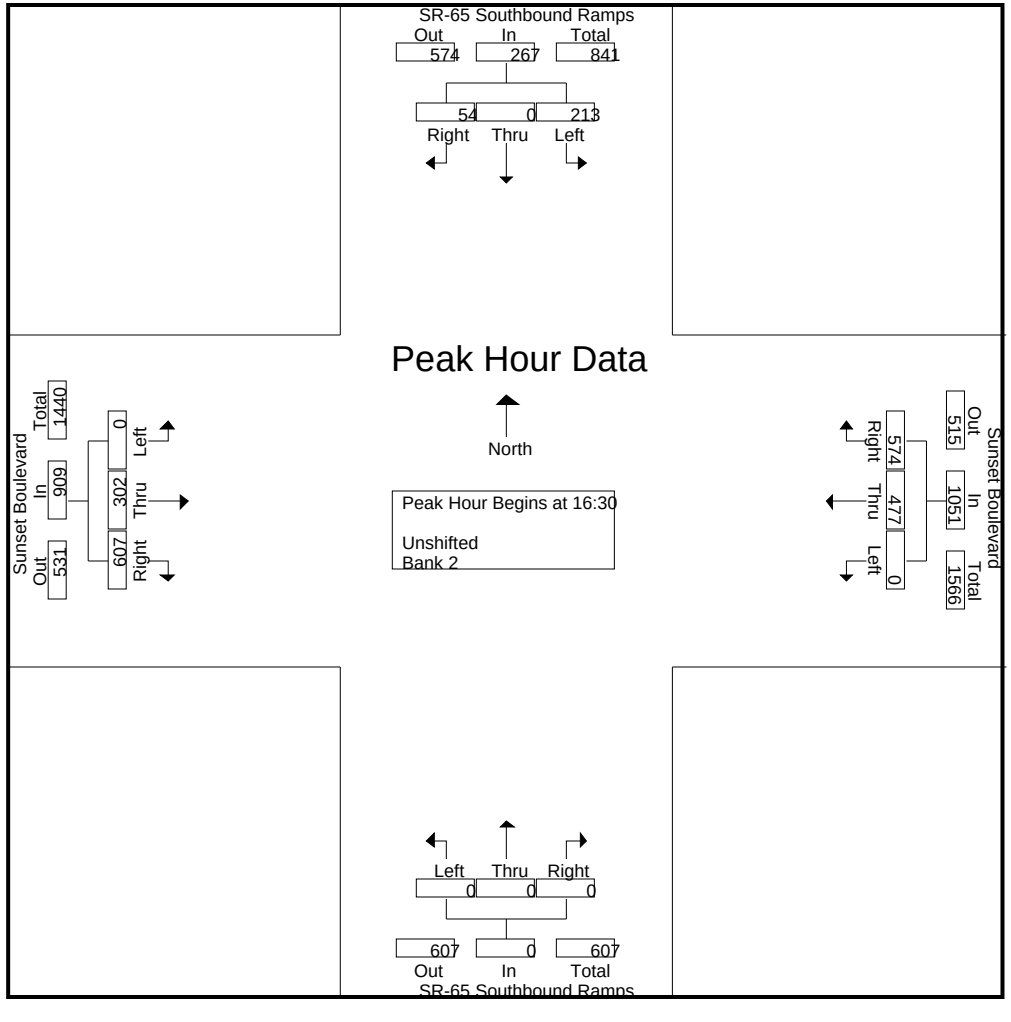
	SR-65 Southbound Ramps Southbound				Sunset Boulevard Westbound				SR-65 Southbound Ramps Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	43	0	**14**	57	0	121	151	**272**	0	0	0	0	0	**86**	**168**	**254**	**583**
16:45	51	0	14	65	0	**136**	113	249	0	0	0	0	0	61	114	175	489
17:00	59	0	12	71	0	86	**183**	269	0	0	0	0	0	77	158	235	575
17:15	**60**	0	14	**74**	0	134	127	261	0	0	0	0	0	78	167	245	580
Total Volume	213	0	54	267	0	477	574	1051	0	0	0	0	0	302	607	909	2227
% App. Total	79.8	0	20.2		0	45.4	54.6		0	0	0		0	33.2	66.8		
PHF	.888	.000	.964	.902	.000	.877	.784	.966	.000	.000	.000	.000	.000	.878	.903	.895	.955

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-005 SR65 SB-Sunset
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-004 SR65 NB-Sunset
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Northbound Ramps Southbound				Sunset Boulevard Westbound				SR-65 Northbound Ramps Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	0	0	0	49	26	75	73	0	26	99	0	15	6	21	195
06:15	0	0	0	0	0	72	25	97	98	0	40	138	0	29	3	32	267
06:30	0	0	0	0	0	90	29	119	112	0	66	178	0	42	3	45	342
06:45	0	0	0	0	0	103	37	140	132	0	102	234	0	59	0	59	433
Total	0	0	0	0	0	314	117	431	415	0	234	649	0	145	12	157	1237
07:00	0	0	0	0	0	113	32	145	100	0	85	185	0	54	5	59	389
07:15	0	0	0	0	0	140	53	193	66	0	98	164	0	74	12	86	443
07:30	0	0	0	0	0	116	65	181	78	0	98	176	0	82	4	86	443
07:45	0	0	0	0	0	190	62	252	141	0	195	336	0	102	11	113	701
Total	0	0	0	0	0	559	212	771	385	0	476	861	0	312	32	344	1976
08:00	0	0	0	0	0	129	48	177	145	0	197	342	0	120	12	132	651
08:15	0	0	0	0	0	167	59	226	156	0	153	309	0	96	6	102	637
08:30	0	0	0	0	0	99	34	133	104	0	94	198	0	79	8	87	418
08:45	0	0	0	0	0	119	24	143	127	0	121	248	0	80	8	88	479
Total	0	0	0	0	0	514	165	679	532	0	565	1097	0	375	34	409	2185
09:00	0	0	0	0	0	91	20	111	120	0	81	201	0	59	9	68	380
09:15	0	0	0	0	0	100	37	137	131	0	84	215	0	58	8	66	418
09:30	0	0	0	0	0	85	36	121	123	0	55	178	0	58	10	68	367
09:45	0	0	0	0	0	108	22	130	113	0	57	170	0	52	8	60	360
Total	0	0	0	0	0	384	115	499	487	0	277	764	0	227	35	262	1525
15:00	0	0	0	0	0	149	55	204	97	1	69	167	0	76	13	89	460
15:15	0	0	0	0	0	151	58	209	111	0	82	193	0	90	14	104	506
15:30	0	0	0	0	0	175	68	243	88	3	88	179	0	82	17	99	521
15:45	0	0	0	0	0	133	60	193	91	0	83	174	0	109	12	121	488
Total	0	0	0	0	0	608	241	849	387	4	322	713	0	357	56	413	1975
16:00	0	0	0	0	0	146	57	203	97	1	73	171	0	100	23	123	497
16:15	0	0	0	0	0	147	72	219	100	1	88	189	0	83	15	98	506
16:30	0	0	0	0	0	169	67	236	96	1	88	185	0	113	22	135	556

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-004 SR65 NB-Sunset
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Northbound Ramps Southbound				Sunset Boulevard Westbound				SR-65 Northbound Ramps Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	0	0	0	0	152	59	211	103	0	102	205	0	98	9	107	523
Total	0	0	0	0	0	614	255	869	396	3	351	750	0	394	69	463	2082
17:00	0	0	0	0	0	228	68	296	51	0	93	144	0	117	18	135	575
17:15	0	0	0	0	0	169	68	237	91	0	84	175	0	119	15	134	546
17:30	0	0	0	0	0	159	71	230	73	0	85	158	0	117	19	136	524
17:45	0	0	0	0	0	108	70	178	67	0	83	150	0	88	18	106	434
Total	0	0	0	0	0	664	277	941	282	0	345	627	0	441	70	511	2079
18:00	0	0	0	0	0	129	68	197	79	1	79	159	0	83	18	101	457
18:15	0	0	0	0	0	117	61	178	114	0	82	196	0	64	13	77	451
18:30	0	0	0	0	0	98	43	141	97	0	67	164	0	82	15	97	402
18:45	0	0	0	0	0	83	49	132	105	0	66	171	0	56	6	62	365
Total	0	0	0	0	0	427	221	648	395	1	294	690	0	285	52	337	1675
Grand Total	0	0	0	0	0	4084	1603	5687	3279	8	2864	6151	0	2536	360	2896	14734
Apprch %	0	0	0		0	71.8	28.2		53.3	0.1	46.6		0	87.6	12.4		
Total %	0	0	0	0	0	27.7	10.9	38.6	22.3	0.1	19.4	41.7	0	17.2	2.4	19.7	
Unshifted	0	0	0	0	0	3968	1595	5563	3083	8	2801	5892	0	2469	331	2800	14255
% Unshifted	0	0	0	0	0	97.2	99.5	97.8	94	100	97.8	95.8	0	97.4	91.9	96.7	96.7
Bank 2	0	0	0	0	0	116	8	124	196	0	63	259	0	67	29	96	479
% Bank 2	0	0	0	0	0	2.8	0.5	2.2	6	0	2.2	4.2	0	2.6	8.1	3.3	3.3

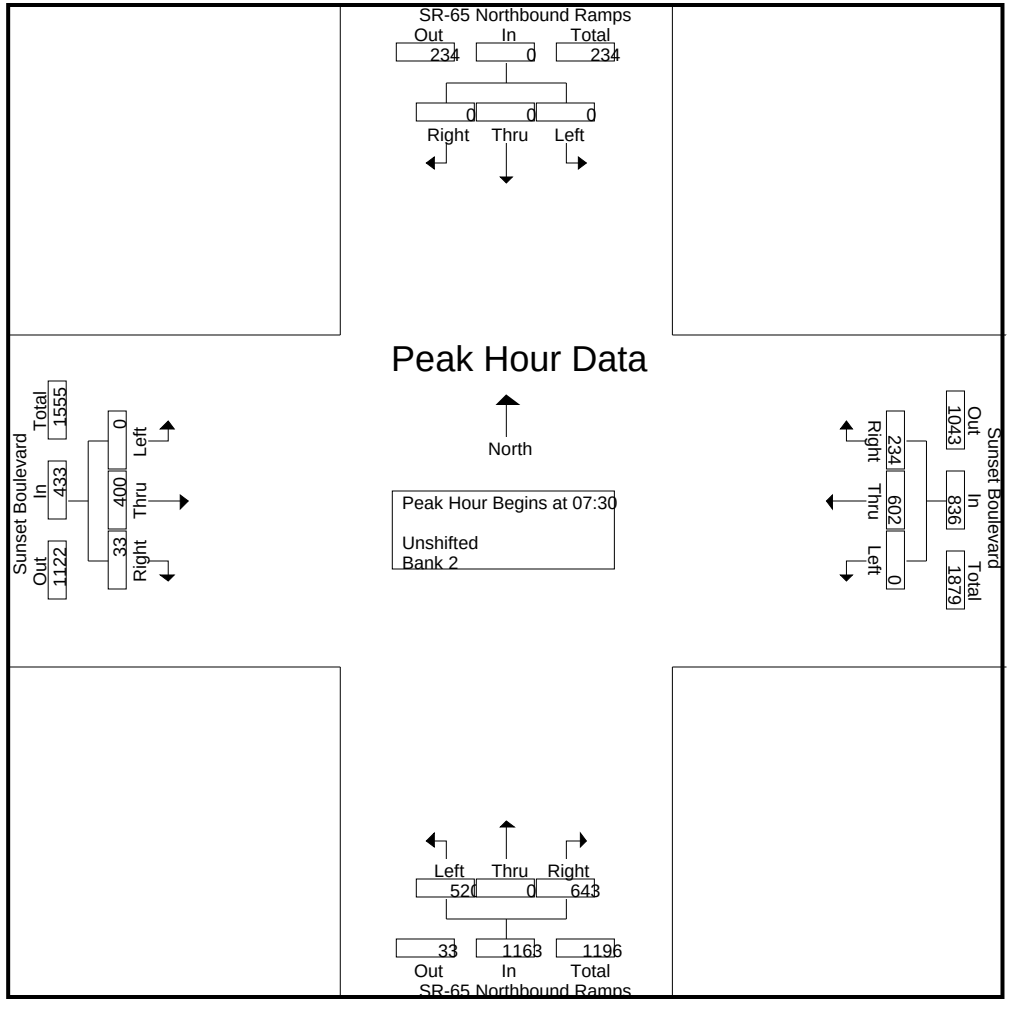
	SR-65 Northbound Ramps Southbound				Sunset Boulevard Westbound				SR-65 Northbound Ramps Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	116	**65**	181	78	0	98	176	0	82	4	86	443
07:45	0	0	0	0	0	**190**	62	**252**	141	0	195	336	0	102	11	113	**701**
08:00	0	0	0	0	0	129	48	177	145	0	**197**	**342**	0	**120**	**12**	**132**	651
08:15	0	0	0	0	0	167	59	226	**156**	0	153	309	0	96	6	102	637
Total Volume	0	0	0	0	0	602	234	836	520	0	643	1163	0	400	33	433	2432
% App. Total	0	0	0		0	72	28		44.7	0	55.3		0	92.4	7.6		
PHF	.000	.000	.000	.000	.000	.792	.900	.829	.833	.000	.816	.850	.000	.833	.688	.820	.867

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-004 SR65 NB-Sunset
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-004 SR65 NB-Sunset
Site Code : 00000000
Start Date : 2/8/2012

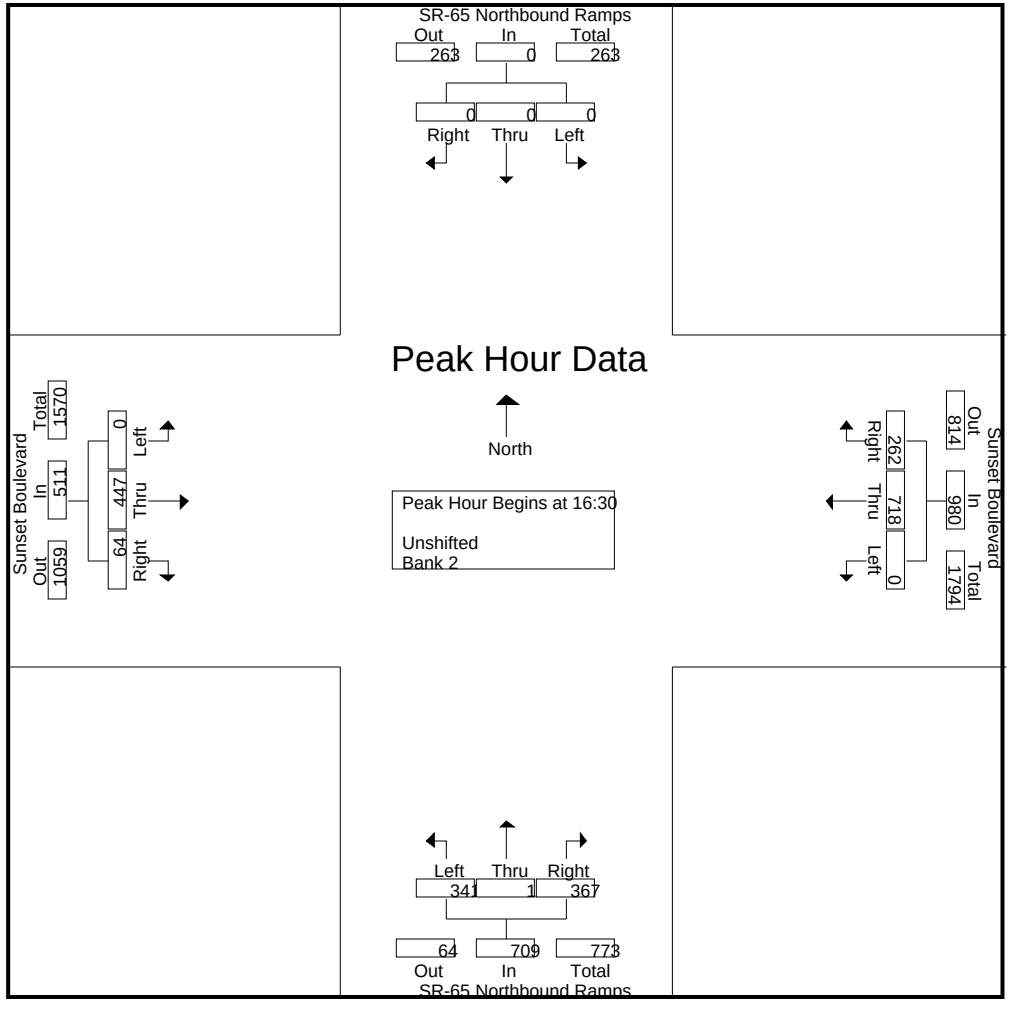
	SR-65 Northbound Ramps Southbound				Sunset Boulevard Westbound				SR-65 Northbound Ramps Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	0	0	0	0	169	67	236	96	**1**	88	185	0	113	**22**	**135**	556
16:45	0	0	0	0	0	152	59	211	**103**	0	**102**	**205**	0	98	9	107	523
17:00	0	0	0	0	0	**228**	**68**	**296**	51	0	93	144	0	117	18	135	**575**
17:15	0	0	0	0	0	169	68	237	91	0	84	175	0	**119**	15	134	546
Total Volume	0	0	0	0	0	718	262	980	341	1	367	709	0	447	64	511	2200
% App. Total	0	0	0		0	73.3	26.7		48.1	0.1	51.8		0	87.5	12.5		
PHF	.000	.000	.000	.000	.000	.787	.963	.828	.828	.250	.900	.865	.000	.939	.727	.946	.957

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-004 SR65 NB-Sunset
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-007 SR65 SB-Blue Oaks
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound Ramps Southbound					Blue Oaks Blvd Westbound					SR-65 Southbound Ramps Northwestbound					Washington Blvd Northbound					Blue Oaks Blvd Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
06:00	10	0	21	25	56	0	16	28	59	103	0	0	0	0	0	7	0	21	9	37	0	43	107	6	156	352
06:15	4	0	21	33	58	0	24	39	62	125	0	0	0	0	0	8	0	17	6	31	0	64	137	5	206	420
06:30	7	0	40	41	88	0	24	28	88	140	0	0	0	0	0	9	0	17	21	47	0	50	174	19	243	518
06:45	9	1	61	74	145	0	56	75	91	222	0	0	0	0	0	12	0	35	10	57	0	89	161	23	273	697
Total	30	1	143	173	347	0	120	170	300	590	0	0	0	0	0	36	0	90	46	172	0	246	579	53	878	1987
07:00	8	0	38	55	101	0	23	76	110	209	0	0	0	0	0	22	0	31	17	70	0	91	182	36	309	689
07:15	20	0	52	65	137	0	36	93	108	237	0	0	0	0	0	34	0	48	10	92	0	146	227	49	422	888
07:30	21	0	73	58	152	0	46	103	103	252	0	0	0	0	0	27	0	52	7	86	0	129	217	46	392	882
07:45	12	0	66	80	158	0	74	149	75	298	0	0	0	0	0	40	0	63	10	113	0	166	223	66	455	1024
Total	61	0	229	258	548	0	179	421	396	996	0	0	0	0	0	123	0	194	44	361	0	532	849	197	1578	3483
08:00	24	0	56	78	158	0	57	128	108	293	0	0	0	0	0	40	0	49	11	100	0	157	175	40	372	923
08:15	14	0	47	70	131	0	59	122	105	286	0	0	0	0	0	33	0	52	20	105	0	150	197	42	389	911
08:30	17	1	36	64	118	0	46	96	92	234	0	0	0	0	0	47	0	46	13	106	0	168	182	66	416	874
08:45	20	0	45	57	122	0	47	82	73	202	0	0	0	0	0	40	0	50	18	108	0	180	231	59	470	902
Total	75	1	184	269	529	0	209	428	378	1015	0	0	0	0	0	160	0	197	62	419	0	655	785	207	1647	3610
09:00	13	2	30	39	84	0	21	80	68	169	0	0	0	0	0	35	0	35	19	89	0	137	198	39	374	716
09:15	17	0	29	52	98	0	26	69	72	167	0	0	0	0	0	39	0	37	4	80	0	101	160	29	290	635
09:30	12	0	26	26	64	0	25	77	55	157	0	0	0	0	0	34	0	37	11	82	0	109	159	29	297	600
09:45	15	0	29	47	91	0	27	81	61	169	0	0	0	0	0	33	0	39	14	86	0	107	170	53	330	676
Total	57	2	114	164	337	0	99	307	256	662	0	0	0	0	0	141	0	148	48	337	0	454	687	150	1291	2627
15:00	27	1	61	56	145	0	33	126	91	250	0	0	0	0	0	62	0	72	15	149	0	147	178	40	365	909
15:15	31	0	54	45	130	0	44	142	91	277	0	0	0	0	0	65	0	89	23	177	0	201	178	34	413	997
15:30	23	1	48	53	125	0	43	147	102	292	0	0	0	0	0	72	0	68	37	177	0	198	186	44	428	1022
15:45	25	0	44	67	136	0	49	145	73	267	0	0	0	0	0	59	0	78	23	160	0	197	182	40	419	982
Total	106	2	207	221	536	0	169	560	357	1086	0	0	0	0	0	258	0	307	98	663	0	743	724	158	1625	3910
16:00	26	1	39	76	142	0	39	128	78	245	0	0	0	0	0	48	0	86	24	158	0	165	210	51	426	971
16:15	31	0	35	48	114	0	34	91	81	206	0	0	0	0	0	43	0	80	9	132	0	211	217	41	469	921

All Traffic Data

(916) 771-8700

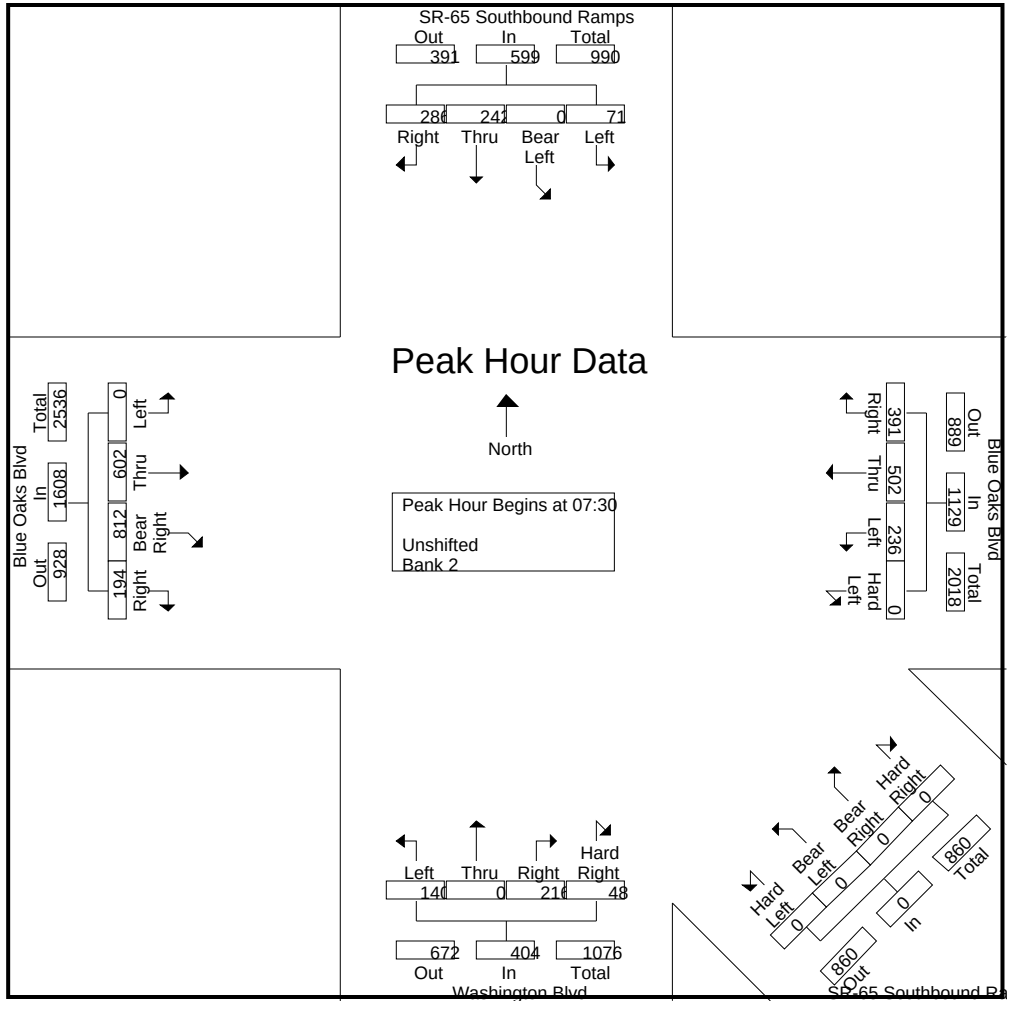
Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-007 SR65 SB-Blue Oaks
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound Ramps Southbound					Blue Oaks Blvd Westbound					SR-65 Southbound Ramps Northwestbound					Washington Blvd Northbound					Blue Oaks Blvd Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
16:30	32	0	51	45	128	0	38	133	81	252	0	0	0	0	0	54	0	78	30	162	0	213	210	56	479	1021
16:45	23	0	50	41	114	0	40	138	87	265	0	0	0	0	0	74	0	94	16	184	0	204	189	54	447	1010
Total	112	1	175	210	498	0	151	490	327	968	0	0	0	0	0	219	0	338	79	636	0	793	826	202	1821	3923
17:00	26	0	54	75	155	0	39	135	132	306	0	0	0	0	0	79	0	84	31	194	0	209	245	57	511	1166
17:15	28	0	43	65	136	0	45	160	93	298	0	0	0	0	0	92	0	97	20	209	0	281	206	62	549	1192
17:30	36	0	57	65	158	0	29	132	87	248	0	0	0	0	0	101	0	78	22	201	0	210	219	51	480	1087
17:45	32	0	42	63	137	0	39	139	103	281	0	0	0	0	0	73	0	72	24	169	0	224	185	34	443	1030
Total	122	0	196	268	586	0	152	566	415	1133	0	0	0	0	0	345	0	331	97	773	0	924	855	204	1983	4475
18:00	30	0	49	40	119	0	38	122	89	249	0	0	0	0	0	64	0	82	17	163	0	187	168	42	397	928
18:15	24	1	24	38	87	0	34	115	74	223	0	0	0	0	0	70	0	54	10	134	0	179	208	35	422	866
18:30	20	0	29	30	79	0	30	132	83	245	0	0	0	0	0	59	0	68	13	140	0	152	154	38	344	808
18:45	20	0	29	43	92	0	24	123	70	217	0	0	0	0	0	58	0	52	12	122	0	135	119	30	284	715
Total	94	1	131	151	377	0	126	492	316	934	0	0	0	0	0	251	0	256	52	559	0	653	649	145	1447	3317
Grand Total	657	8	1379	1714	3758	0	1205	3434	2745	7384	0	0	0	0	0	1533	0	1861	526	3920	0	5000	5954	1316	12270	27332
Apprch %	17.5	0.2	36.7	45.6		0	16.3	46.5	37.2		0	0	0	0		39.1	0	47.5	13.4		0	40.7	48.5	10.7		
Total %	2.4	0	5	6.3	13.7	0	4.4	12.6	10	27	0	0	0	0	0	5.6	0	6.8	1.9	14.3	0	18.3	21.8	4.8	44.9	
Unshifted	647	8	1336	1650	3641	0	1173	3390	2722	7285	0	0	0	0	0	1499	0	1839	484	3822	0	4943	5752	1272	11967	26715
% Unshifted	98.5	100	96.9	96.3	96.9	0	97.3	98.7	99.2	98.7	0	0	0	0	0	97.8	0	98.8	92	97.5	0	98.9	96.6	96.7	97.5	97.7
Bank 2	10	0	43	64	117	0	32	44	23	99	0	0	0	0	0	34	0	22	42	98	0	57	202	44	303	617
% Bank 2	1.5	0	3.1	3.7	3.1	0	2.7	1.3	0.8	1.3	0	0	0	0	0	2.2	0	1.2	8	2.5	0	1.1	3.4	3.3	2.5	2.3

	SR-65 Southbound Ramps Southbound					Blue Oaks Blvd Westbound					SR-65 Southbound Ramps Northwestbound					Washington Blvd Northbound					Blue Oaks Blvd Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:30																									
07:30	21	0	**73**	58	152	0	46	103	103	252	0	0	0	0	0	27	0	52	7	86	0	129	217	46	392	882
07:45	12	0	66	**80**	**158**	0	**74**	**149**	75	**298**	0	0	0	0	0	**40**	0	**63**	10	**113**	0	**166**	**223**	**66**	**455**	**1024**
08:00	**24**	0	56	78	158	0	57	128	**108**	293	0	0	0	0	0	40	0	49	11	100	0	157	175	40	372	923
08:15	14	0	47	70	131	0	59	122	105	286	0	0	0	0	0	33	0	52	**20**	105	0	150	197	42	389	911
Total Volume	71	0	242	286	599	0	236	502	391	1129	0	0	0	0	0	140	0	216	48	404	0	602	812	194	1608	3740
% App. Total	11.9	0	40.4	47.7		0	20.9	44.5	34.6		0	0	0	0		34.7	0	53.5	11.9		0	37.4	50.5	12.1		
PHF	.740	.000	.829	.894	.948	.000	.797	.842	.905	.947	.000	.000	.000	.000	.000	.875	.000	.857	.600	.894	.000	.907	.910	.735	.884	.913



Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

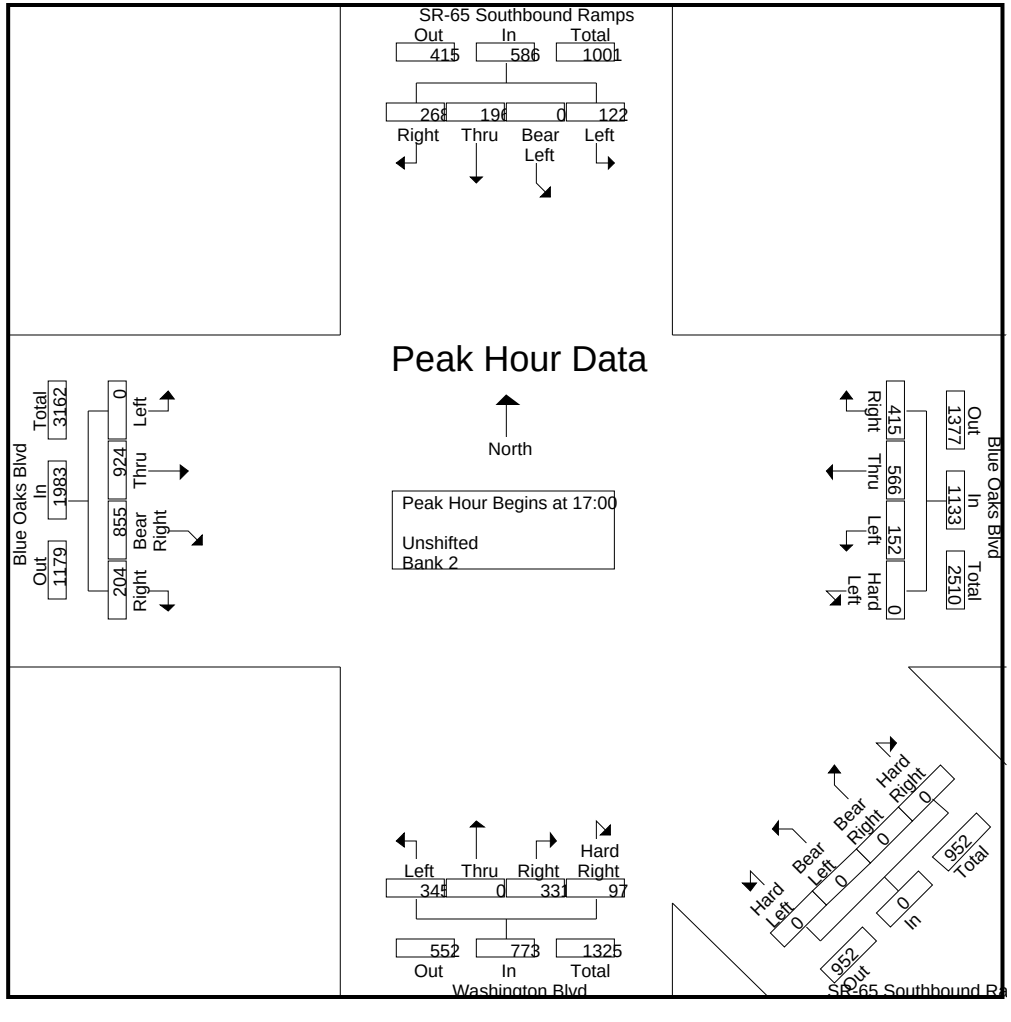
17:00	26	0	54	**75**	155	0	39	135	**132**	**306**	0	0	0	0	0	79	0	84	**31**	194	0	209	**245**	57	511	1166
17:15	28	0	43	65	136	0	**45**	**160**	93	298	0	0	0	0	0	92	0	**97**	20	**209**	0	**281**	206	**62**	**549**	**1192**
17:30	**36**	0	**57**	65	**158**	0	29	132	87	248	0	0	0	0	0	**101**	0	78	22	201	0	210	219	51	480	1087
17:45	32	0	42	63	137	0	39	139	103	281	0	0	0	0	0	73	0	72	24	169	0	224	185	34	443	1030
Total Volume	122	0	196	268	586	0	152	566	415	1133	0	0	0	0	0	345	0	331	97	773	0	924	855	204	1983	4475
% App. Total	20.8	0	33.4	45.7		0	13.4	50	36.6		0	0	0	0		44.6	0	42.8	12.5		0	46.6	43.1	10.3		
PHF	.847	.000	.860	.893	.927	.000	.844	.884	.786	.926	.000	.000	.000	.000	.000	.854	.000	.853	.782	.925	.000	.822	.872	.823	.903	.939

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-007 SR65 SB-Blue Oaks
Site Code : 00000000
Start Date : 2/8/2012
Page No : 4



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
Northbound Thru = Underpass

File Name : 12-7003-006 SR65 NB-Blue Oaks
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Northbound Ramps Southbound				Blue Oaks Boulevard Westbound				SR-65 Northbound Ramps Northbound				Blue Oaks Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	0	0	12	84	0	96	15	64	19	98	0	35	37	72	266
06:15	0	0	0	0	11	105	0	116	14	88	21	123	0	35	41	76	315
06:30	0	0	0	0	17	118	0	135	19	79	35	133	0	37	31	68	336
06:45	0	0	0	0	15	165	0	180	54	158	42	254	0	71	57	128	562
Total	0	0	0	0	55	472	0	527	102	389	117	608	0	178	166	344	1479
07:00	0	0	0	0	15	187	0	202	21	144	50	215	0	82	54	136	553
07:15	0	0	0	0	17	215	0	232	28	215	55	298	0	107	88	195	725
07:30	0	0	0	0	11	207	0	218	41	279	139	459	0	186	29	215	892
07:45	0	0	0	0	13	238	0	251	60	284	114	458	0	190	63	253	962
Total	0	0	0	0	56	847	0	903	150	922	358	1430	0	565	234	799	3132
08:00	0	0	0	0	9	249	0	258	37	261	79	377	0	157	79	236	871
08:15	0	0	0	0	7	233	0	240	41	243	56	340	0	140	71	211	791
08:30	0	0	0	0	11	185	0	196	41	203	57	301	0	142	79	221	718
08:45	0	0	0	0	13	180	0	193	27	190	71	288	0	175	82	257	738
Total	0	0	0	0	40	847	0	887	146	897	263	1306	0	614	311	925	3118
09:00	0	0	0	0	8	144	0	152	26	142	55	223	0	116	65	181	556
09:15	0	0	0	0	12	135	0	147	19	131	52	202	0	101	55	156	505
09:30	0	0	0	0	11	146	0	157	23	125	68	216	0	113	49	162	535
09:45	0	0	0	0	17	132	0	149	24	115	69	208	0	105	55	160	517
Total	0	0	0	0	48	557	0	605	92	513	244	849	0	435	224	659	2113
15:00	0	0	0	0	13	211	0	224	28	153	89	270	0	181	71	252	746
15:15	0	0	0	0	25	254	0	279	17	165	105	287	0	221	86	307	873
15:30	0	0	0	0	27	279	0	306	22	166	94	282	0	194	104	298	886
15:45	0	0	0	0	20	239	0	259	27	195	114	336	0	179	89	268	863
Total	0	0	0	0	85	983	0	1068	94	679	402	1175	0	775	350	1125	3368
16:00	0	0	0	0	16	221	0	237	24	156	92	272	0	203	93	296	805
16:15	0	0	0	0	19	181	0	200	14	168	106	288	0	208	94	302	790
16:30	0	0	0	0	21	244	0	265	20	171	128	319	0	222	99	321	905

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
Northbound Thru = Underpass

File Name : 12-7003-006 SR65 NB-Blue Oaks
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Northbound Ramps Southbound				Blue Oaks Boulevard Westbound				SR-65 Northbound Ramps Northbound				Blue Oaks Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	0	0	0	18	242	0	260	14	166	96	276	0	247	85	332	868
Total	0	0	0	0	74	888	0	962	72	661	422	1155	0	880	371	1251	3368
17:00	0	0	0	0	26	305	0	331	16	146	110	272	0	215	98	313	916
17:15	0	0	0	0	27	267	0	294	9	175	108	292	0	258	130	388	974
17:30	0	0	0	0	33	254	0	287	17	185	114	316	0	263	83	346	949
17:45	0	0	0	0	17	244	0	261	19	171	120	310	0	220	98	318	889
Total	0	0	0	0	103	1070	0	1173	61	677	452	1190	0	956	409	1365	3728
18:00	0	0	0	0	25	239	0	264	20	196	104	320	0	209	79	288	872
18:15	0	0	0	0	32	196	0	228	15	171	95	281	0	173	87	260	769
18:30	0	0	0	0	31	220	0	251	16	189	103	308	0	177	62	239	798
18:45	0	0	0	0	30	196	0	226	15	176	81	272	0	156	55	211	709
Total	0	0	0	0	118	851	0	969	66	732	383	1181	0	715	283	998	3148
Grand Total	0	0	0	0	579	6515	0	7094	783	5470	2641	8894	0	5118	2348	7466	23454
Apprch %	0	0	0		8.2	91.8	0		8.8	61.5	29.7		0	68.6	31.4		
Total %	0	0	0	0	2.5	27.8	0	30.2	3.3	23.3	11.3	37.9	0	21.8	10	31.8	
Unshifted	0	0	0	0	571	6474	0	7045	734	5470	2628	8832	0	5085	2306	7391	23268
% Unshifted	0	0	0	0	98.6	99.4	0	99.3	93.7	100	99.5	99.3	0	99.4	98.2	99	99.2
Bank 2	0	0	0	0	8	41	0	49	49	0	13	62	0	33	42	75	186
% Bank 2	0	0	0	0	1.4	0.6	0	0.7	6.3	0	0.5	0.7	0	0.6	1.8	1	0.8

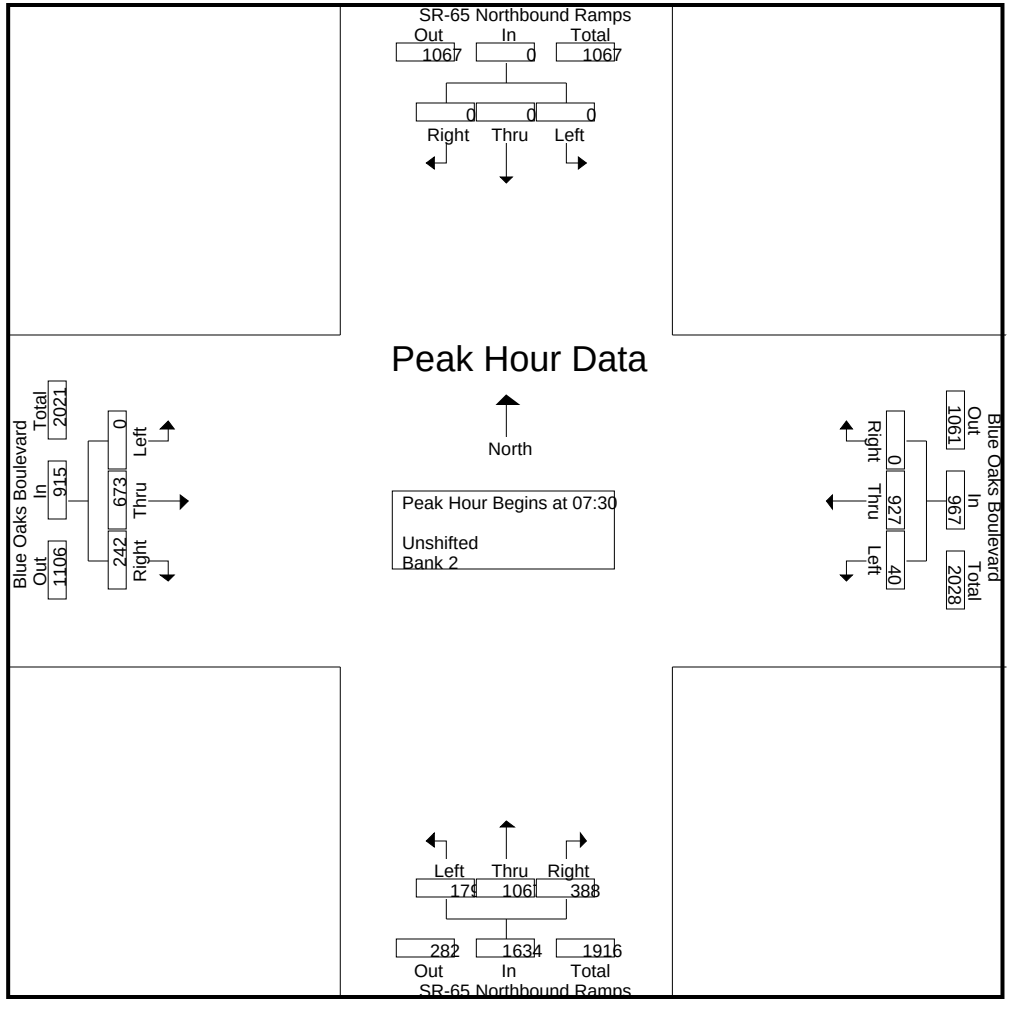
	SR-65 Northbound Ramps Southbound				Blue Oaks Boulevard Westbound				SR-65 Northbound Ramps Northbound				Blue Oaks Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	11	207	0	218	41	279	**139**	**459**	0	186	29	215	892
07:45	0	0	0	0	**13**	238	0	251	**60**	**284**	114	458	0	**190**	63	**253**	**962**
08:00	0	0	0	0	9	**249**	0	**258**	37	261	79	377	0	157	**79**	236	871
08:15	0	0	0	0	7	233	0	240	41	243	56	340	0	140	71	211	791
Total Volume	0	0	0	0	40	927	0	967	179	1067	388	1634	0	673	242	915	3516
% App. Total	0	0	0		4.1	95.9	0		11	65.3	23.7		0	73.6	26.4		
PHF	.000	.000	.000	.000	.769	.931	.000	.937	.746	.939	.698	.890	.000	.886	.766	.904	.914

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
Northbound Thru = Underpass

File Name : 12-7003-006 SR65 NB-Blue Oaks
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
Northbound Thru = Underpass

File Name : 12-7003-006 SR65 NB-Blue Oaks
Site Code : 00000000
Start Date : 2/8/2012

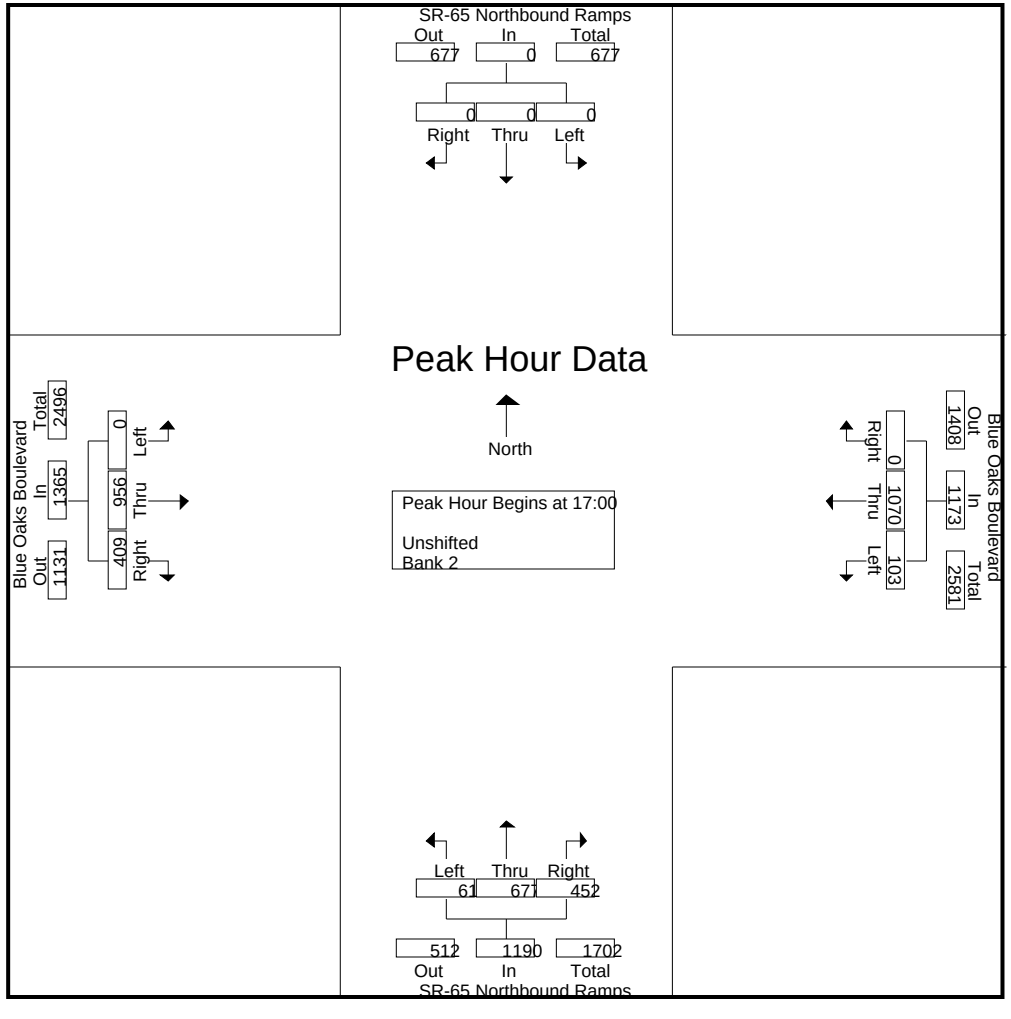
	SR-65 Northbound Ramps Southbound				Blue Oaks Boulevard Westbound				SR-65 Northbound Ramps Northbound				Blue Oaks Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	0	0	0	26	**305**	0	**331**	16	146	110	272	0	215	98	313	916
17:15	0	0	0	0	27	267	0	294	9	175	108	292	0	258	**130**	**388**	**974**
17:30	0	0	0	0	**33**	254	0	287	17	**185**	114	**316**	0	**263**	83	346	949
17:45	0	0	0	0	17	244	0	261	**19**	171	**120**	310	0	220	98	318	889
Total Volume	0	0	0	0	103	1070	0	1173	61	677	452	1190	0	956	409	1365	3728
% App. Total	0	0	0		8.8	91.2	0		5.1	56.9	38		0	70	30		
PHF	.000	.000	.000	.000	.780	.877	.000	.886	.803	.915	.942	.941	.000	.909	.787	.880	.957

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
Northbound Thru = Underpass

File Name : 12-7003-006 SR65 NB-Blue Oaks
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-009 SR65 SB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound Ramps Southbound				Pleasant Grove Blvd Westbound				SR-65 Southbound Ramps Northbound				Pleasant Grove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	7	0	14	21	0	64	81	145	0	0	0	0	0	40	56	96	262
06:15	10	0	16	26	0	93	95	188	0	0	0	0	0	49	72	121	335
06:30	9	0	30	39	0	100	103	203	0	0	0	0	0	69	95	164	406
06:45	11	0	41	52	0	158	135	293	0	0	0	0	0	102	92	194	539
Total	37	0	101	138	0	415	414	829	0	0	0	0	0	260	315	575	1542
07:00	9	0	45	54	0	188	109	297	0	0	0	0	0	98	139	237	588
07:15	20	0	105	125	0	226	110	336	0	0	0	0	0	123	165	288	749
07:30	23	3	166	192	0	304	112	416	0	0	0	0	0	165	148	313	921
07:45	24	0	191	215	0	307	99	406	0	0	0	0	0	222	140	362	983
Total	76	3	507	586	0	1025	430	1455	0	0	0	0	0	608	592	1200	3241
08:00	46	1	137	184	0	276	94	370	0	0	0	0	0	205	124	329	883
08:15	30	3	127	160	0	302	109	411	0	0	0	0	0	184	111	295	866
08:30	47	1	121	169	0	266	97	363	0	0	0	0	0	211	114	325	857
08:45	27	0	78	105	0	321	120	441	0	0	0	0	0	259	117	376	922
Total	150	5	463	618	0	1165	420	1585	0	0	0	0	0	859	466	1325	3528
09:00	24	1	60	85	0	251	111	362	0	0	0	0	0	201	161	362	809
09:15	21	0	51	72	0	178	112	290	0	0	0	0	0	189	112	301	663
09:30	38	0	59	97	0	203	81	284	0	0	0	0	0	193	106	299	680
09:45	27	0	57	84	0	254	81	335	0	0	0	0	0	181	78	259	678
Total	110	1	227	338	0	886	385	1271	0	0	0	0	0	764	457	1221	2830
15:00	59	1	121	181	0	406	75	481	0	0	0	0	0	360	140	500	1162
15:15	49	0	96	145	0	381	88	469	0	0	0	0	0	388	140	528	1142
15:30	38	2	135	175	0	393	60	453	0	0	0	0	0	330	126	456	1084
15:45	59	1	121	181	0	447	75	522	0	0	0	0	0	357	143	500	1203
Total	205	4	473	682	0	1627	298	1925	0	0	0	0	0	1435	549	1984	4591
16:00	39	1	54	94	0	398	77	475	0	0	0	0	0	354	142	496	1065
16:15	40	1	105	146	0	376	73	449	0	0	0	0	0	369	182	551	1146
16:30	36	3	79	118	0	361	75	436	0	0	0	0	0	375	134	509	1063

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-009 SR65 SB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	SR-65 Southbound Ramps Southbound				Pleasant Grove Blvd Westbound				SR-65 Southbound Ramps Northbound				Pleasant Grove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	28	1	77	106	0	363	89	452	0	0	0	0	0	439	141	580	1138
Total	143	6	315	464	0	1498	314	1812	0	0	0	0	0	1537	599	2136	4412
17:00	35	0	89	124	0	383	69	452	0	0	0	0	0	394	159	553	1129
17:15	47	1	155	203	0	442	71	513	0	0	0	0	0	432	149	581	1297
17:30	51	0	145	196	0	380	67	447	0	0	0	0	0	414	121	535	1178
17:45	35	1	104	140	0	409	76	485	0	0	0	0	0	472	132	604	1229
Total	168	2	493	663	0	1614	283	1897	0	0	0	0	0	1712	561	2273	4833
18:00	29	0	68	97	0	387	84	471	0	0	0	0	0	394	153	547	1115
18:15	37	0	55	92	0	417	94	511	0	0	0	0	0	395	158	553	1156
18:30	33	0	65	98	0	384	95	479	0	0	0	0	0	363	128	491	1068
18:45	28	0	53	81	0	347	84	431	0	0	0	0	0	330	121	451	963
Total	127	0	241	368	0	1535	357	1892	0	0	0	0	0	1482	560	2042	4302
Grand Total	1016	21	2820	3857	0	9765	2901	12666	0	0	0	0	0	8657	4099	12756	29279
Apprch %	26.3	0.5	73.1		0	77.1	22.9		0	0	0		0	67.9	32.1		
Total %	3.5	0.1	9.6	13.2	0	33.4	9.9	43.3	0	0	0	0	0	29.6	14	43.6	
Unshifted	1009	21	2805	3835	0	9714	2882	12596	0	0	0	0	0	8630	4009	12639	29070
% Unshifted	99.3	100	99.5	99.4	0	99.5	99.3	99.4	0	0	0	0	0	99.7	97.8	99.1	99.3
Bank 2	7	0	15	22	0	51	19	70	0	0	0	0	0	27	90	117	209
% Bank 2	0.7	0	0.5	0.6	0	0.5	0.7	0.6	0	0	0	0	0	0.3	2.2	0.9	0.7

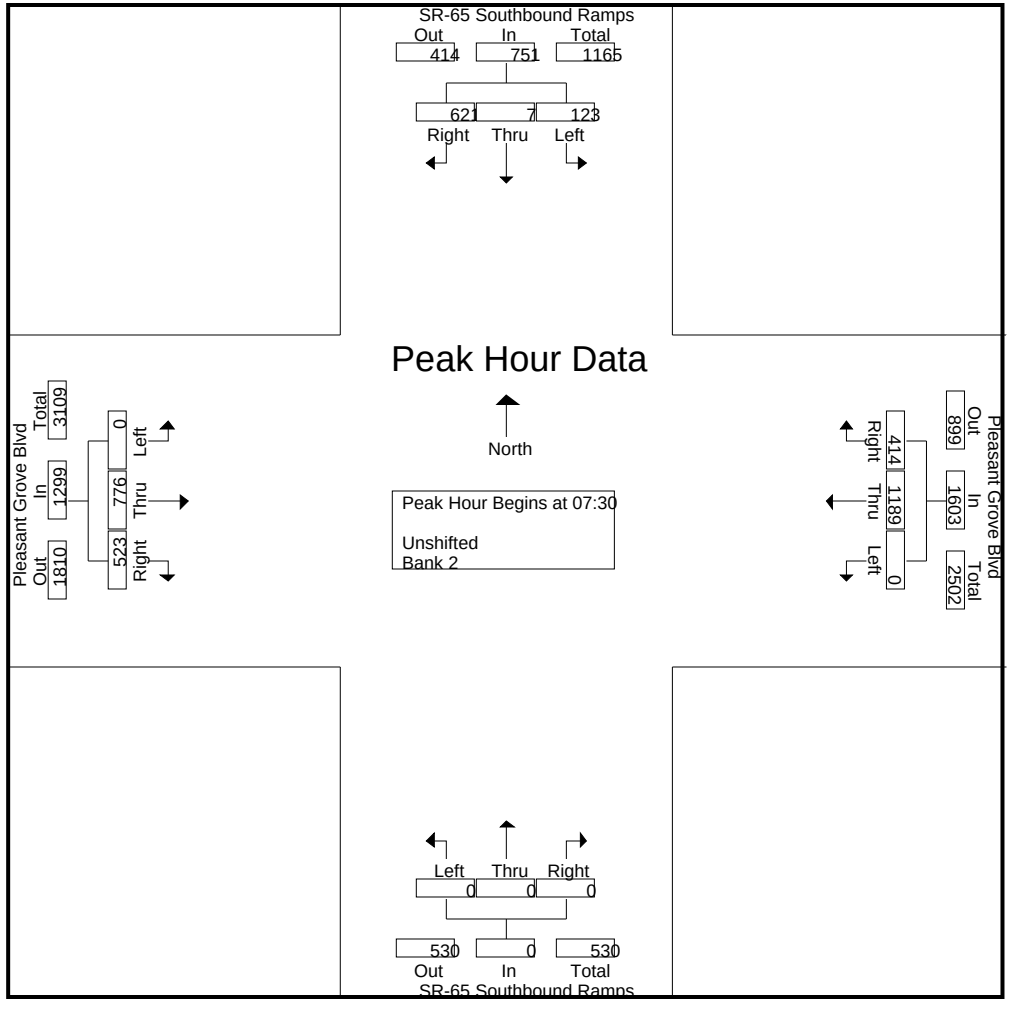
	SR-65 Southbound Ramps Southbound				Pleasant Grove Blvd Westbound				SR-65 Southbound Ramps Northbound				Pleasant Grove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	23	**3**	166	192	0	304	**112**	**416**	0	0	0	0	0	165	**148**	313	921
07:45	24	0	**191**	**215**	0	**307**	99	406	0	0	0	0	0	**222**	140	**362**	**983**
08:00	**46**	1	137	184	0	276	94	370	0	0	0	0	0	205	124	329	883
08:15	30	3	127	160	0	302	109	411	0	0	0	0	0	184	111	295	866
Total Volume	123	7	621	751	0	1189	414	1603	0	0	0	0	0	776	523	1299	3653
% App. Total	16.4	0.9	82.7		0	74.2	25.8		0	0	0		0	59.7	40.3		
PHF	.668	.583	.813	.873	.000	.968	.924	.963	.000	.000	.000	.000	.000	.874	.883	.897	.929

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-009 SR65 SB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-009 SR65 SB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012

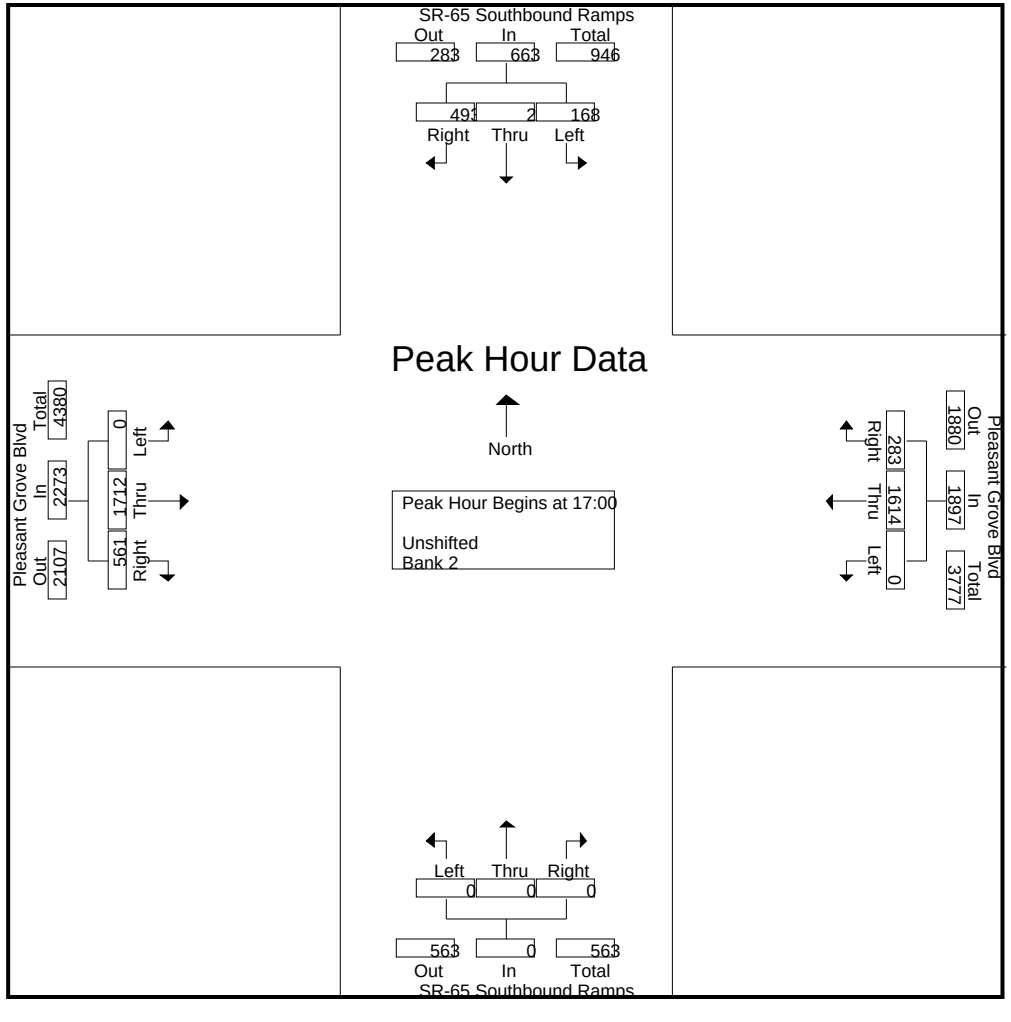
	SR-65 Southbound Ramps Southbound				Pleasant Grove Blvd Westbound				SR-65 Southbound Ramps Northbound				Pleasant Grove Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	35	0	89	124	0	383	69	452	0	0	0	0	0	394	**159**	553	1129
17:15	47	**1**	**155**	**203**	0	**442**	71	**513**	0	0	0	0	0	432	149	581	**1297**
17:30	**51**	0	145	196	0	380	67	447	0	0	0	0	0	414	121	535	1178
17:45	35	1	104	140	0	409	**76**	485	0	0	0	0	0	**472**	132	**604**	1229
Total Volume	168	2	493	663	0	1614	283	1897	0	0	0	0	0	1712	561	2273	4833
% App. Total	25.3	0.3	74.4		0	85.1	14.9		0	0	0		0	75.3	24.7		
PHF	.824	.500	.795	.817	.000	.913	.931	.924	.000	.000	.000	.000	.000	.907	.882	.941	.932

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-009 SR65 SB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-008 SR65 NB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	Southbound				Pleasant Grove Boulevard Westbound				SR-65 Northbound Ramps Northbound				Pleasant Grove Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	0	0	7	109	0	116	34	0	26	60	0	27	19	46	222
06:15	0	0	0	0	8	159	0	167	39	0	23	62	0	38	22	60	289
06:30	0	0	0	0	12	168	0	180	32	0	40	72	0	53	22	75	327
06:45	0	0	0	0	23	225	0	248	60	0	42	102	0	77	33	110	460
Total	0	0	0	0	50	661	0	711	165	0	131	296	0	195	96	291	1298
07:00	0	0	0	0	15	243	0	258	60	0	44	104	0	82	25	107	469
07:15	0	0	0	0	10	260	0	270	67	0	59	126	0	118	34	152	548
07:30	0	0	0	0	10	319	0	329	82	0	63	145	0	136	40	176	650
07:45	0	0	0	0	13	320	0	333	98	0	85	183	0	201	49	250	766
Total	0	0	0	0	48	1142	0	1190	307	0	251	558	0	537	148	685	2433
08:00	0	0	0	0	18	272	0	290	92	0	62	154	0	195	50	245	689
08:15	0	0	0	0	16	329	0	345	86	0	84	170	0	190	31	221	736
08:30	0	0	0	0	25	282	0	307	74	0	79	153	0	207	30	237	697
08:45	0	0	0	0	28	345	0	373	91	0	89	180	0	270	39	309	862
Total	0	0	0	0	87	1228	0	1315	343	0	314	657	0	862	150	1012	2984
09:00	0	0	0	0	23	258	0	281	93	0	80	173	0	194	23	217	671
09:15	0	0	0	0	20	249	0	269	53	0	75	128	0	174	52	226	623
09:30	0	0	0	0	31	206	0	237	75	0	83	158	0	192	35	227	622
09:45	0	0	0	0	31	251	0	282	89	0	72	161	0	187	36	223	666
Total	0	0	0	0	105	964	0	1069	310	0	310	620	0	747	146	893	2582
15:00	0	0	0	0	42	302	0	344	128	0	116	244	0	313	83	396	984
15:15	0	0	0	0	36	354	0	390	123	0	137	260	0	361	85	446	1096
15:30	0	0	0	0	46	366	0	412	143	0	135	278	0	335	60	395	1085
15:45	0	0	0	0	45	386	0	431	121	0	123	244	0	334	81	415	1090
Total	0	0	0	0	169	1408	0	1577	515	0	511	1026	0	1343	309	1652	4255
16:00	0	0	0	0	42	333	0	375	158	0	135	293	0	288	83	371	1039
16:15	0	0	0	0	39	310	0	349	121	0	139	260	0	362	77	439	1048
16:30	0	0	0	0	41	331	0	372	131	0	137	268	0	329	101	430	1070

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-008 SR65 NB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	Southbound				Pleasant Grove Boulevard Westbound				SR-65 Northbound Ramps Northbound				Pleasant Grove Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	0	0	0	44	340	0	384	97	0	132	229	0	353	96	449	1062
Total	0	0	0	0	166	1314	0	1480	507	0	543	1050	0	1332	357	1689	4219
17:00	0	0	0	0	38	333	0	371	141	0	140	281	0	332	104	436	1088
17:15	0	0	0	0	32	375	0	407	104	0	100	204	0	396	95	491	1102
17:30	0	0	0	0	42	360	0	402	122	0	136	258	0	344	107	451	1111
17:45	0	0	0	0	36	348	0	384	103	0	124	227	0	414	114	528	1139
Total	0	0	0	0	148	1416	0	1564	470	0	500	970	0	1486	420	1906	4440
18:00	0	0	0	0	46	343	0	389	144	0	139	283	0	342	78	420	1092
18:15	0	0	0	0	34	381	0	415	111	0	117	228	0	329	113	442	1085
18:30	0	0	0	0	43	348	0	391	124	0	123	247	0	297	84	381	1019
18:45	0	0	0	0	46	310	0	356	110	0	116	226	0	297	76	373	955
Total	0	0	0	0	169	1382	0	1551	489	0	495	984	0	1265	351	1616	4151
Grand Total	0	0	0	0	942	9515	0	10457	3106	0	3055	6161	0	7767	1977	9744	26362
Apprch %	0	0	0		9	91	0		50.4	0	49.6		0	79.7	20.3		
Total %	0	0	0	0	3.6	36.1	0	39.7	11.8	0	11.6	23.4	0	29.5	7.5	37	
Unshifted	0	0	0	0	934	9468	0	10402	3068	0	3014	6082	0	7739	1960	9699	26183
% Unshifted	0	0	0	0	99.2	99.5	0	99.5	98.8	0	98.7	98.7	0	99.6	99.1	99.5	99.3
Bank 2	0	0	0	0	8	47	0	55	38	0	41	79	0	28	17	45	179
% Bank 2	0	0	0	0	0.8	0.5	0	0.5	1.2	0	1.3	1.3	0	0.4	0.9	0.5	0.7

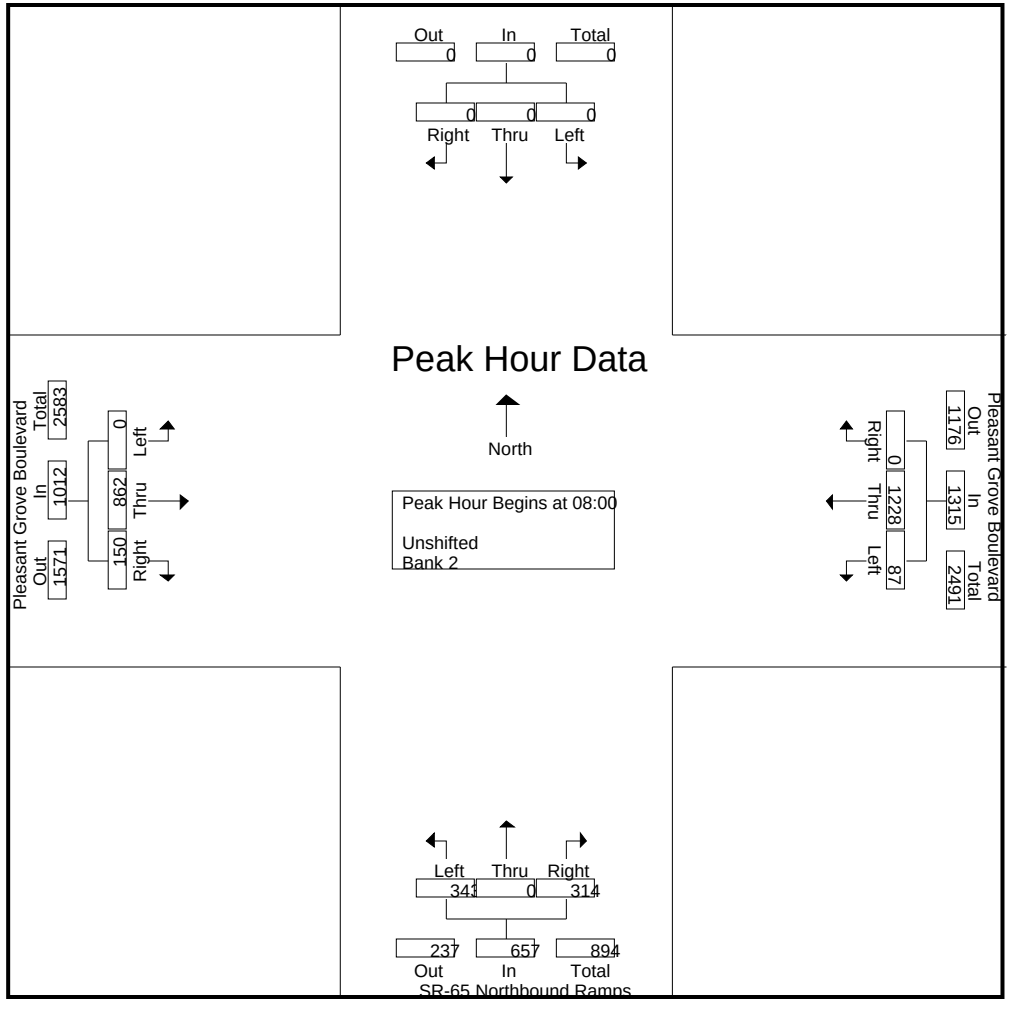
	Southbound				Pleasant Grove Boulevard Westbound				SR-65 Northbound Ramps Northbound				Pleasant Grove Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	0	0	0	18	272	0	290	**92**	0	62	154	0	195	**50**	245	689
08:15	0	0	0	0	16	329	0	345	86	0	84	170	0	190	31	221	736
08:30	0	0	0	0	25	282	0	307	74	0	79	153	0	207	30	237	697
08:45	0	0	0	0	**28**	**345**	0	**373**	91	0	**89**	**180**	0	**270**	39	**309**	**862**
Total Volume	0	0	0	0	87	1228	0	1315	343	0	314	657	0	862	150	1012	2984
% App. Total	0	0	0		6.6	93.4	0		52.2	0	47.8		0	85.2	14.8		
PHF	.000	.000	.000	.000	.777	.890	.000	.881	.932	.000	.882	.913	.000	.798	.750	.819	.865

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-008 SR65 NB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-008 SR65 NB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012

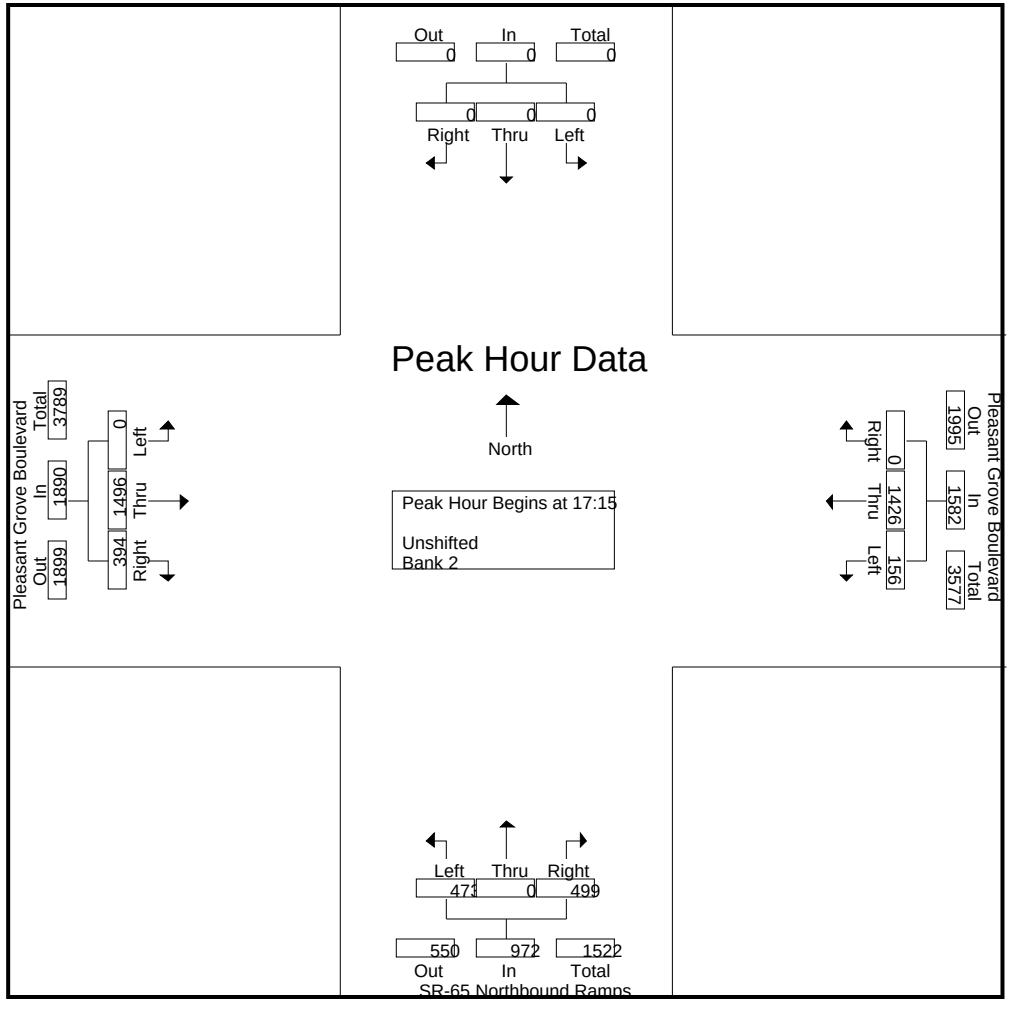
	Southbound				Pleasant Grove Boulevard Westbound				SR-65 Northbound Ramps Northbound				Pleasant Grove Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:15																	
17:15	0	0	0	0	32	**375**	0	**407**	104	0	100	204	0	396	95	491	1102
17:30	0	0	0	0	42	360	0	402	122	0	136	258	0	344	107	451	1111
17:45	0	0	0	0	36	348	0	384	103	0	124	227	0	**414**	**114**	**528**	**1139**
18:00	0	0	0	0	**46**	343	0	389	**144**	0	**139**	**283**	0	342	78	420	1092
Total Volume	0	0	0	0	156	1426	0	1582	473	0	499	972	0	1496	394	1890	4444
% App. Total	0	0	0		9.9	90.1	0		48.7	0	51.3		0	79.2	20.8		
PHF	.000	.000	.000	.000	.848	.951	.000	.972	.821	.000	.897	.859	.000	.903	.864	.895	.975

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-008 SR65 NB-Pleasant Grove
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-010 Stanford Ranch-Five Star
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	Stanford Ranch Road Southbound					Five Star Boulevard Westbound					Stanford Ranch Road Northbound					Five Star Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00	1	123	0	1	125	30	4	0	0	34	7	29	5	2	43	1	0	15	0	16	218
06:15	0	159	2	0	161	31	1	2	0	34	16	22	4	3	45	0	1	13	0	14	254
06:30	4	179	2	2	187	32	5	1	0	38	16	49	11	2	78	2	2	17	0	21	324
06:45	2	234	3	1	240	34	6	3	0	43	15	69	14	3	101	1	2	24	0	27	411
Total	7	695	7	4	713	127	16	6	0	149	54	169	34	10	267	4	5	69	0	78	1207
07:00	4	222	1	0	227	58	5	3	0	66	21	72	23	1	117	3	2	29	0	34	444
07:15	0	273	1	0	274	50	8	2	0	60	9	117	31	4	161	2	2	32	0	36	531
07:30	8	276	3	0	287	68	7	3	0	78	21	152	34	3	210	1	2	34	0	37	612
07:45	10	357	4	1	372	58	12	7	0	77	32	191	53	3	279	6	10	48	0	64	792
Total	22	1128	9	1	1160	234	32	15	0	281	83	532	141	11	767	12	16	143	0	171	2379
08:00	21	242	6	1	270	76	15	9	0	100	28	183	55	4	270	2	13	25	0	40	680
08:15	13	285	2	0	300	72	13	6	0	91	34	150	56	5	245	1	11	49	0	61	697
08:30	24	225	5	3	257	77	21	7	0	105	21	128	62	3	214	7	13	56	0	76	652
08:45	20	239	3	2	264	60	21	7	0	88	51	165	78	6	300	2	14	44	0	60	712
Total	78	991	16	6	1091	285	70	29	0	384	134	626	251	18	1029	12	51	174	0	237	2741
09:00	17	191	9	1	218	80	23	15	0	118	42	127	65	8	242	4	17	38	0	59	637
09:15	14	183	3	0	200	53	28	7	0	88	62	154	66	5	287	5	8	40	0	53	628
09:30	8	170	9	2	189	58	28	5	0	91	66	135	62	15	278	2	13	52	0	67	625
09:45	15	206	11	0	232	57	22	17	0	96	89	155	52	27	323	9	11	46	0	66	717
Total	54	750	32	3	839	248	101	44	0	393	259	571	245	55	1130	20	49	176	0	245	2607
15:00	19	289	21	0	329	111	39	20	0	170	113	267	74	32	486	22	35	88	0	145	1130
15:15	11	204	13	0	228	86	23	10	0	119	124	268	78	53	523	16	14	92	0	122	992
15:30	14	237	18	1	270	104	40	7	0	151	95	280	82	39	496	32	17	104	0	153	1070
15:45	22	192	14	1	229	89	25	13	0	127	104	296	63	41	504	24	29	99	0	152	1012
Total	66	922	66	2	1056	390	127	50	0	567	436	1111	297	165	2009	94	95	383	0	572	4204
16:00	16	213	20	0	249	92	24	9	0	125	104	263	66	39	472	22	22	97	0	141	987
16:15	17	226	13	2	258	80	21	19	0	120	105	315	96	44	560	19	23	85	0	127	1065
16:30	8	220	18	0	246	108	29	21	0	158	100	268	89	38	495	20	19	102	0	141	1040
16:45	15	202	13	2	232	79	20	10	0	109	115	306	75	47	543	30	27	74	0	131	1015
Total	56	861	64	4	985	359	94	59	0	512	424	1152	326	168	2070	91	91	358	0	540	4107
17:00	23	249	17	1	290	122	24	25	0	171	105	348	63	31	547	33	24	83	0	140	1148
17:15	14	247	19	2	282	92	41	20	0	153	113	381	97	37	628	23	17	52	0	92	1155
17:30	23	201	11	2	237	101	35	13	0	149	81	294	83	38	496	24	26	89	0	139	1021

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-010 Stanford Ranch-Five Star
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	Stanford Ranch Road Southbound					Five Star Boulevard Westbound					Stanford Ranch Road Northbound					Five Star Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
17:45	10	246	19	0	275	79	33	14	0	126	101	371	82	47	601	19	33	92	0	144	1146
Total	70	943	66	5	1084	394	133	72	0	599	400	1394	325	153	2272	99	100	316	0	515	4470
18:00	19	206	9	1	235	94	24	16	0	134	76	291	90	36	493	16	22	103	0	141	1003
18:15	20	208	17	0	245	75	19	14	0	108	86	331	88	37	542	16	26	71	0	113	1008
18:30	31	194	12	2	239	72	34	14	0	120	78	246	107	11	442	19	24	80	0	123	924
18:45	35	157	9	1	202	71	26	12	0	109	78	263	131	31	503	21	26	58	0	105	919
Total	105	765	47	4	921	312	103	56	0	471	318	1131	416	115	1980	72	98	312	0	482	3854
Grand Total	458	7055	307	29	7849	2349	676	331	0	3356	2108	6686	2035	695	11524	404	505	1931	0	2840	25569
Apprch %	5.8	89.9	3.9	0.4		70	20.1	9.9	0		18.3	58	17.7	6		14.2	17.8	68	0		
Total %	1.8	27.6	1.2	0.1	30.7	9.2	2.6	1.3	0	13.1	8.2	26.1	8	2.7	45.1	1.6	2	7.6	0	11.1	
Unshifted	450	7008	305	29	7792	2324	666	324	0	3314	2090	6641	2014	695	11440	400	503	1913	0	2816	25362
% Unshifted	98.3	99.3	99.3	100	99.3	98.9	98.5	97.9	0	98.7	99.1	99.3	99	100	99.3	99	99.6	99.1	0	99.2	99.2
Bank 2	8	47	2	0	57	25	10	7	0	42	18	45	21	0	84	4	2	18	0	24	207
% Bank 2	1.7	0.7	0.7	0	0.7	1.1	1.5	2.1	0	1.3	0.9	0.7	1	0	0.7	1	0.4	0.9	0	0.8	0.8

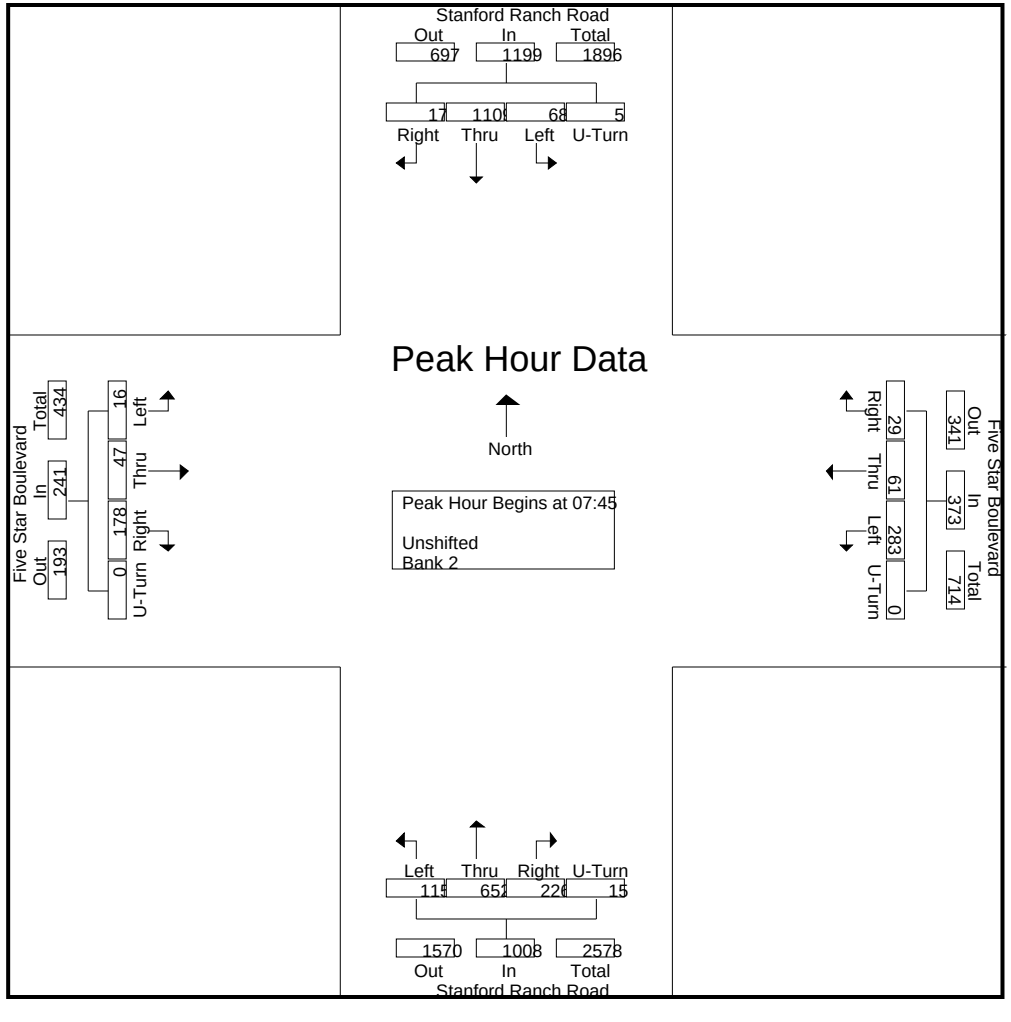
	Stanford Ranch Road Southbound					Five Star Boulevard Westbound					Stanford Ranch Road Northbound					Five Star Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	10	**357**	4	1	**372**	58	12	7	0	77	32	**191**	53	3	**279**	6	10	48	0	64	**792**
08:00	21	242	**6**	1	270	76	15	**9**	0	100	28	183	55	4	270	2	**13**	25	0	40	680
08:15	13	285	2	0	300	72	13	6	0	91	**34**	150	56	**5**	245	1	11	49	0	61	697
08:30	**24**	225	5	**3**	257	**77**	**21**	7	0	**105**	21	128	**62**	3	214	**7**	13	**56**	0	**76**	652
Total Volume	68	1109	17	5	1199	283	61	29	0	373	115	652	226	15	1008	16	47	178	0	241	2821
% App. Total	5.7	92.5	1.4	0.4		75.9	16.4	7.8	0		11.4	64.7	22.4	1.5		6.6	19.5	73.9	0		
PHF	.708	.777	.708	.417	.806	.919	.726	.806	.000	.888	.846	.853	.911	.750	.903	.571	.904	.795	.000	.793	.890

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-010 Stanford Ranch-Five Star
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-010 Stanford Ranch-Five Star
Site Code : 00000000
Start Date : 2/8/2012

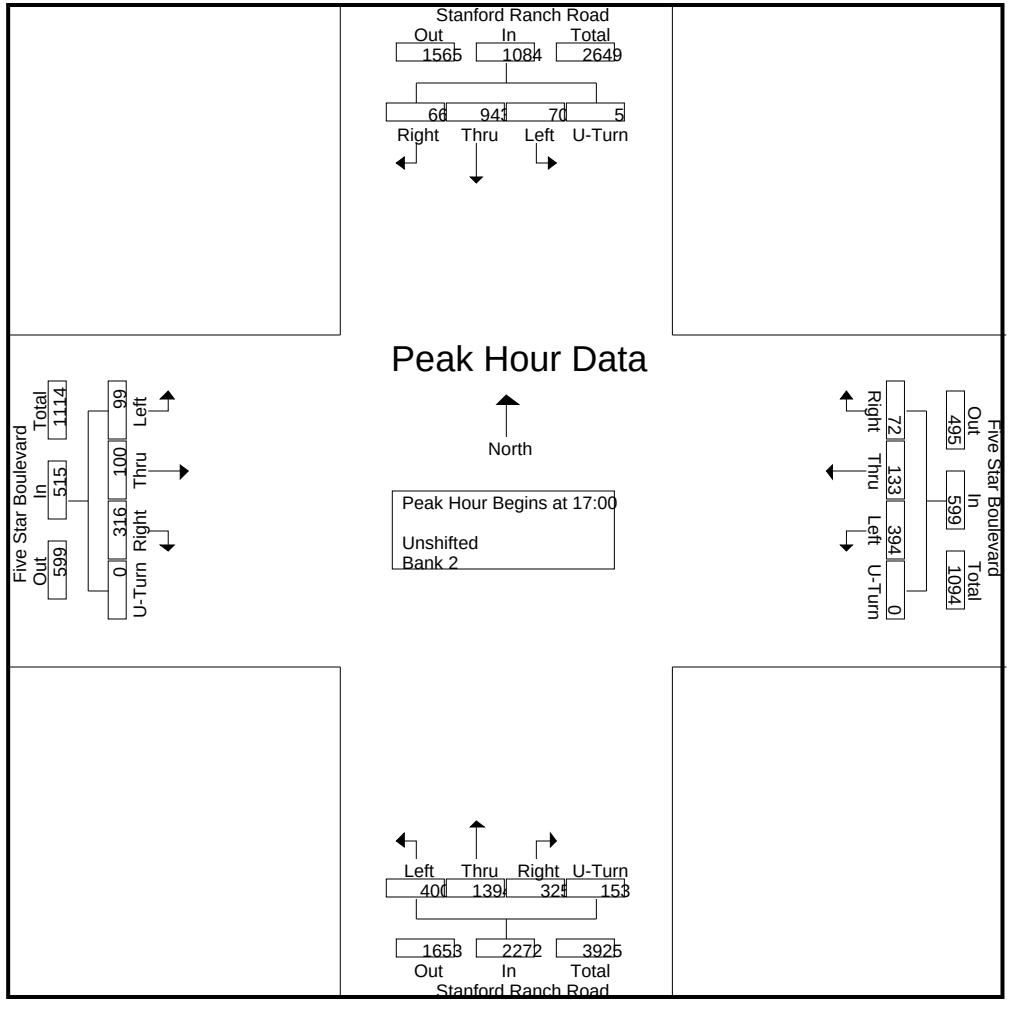
	Stanford Ranch Road Southbound					Five Star Boulevard Westbound					Stanford Ranch Road Northbound					Five Star Boulevard Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	**23**	**249**			**290**	**122**		**25**		**171**						**33**					
17:15	14	247	**19**	**2**	282	92	**41**	20	0	153	**113**	**381**	**97**	37	**628**	23	17	52	0	92	**1155**
17:30	23	201	11	2	237	101	35	13	0	149	81	294	83	38	496	24	26	89	0	139	1021
17:45	10	246	19	0	275	79	33	14	0	126	101	371	82	**47**	601	19	**33**	**92**	0	**144**	1146
Total Volume	70	943	66	5	1084	394	133	72	0	599	400	1394	325	153	2272	99	100	316	0	515	4470
% App. Total	6.5	87	6.1	0.5		65.8	22.2	12	0		17.6	61.4	14.3	6.7		19.2	19.4	61.4	0		
PHF	.761	.947	.868	.625	.934	.807	.811	.720	.000	.876	.885	.915	.838	.814	.904	.750	.758	.859	.000	.894	.968

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-010 Stanford Ranch-Five Star
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-011 Stanford Ranch-SR65 NB
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	Stanford Ranch Road Southbound				SR-65 Northbound Ramps Westbound				Stanford Ranch Road Northbound				SR-65 Northbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	142	20	162	0	0	27	27	22	18	0	40	0	0	6	6	235
06:15	0	176	20	196	0	0	27	27	34	23	0	57	0	0	22	22	302
06:30	0	222	12	234	0	0	37	37	47	45	0	92	0	0	25	25	388
06:45	0	257	28	285	0	0	53	53	41	50	0	91	0	0	23	23	452
Total	0	797	80	877	0	0	144	144	144	136	0	280	0	0	76	76	1377
07:00	0	267	34	301	0	0	72	72	65	51	0	116	0	0	29	29	518
07:15	0	289	48	337	0	0	78	78	89	88	0	177	0	0	17	17	609
07:30	0	333	34	367	0	0	112	112	102	120	0	222	0	0	31	31	732
07:45	0	415	31	446	0	0	156	156	124	145	0	269	0	0	46	46	917
Total	0	1304	147	1451	0	0	418	418	380	404	0	784	0	0	123	123	2776
08:00	0	290	57	347	0	0	126	126	71	159	0	230	0	0	46	46	749
08:15	0	350	45	395	0	0	123	123	102	120	0	222	0	0	58	58	798
08:30	0	308	36	344	0	0	100	100	80	140	0	220	0	0	46	46	710
08:45	0	308	44	352	0	0	132	132	91	161	0	252	0	0	77	77	813
Total	0	1256	182	1438	0	0	481	481	344	580	0	924	0	0	227	227	3070
09:00	0	262	45	307	0	0	108	108	69	143	0	212	0	0	67	67	694
09:15	0	247	31	278	0	0	138	138	73	167	0	240	0	0	63	63	719
09:30	0	242	36	278	0	0	138	138	73	169	0	242	0	0	81	81	739
09:45	0	274	37	311	0	0	151	151	71	186	0	257	0	0	116	116	835
Total	0	1025	149	1174	0	0	535	535	286	665	0	951	0	0	327	327	2987
15:00	0	418	91	509	0	0	207	207	135	307	0	442	0	0	85	85	1243
15:15	0	394	75	469	0	0	209	209	146	307	0	453	0	0	107	107	1238
15:30	0	388	70	458	0	0	188	188	170	333	0	503	0	0	124	124	1273
15:45	0	393	81	474	0	0	178	178	163	350	0	513	0	0	147	147	1312
Total	0	1593	317	1910	0	0	782	782	614	1297	0	1911	0	0	463	463	5066
16:00	0	370	49	419	0	0	216	216	164	332	0	496	0	0	89	89	1220
16:15	0	358	65	423	0	0	196	196	139	371	0	510	0	0	129	129	1258
16:30	0	400	68	468	0	0	202	202	181	332	0	513	0	0	114	114	1297

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-011 Stanford Ranch-SR65 NB
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	Stanford Ranch Road Southbound				SR-65 Northbound Ramps Westbound				Stanford Ranch Road Northbound				SR-65 Northbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	362	75	437	0	0	199	199	170	346	0	516	0	0	99	99	1251
Total	0	1490	257	1747	0	0	813	813	654	1381	0	2035	0	0	431	431	5026
17:00	0	390	77	467	0	0	187	187	181	409	0	590	0	0	75	75	1319
17:15	0	375	60	435	0	0	166	166	174	453	0	627	0	0	70	70	1298
17:30	0	364	54	418	0	0	157	157	159	369	0	528	0	0	110	110	1213
17:45	0	383	83	466	0	0	204	204	150	397	0	547	0	0	79	79	1296
Total	0	1512	274	1786	0	0	714	714	664	1628	0	2292	0	0	334	334	5126
18:00	0	364	70	434	0	0	195	195	130	338	0	468	0	0	95	95	1192
18:15	0	320	86	406	0	0	198	198	165	330	0	495	0	0	97	97	1196
18:30	0	305	56	361	0	0	203	203	143	266	0	409	0	0	94	94	1067
18:45	0	261	76	337	0	0	183	183	128	308	0	436	0	0	85	85	1041
Total	0	1250	288	1538	0	0	779	779	566	1242	0	1808	0	0	371	371	4496
Grand Total	0	10227	1694	11921	0	0	4666	4666	3652	7333	0	10985	0	0	2352	2352	29924
Apprch %	0	85.8	14.2		0	0	100		33.2	66.8	0		0	0	100		
Total %	0	34.2	5.7	39.8	0	0	15.6	15.6	12.2	24.5	0	36.7	0	0	7.9	7.9	
Unshifted	0	10172	1670	11842	0	0	4624	4624	3623	7292	0	10915	0	0	2328	2328	29709
% Unshifted	0	99.5	98.6	99.3	0	0	99.1	99.1	99.2	99.4	0	99.4	0	0	99	99	99.3
Bank 2	0	55	24	79	0	0	42	42	29	41	0	70	0	0	24	24	215
% Bank 2	0	0.5	1.4	0.7	0	0	0.9	0.9	0.8	0.6	0	0.6	0	0	1	1	0.7

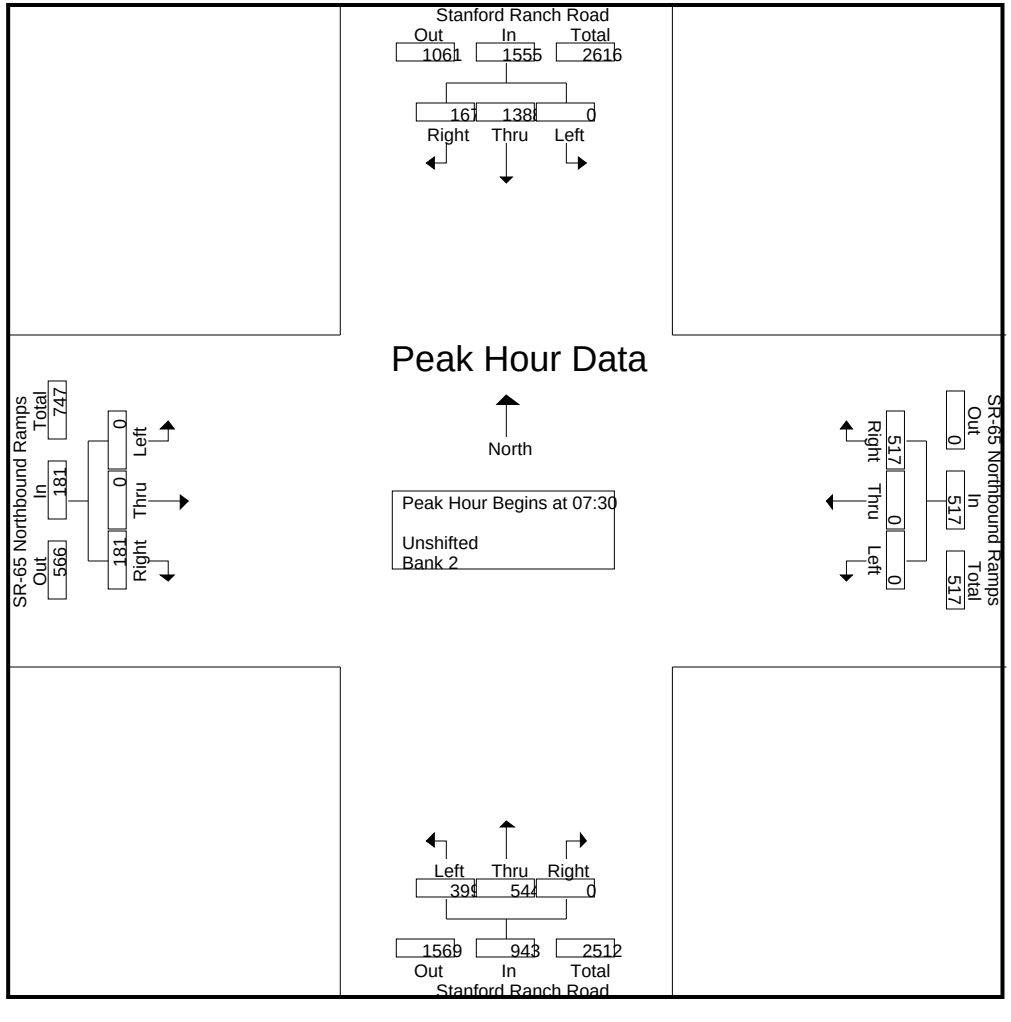
	Stanford Ranch Road Southbound				SR-65 Northbound Ramps Westbound				Stanford Ranch Road Northbound				SR-65 Northbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	333	34	367	0	0	112	112	102	120	0	222	0	0	31	31	732
07:45	0	**415**	31	**446**	0	0	**156**	**156**	**124**	145	0	**269**	0	0	46	46	**917**
08:00	0	290	**57**	347	0	0	126	126	71	**159**	0	230	0	0	46	46	749
08:15	0	350	45	395	0	0	123	123	102	120	0	222	0	0	**58**	**58**	798
Total Volume	0	1388	167	1555	0	0	517	517	399	544	0	943	0	0	181	181	3196
% App. Total	0	89.3	10.7		0	0	100		42.3	57.7	0		0	0	100		
PHF	.000	.836	.732	.872	.000	.000	.829	.829	.804	.855	.000	.876	.000	.000	.780	.780	.871

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-011 Stanford Ranch-SR65 NB
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-011 Stanford Ranch-SR65 NB
Site Code : 00000000
Start Date : 2/8/2012

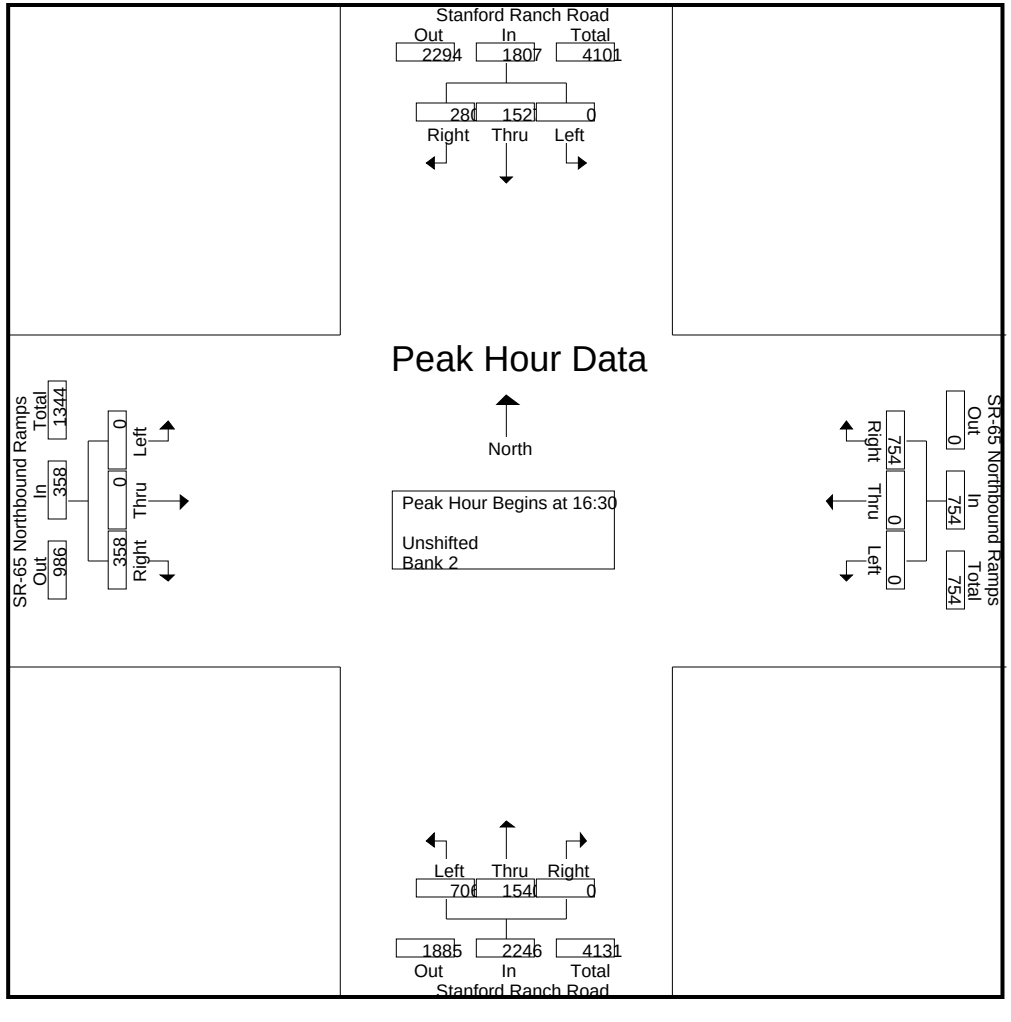
	Stanford Ranch Road Southbound				SR-65 Northbound Ramps Westbound				Stanford Ranch Road Northbound				SR-65 Northbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	**400**	68	**468**	0	0	**202**	**202**	**181**	332	0	513	0	0	**114**	**114**	1297
16:45	0	362	75	437	0	0	199	199	170	346	0	516	0	0	99	99	1251
17:00	0	390	**77**	467	0	0	187	187	181	409	0	590	0	0	75	75	**1319**
17:15	0	375	60	435	0	0	166	166	174	**453**	0	**627**	0	0	70	70	1298
Total Volume	0	1527	280	1807	0	0	754	754	706	1540	0	2246	0	0	358	358	5165
% App. Total	0	84.5	15.5		0	0	100		31.4	68.6	0		0	0	100		
PHF	.000	.954	.909	.965	.000	.000	.933	.933	.975	.850	.000	.896	.000	.000	.785	.785	.979

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-011 Stanford Ranch-SR65 NB
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-012 Galleria-SR65 SB
Site Code : 00000000
Start Date : 2/8/2012
Page No : 1

Groups Printed- Unshifted - Bank 2

	Galleria Boulevard Southbound				SR-65 Southbound Ramps Westbound				Galleria Boulevard Northbound				SR-65 Southbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	90	61	0	151	0	0	9	9	0	33	9	42	0	0	57	57	259
06:15	103	94	0	197	0	0	6	6	0	57	7	64	0	0	77	77	344
06:30	140	98	0	238	0	0	16	16	0	80	17	97	0	0	92	92	443
06:45	155	139	0	294	0	0	15	15	0	72	21	93	0	0	143	143	545
Total	488	392	0	880	0	0	46	46	0	242	54	296	0	0	369	369	1591
07:00	155	149	0	304	0	0	17	17	0	100	30	130	0	0	137	137	588
07:15	132	162	0	294	0	0	15	15	0	172	19	191	0	0	187	187	687
07:30	156	222	0	378	0	0	22	22	0	200	38	238	0	0	145	145	783
07:45	173	280	0	453	0	0	32	32	0	227	39	266	0	0	163	163	914
Total	616	813	0	1429	0	0	86	86	0	699	126	825	0	0	632	632	2972
08:00	141	211	0	352	0	0	52	52	0	188	29	217	0	0	179	179	800
08:15	147	257	0	404	0	0	38	38	0	177	26	203	0	0	166	166	811
08:30	128	230	0	358	0	0	40	40	0	181	23	204	0	0	172	172	774
08:45	128	270	0	398	0	0	54	54	0	180	27	207	0	0	180	180	839
Total	544	968	0	1512	0	0	184	184	0	726	105	831	0	0	697	697	3224
09:00	126	199	0	325	0	0	40	40	0	148	33	181	0	0	147	147	693
09:15	106	208	0	314	0	0	42	42	0	210	29	239	0	0	132	132	727
09:30	109	218	0	327	0	0	46	46	0	191	43	234	0	0	136	136	743
09:45	114	270	0	384	0	0	50	50	0	201	35	236	0	0	137	137	807
Total	455	895	0	1350	0	0	178	178	0	750	140	890	0	0	552	552	2970
15:00	140	353	0	493	0	0	61	61	0	396	127	523	0	0	158	158	1235
15:15	162	344	0	506	0	0	42	42	0	385	101	486	0	0	154	154	1188
15:30	148	367	0	515	0	0	50	50	0	476	125	601	0	0	164	164	1330
15:45	162	395	0	557	0	0	50	50	0	422	122	544	0	0	133	133	1284
Total	612	1459	0	2071	0	0	203	203	0	1679	475	2154	0	0	609	609	5037
16:00	120	319	0	439	0	0	61	61	0	468	137	605	0	0	168	168	1273
16:15	148	346	0	494	0	0	56	56	0	415	107	522	0	0	145	145	1217
16:30	145	357	0	502	0	0	64	64	0	492	124	616	0	0	169	169	1351

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-012 Galleria-SR65 SB
Site Code : 00000000
Start Date : 2/8/2012

Groups Printed- Unshifted - Bank 2

	Galleria Boulevard Southbound				SR-65 Southbound Ramps Westbound				Galleria Boulevard Northbound				SR-65 Southbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	144	336	0	480	0	0	57	57	0	431	110	541	0	0	161	161	1239
Total	557	1358	0	1915	0	0	238	238	0	1806	478	2284	0	0	643	643	5080
17:00	144	331	0	475	0	0	45	45	0	577	109	686	0	0	148	148	1354
17:15	135	334	0	469	0	0	31	31	0	570	96	666	0	0	105	105	1271
17:30	110	315	0	425	0	0	38	38	0	517	113	630	0	0	136	136	1229
17:45	139	349	0	488	0	0	56	56	0	448	83	531	0	0	134	134	1209
Total	528	1329	0	1857	0	0	170	170	0	2112	401	2513	0	0	523	523	5063
18:00	140	310	0	450	0	0	74	74	0	403	77	480	0	0	163	163	1167
18:15	126	317	0	443	0	0	61	61	0	389	90	479	0	0	106	106	1089
18:30	117	280	0	397	0	0	69	69	0	386	104	490	0	0	151	151	1107
18:45	107	250	0	357	0	0	91	91	0	297	61	358	0	0	97	97	903
Total	490	1157	0	1647	0	0	295	295	0	1475	332	1807	0	0	517	517	4266
Grand Total	4290	8371	0	12661	0	0	1400	1400	0	9489	2111	11600	0	0	4542	4542	30203
Apprch %	33.9	66.1	0		0	0	100		0	81.8	18.2		0	0	100		
Total %	14.2	27.7	0	41.9	0	0	4.6	4.6	0	31.4	7	38.4	0	0	15	15	
Unshifted	4244	8326	0	12570	0	0	1379	1379	0	9441	2079	11520	0	0	4488	4488	29957
% Unshifted	98.9	99.5	0	99.3	0	0	98.5	98.5	0	99.5	98.5	99.3	0	0	98.8	98.8	99.2
Bank 2	46	45	0	91	0	0	21	21	0	48	32	80	0	0	54	54	246
% Bank 2	1.1	0.5	0	0.7	0	0	1.5	1.5	0	0.5	1.5	0.7	0	0	1.2	1.2	0.8

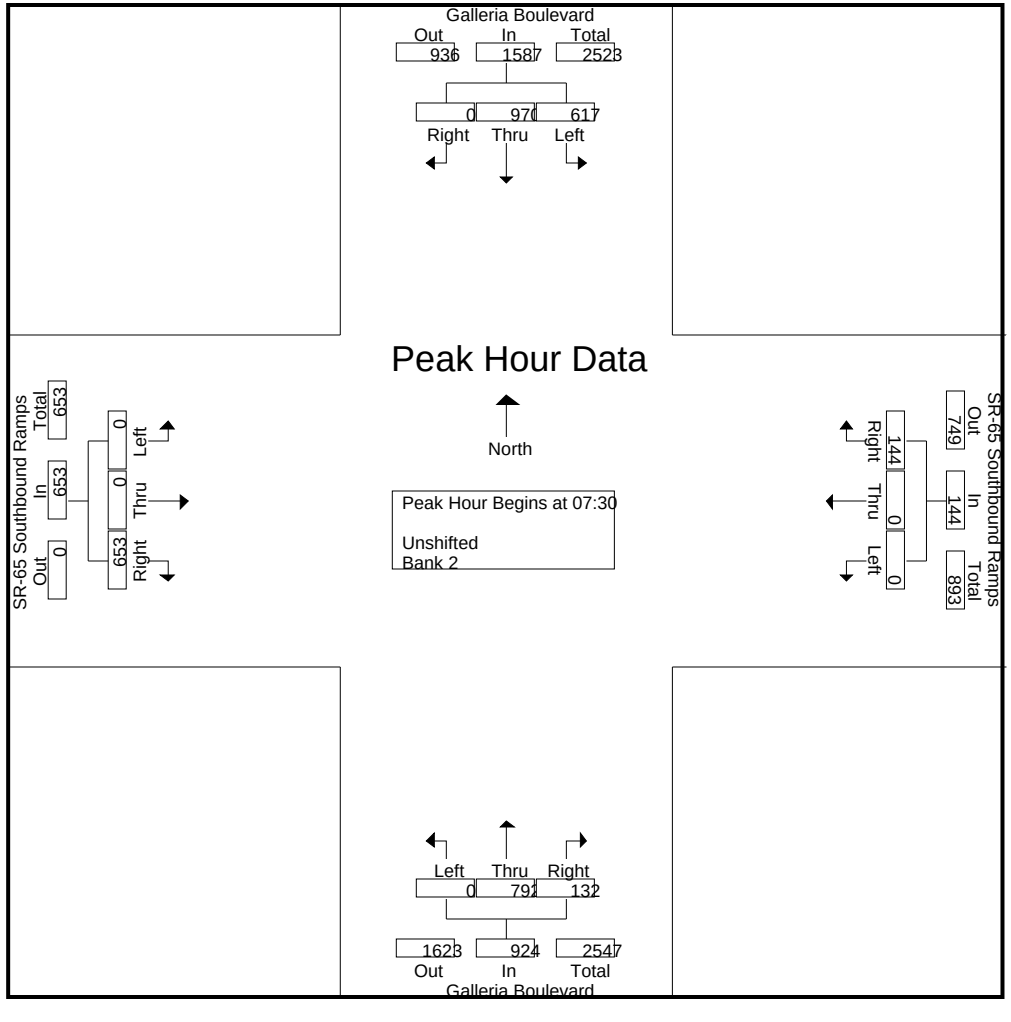
	Galleria Boulevard Southbound				SR-65 Southbound Ramps Westbound				Galleria Boulevard Northbound				SR-65 Southbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	156	222	0	378	0	0	22	22	0	200	38	238	0	0	145	145	783
07:45	**173**	**280**	0	**453**	0	0	32	32	0	**227**	**39**	**266**	0	0	163	163	**914**
08:00	141	211	0	352	0	0	**52**	**52**	0	188	29	217	0	0	**179**	**179**	800
08:15	147	257	0	404	0	0	38	38	0	177	26	203	0	0	166	166	811
Total Volume	617	970	0	1587	0	0	144	144	0	792	132	924	0	0	653	653	3308
% App. Total	38.9	61.1	0		0	0	100		0	85.7	14.3		0	0	100		
PHF	.892	.866	.000	.876	.000	.000	.692	.692	.000	.872	.846	.868	.000	.000	.912	.912	.905

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-012 Galleria-SR65 SB
Site Code : 00000000
Start Date : 2/8/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-012 Galleria-SR65 SB
Site Code : 00000000
Start Date : 2/8/2012

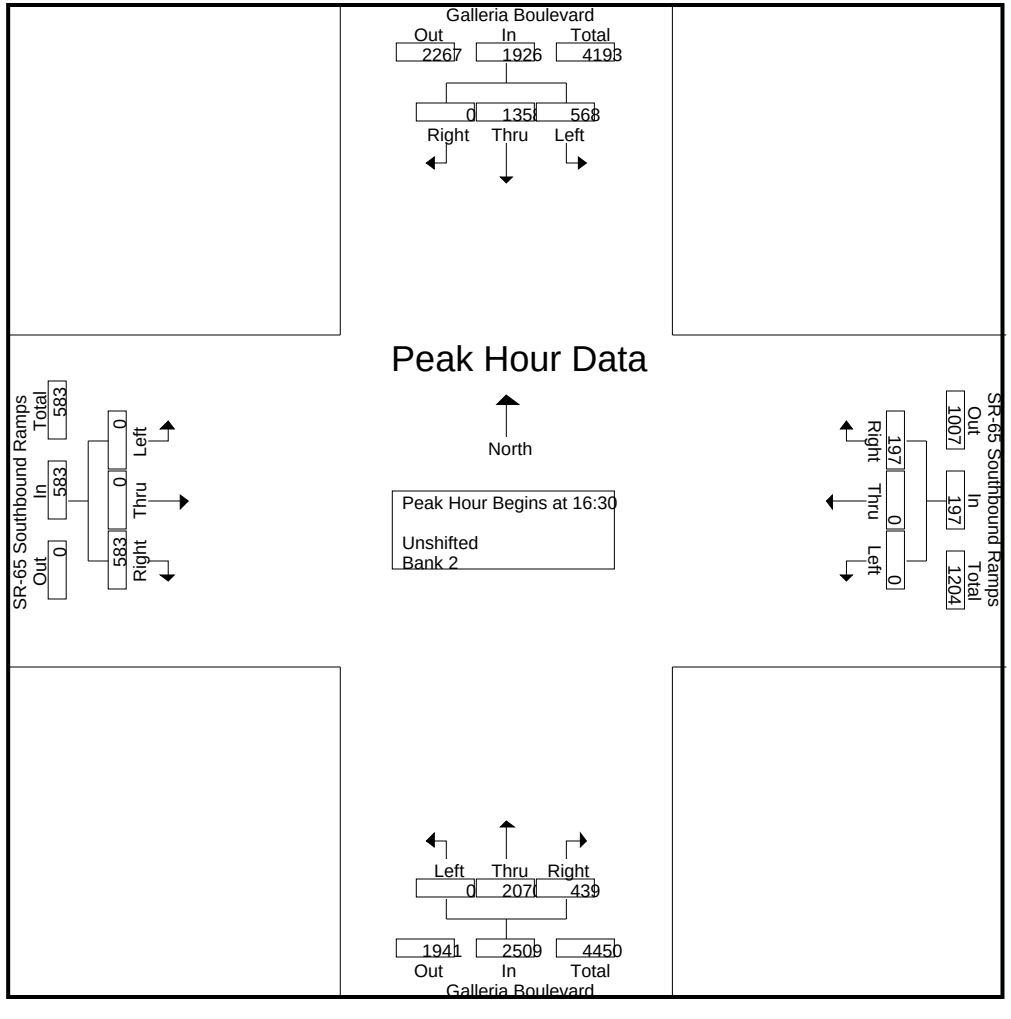
	Galleria Boulevard Southbound				SR-65 Southbound Ramps Westbound				Galleria Boulevard Northbound				SR-65 Southbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	**145**	**357**	0	**502**	0	0	**64**	**64**	0	492	**124**	616	0	0	**169**	**169**	1351
16:45	144	336	0	480	0	0	57	57	0	431	110	541	0	0	161	161	1239
17:00	144	331	0	475	0	0	45	45	0	**577**	109	**686**	0	0	148	148	**1354**
17:15	135	334	0	469	0	0	31	31	0	570	96	666	0	0	105	105	1271
Total Volume	568	1358	0	1926	0	0	197	197	0	2070	439	2509	0	0	583	583	5215
% App. Total	29.5	70.5	0		0	0	100		0	82.5	17.5		0	0	100		
PHF	.979	.951	.000	.959	.000	.000	.770	.770	.000	.897	.885	.914	.000	.000	.862	.862	.963

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-012 Galleria-SR65 SB
Site Code : 00000000
Start Date : 2/8/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-013 Galleria-Antelope Creek
Site Code : 00000000
Start Date : 2/9/2012
Page No : 1

Groups Printed- Unshifted - Bank 2

	Galleria Boulevard Southbound				Antelope Creek Drive Westbound				Galleria Boulevard Northbound				Antelope Creek Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	2	92	1	95	2	0	10	12	0	36	1	37	0	0	0	0	144
06:15	7	151	3	161	7	2	6	15	1	48	1	50	0	0	0	0	226
06:30	9	150	5	164	3	1	10	14	2	69	4	75	3	0	1	4	257
06:45	17	233	13	263	7	4	21	32	3	88	9	100	3	1	0	4	399
Total	35	626	22	683	19	7	47	73	6	241	15	262	6	1	1	8	1026
07:00	15	262	9	286	3	0	14	17	0	117	4	121	3	0	1	4	428
07:15	18	291	6	315	14	0	13	27	3	169	3	175	3	3	1	7	524
07:30	26	321	5	352	7	5	14	26	1	200	13	214	4	0	2	6	598
07:45	46	384	17	447	12	1	9	22	3	234	13	250	3	1	0	4	723
Total	105	1258	37	1400	36	6	50	92	7	720	33	760	13	4	4	21	2273
08:00	29	351	11	391	8	4	13	25	0	215	15	230	13	1	3	17	663
08:15	29	327	17	373	13	3	12	28	6	157	7	170	4	1	1	6	577
08:30	24	311	13	348	11	2	16	29	3	181	13	197	8	0	0	8	582
08:45	32	307	28	367	19	5	20	44	7	192	15	214	11	1	5	17	642
Total	114	1296	69	1479	51	14	61	126	16	745	50	811	36	3	9	48	2464
09:00	22	228	15	265	8	7	18	33	1	193	21	215	8	2	6	16	529
09:15	29	224	18	271	19	5	22	46	16	195	21	232	12	8	1	21	570
09:30	38	238	19	295	20	10	24	54	20	180	19	219	14	13	5	32	600
09:45	26	213	28	267	26	13	19	58	30	219	31	280	14	3	4	21	626
Total	115	903	80	1098	73	35	83	191	67	787	92	946	48	26	16	90	2325
15:00	39	332	24	395	52	21	47	120	21	306	51	378	83	17	30	130	1023
15:15	49	256	41	346	54	20	42	116	32	325	43	400	95	18	25	138	1000
15:30	40	318	26	384	66	13	50	129	27	370	42	439	101	14	36	151	1103
15:45	45	289	41	375	68	20	52	140	18	383	40	441	96	23	20	139	1095
Total	173	1195	132	1500	240	74	191	505	98	1384	176	1658	375	72	111	558	4221
16:00	56	296	39	391	50	18	51	119	21	360	53	434	73	21	31	125	1069
16:15	54	277	36	367	74	18	43	135	26	352	42	420	82	17	36	135	1057
16:30	53	283	42	378	56	16	68	140	26	404	37	467	76	13	31	120	1105

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-013 Galleria-Antelope Creek
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Galleria Boulevard Southbound				Antelope Creek Drive Westbound				Galleria Boulevard Northbound				Antelope Creek Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	48	275	31	354	64	19	75	158	23	383	50	456	88	9	26	123	1091
Total	211	1131	148	1490	244	71	237	552	96	1499	182	1777	319	60	124	503	4322
17:00	48	286	41	375	61	17	89	167	21	451	46	518	99	20	35	154	1214
17:15	45	271	48	364	62	22	95	179	23	371	51	445	110	23	36	169	1157
17:30	43	264	36	343	53	15	94	162	26	423	54	503	91	16	27	134	1142
17:45	49	274	43	366	77	16	78	171	30	363	43	436	95	17	35	147	1120
Total	185	1095	168	1448	253	70	356	679	100	1608	194	1902	395	76	133	604	4633
18:00	54	243	36	333	61	23	60	144	24	383	49	456	71	9	39	119	1052
18:15	46	227	37	310	70	20	49	139	27	343	48	418	88	14	38	140	1007
18:30	34	244	34	312	42	12	46	100	17	325	41	383	74	20	25	119	914
18:45	36	228	35	299	60	25	29	114	21	251	37	309	84	12	35	131	853
Total	170	942	142	1254	233	80	184	497	89	1302	175	1566	317	55	137	509	3826
Grand Total	1108	8446	798	10352	1149	357	1209	2715	479	8286	917	9682	1509	297	535	2341	25090
Apprch %	10.7	81.6	7.7		42.3	13.1	44.5		4.9	85.6	9.5		64.5	12.7	22.9		
Total %	4.4	33.7	3.2	41.3	4.6	1.4	4.8	10.8	1.9	33	3.7	38.6	6	1.2	2.1	9.3	
Unshifted	1098	8393	787	10278	1144	352	1203	2699	477	8234	915	9626	1498	296	532	2326	24929
% Unshifted	99.1	99.4	98.6	99.3	99.6	98.6	99.5	99.4	99.6	99.4	99.8	99.4	99.3	99.7	99.4	99.4	99.4
Bank 2	10	53	11	74	5	5	6	16	2	52	2	56	11	1	3	15	161
% Bank 2	0.9	0.6	1.4	0.7	0.4	1.4	0.5	0.6	0.4	0.6	0.2	0.6	0.7	0.3	0.6	0.6	0.6

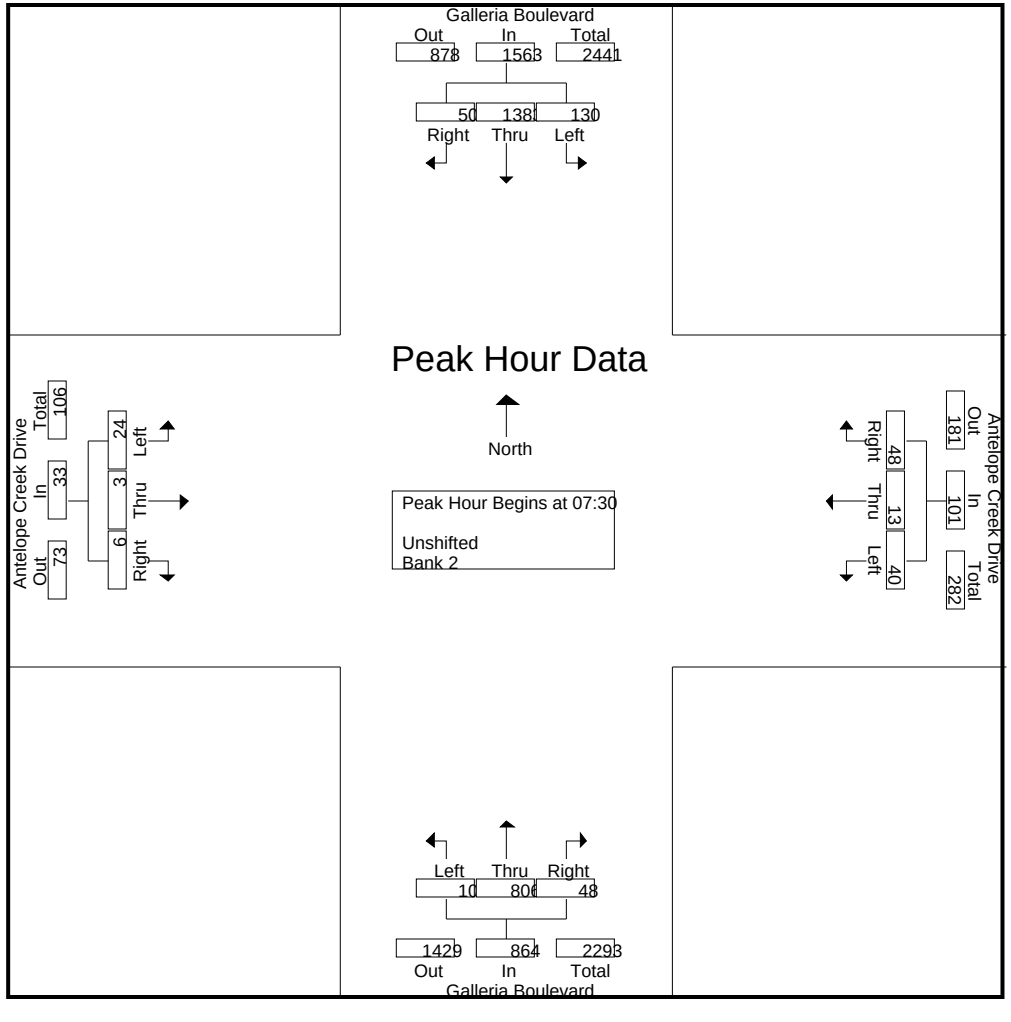
	Galleria Boulevard Southbound				Antelope Creek Drive Westbound				Galleria Boulevard Northbound				Antelope Creek Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	26	321	5	352	7	**5**	**14**	26	1	200	13	214	4	0	2	6	598
07:45	**46**	**384**	**17**	**447**	12	1	9	22	3	**234**	13	**250**	3	**1**	0	4	**723**
08:00	29	351	11	391	8	4	13	25	0	215	**15**	230	**13**	1	**3**	**17**	663
08:15	29	327	17	373	**13**	3	12	**28**	**6**	157	7	170	4	1	1	6	577
Total Volume	130	1383	50	1563	40	13	48	101	10	806	48	864	24	3	6	33	2561
% App. Total	8.3	88.5	3.2		39.6	12.9	47.5		1.2	93.3	5.6		72.7	9.1	18.2		
PHF	.707	.900	.735	.874	.769	.650	.857	.902	.417	.861	.800	.864	.462	.750	.500	.485	.886

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-013 Galleria-Antelope Creek
Site Code : 00000000
Start Date : 2/9/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-013 Galleria-Antelope Creek
Site Code : 00000000
Start Date : 2/9/2012

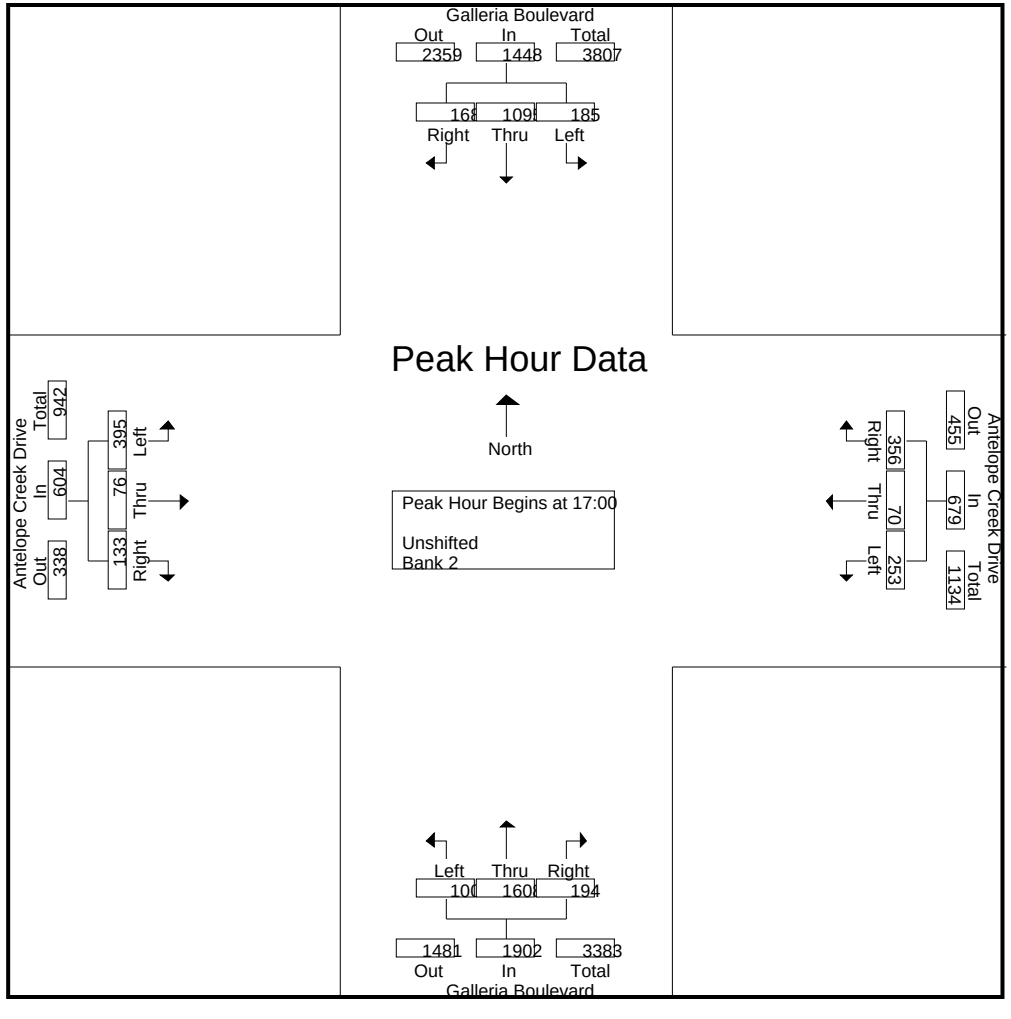
	Galleria Boulevard Southbound				Antelope Creek Drive Westbound				Galleria Boulevard Northbound				Antelope Creek Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	48	**286**	41	**375**	61	17	89	167	21	**451**	46	**518**	99	20	35	154	**1214**
17:15	45	271	**48**	364	62	**22**	**95**	**179**	23	371	51	445	**110**	**23**	**36**	**169**	1157
17:30	43	264	36	343	53	15	94	162	26	423	**54**	503	91	16	27	134	1142
17:45	**49**	274	43	366	**77**	16	78	171	**30**	363	43	436	95	17	35	147	1120
Total Volume	185	1095	168	1448	253	70	356	679	100	1608	194	1902	395	76	133	604	4633
% App. Total	12.8	75.6	11.6		37.3	10.3	52.4		5.3	84.5	10.2		65.4	12.6	22		
PHF	.944	.957	.875	.965	.821	.795	.937	.948	.833	.891	.898	.918	.898	.826	.924	.893	.954

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-013 Galleria-Antelope Creek
Site Code : 00000000
Start Date : 2/9/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-014 Galleria-Roseville
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Galleria Boulevard Southbound					Roseville Parkway Westbound					Galleria Boulevard Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00	62	29	3	0	94	5	25	22	0	52	4	14	2	0	20	7	67	22	0	96	262
06:15	89	47	20	0	156	5	38	32	0	75	12	8	1	0	21	11	94	43	0	148	400
06:30	84	60	12	0	156	6	49	38	0	93	18	16	3	0	37	20	118	55	0	193	479
06:45	135	86	16	0	237	7	93	55	0	155	22	29	12	0	63	22	158	93	0	273	728
Total	370	222	51	0	643	23	205	147	0	375	56	67	18	0	141	60	437	213	0	710	1869
07:00	136	121	17	0	274	3	72	78	0	153	18	29	4	0	51	21	149	100	0	270	748
07:15	113	161	28	0	302	18	124	98	1	241	26	51	6	0	83	35	270	178	0	483	1109
07:30	148	179	21	0	348	22	152	97	0	271	31	90	17	0	138	28	274	162	1	465	1222
07:45	186	155	39	1	381	20	225	152	2	399	47	72	18	0	137	46	376	196	0	618	1535
Total	583	616	105	1	1305	63	573	425	3	1064	122	242	45	0	409	130	1069	636	1	1836	4614
08:00	178	161	41	0	380	20	158	117	1	296	45	68	16	0	129	37	256	138	0	431	1236
08:15	164	123	49	1	337	25	199	110	1	335	34	49	7	0	90	32	249	127	0	408	1170
08:30	154	142	44	1	341	25	173	92	1	291	35	56	11	0	102	41	218	128	1	388	1122
08:45	135	146	48	1	330	29	204	128	0	361	58	61	9	0	128	49	226	102	2	379	1198
Total	631	572	182	3	1388	99	734	447	3	1283	172	234	43	0	449	159	949	495	3	1606	4726
09:00	120	109	34	0	263	20	106	99	0	225	37	66	9	0	112	48	171	70	4	293	893
09:15	110	88	34	2	234	32	133	122	0	287	44	67	8	1	120	47	148	69	2	266	907
09:30	119	109	36	3	267	27	127	107	0	261	36	75	19	0	130	46	124	75	7	252	910
09:45	79	115	45	0	239	42	185	137	0	364	55	99	7	1	162	67	153	82	2	304	1069
Total	428	421	149	5	1003	121	551	465	0	1137	172	307	43	2	524	208	596	296	15	1115	3779
15:00	180	184	72	3	439	43	219	138	1	401	94	137	12	1	244	89	195	107	4	395	1479
15:15	117	144	77	3	341	55	278	149	0	482	92	156	15	0	263	107	246	113	3	469	1555
15:30	185	160	81	1	427	43	245	130	4	422	103	160	17	0	280	73	186	115	0	374	1503
15:45	144	157	78	3	382	44	308	173	1	526	87	183	17	0	287	102	268	111	4	485	1680
Total	626	645	308	10	1589	185	1050	590	6	1831	376	636	61	1	1074	371	895	446	11	1723	6217
16:00	180	163	83	1	427	44	247	133	5	429	84	163	13	1	261	99	227	133	0	459	1576
16:15	148	156	79	3	386	47	316	166	2	531	112	157	13	0	282	114	196	116	5	431	1630
16:30	156	161	86	3	406	63	297	135	1	496	92	179	14	1	286	105	201	120	3	429	1617
16:45	115	162	73	6	356	50	296	182	3	531	97	195	17	1	310	120	256	109	3	488	1685
Total	599	642	321	13	1575	204	1156	616	11	1987	385	694	57	3	1139	438	880	478	11	1807	6508
17:00	179	167	69	5	420	58	340	165	1	564	129	207	13	1	350	102	223	114	6	445	1779
17:15	146	139	80	4	369	52	355	171	4	582	139	180	16	0	335	111	368	169	2	650	1936
17:30	151	155	65	3	374	53	354	167	3	577	110	170	13	0	293	104	254	145	9	512	1756

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-014 Galleria-Roseville
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Galleria Boulevard Southbound					Roseville Parkway Westbound					Galleria Boulevard Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
17:45	135	144	79	5	363	43	365	173	6	587	113	176	12	2	303	131	289	110	1	531	1784
Total	611	605	293	17	1526	206	1414	676	14	2310	491	733	54	3	1281	448	1134	538	18	2138	7255
18:00	138	129	74	8	349	45	296	160	0	501	88	132	11	1	232	107	197	121	6	431	1513
18:15	131	94	79	7	311	32	219	177	1	429	81	126	4	0	211	129	291	128	7	555	1506
18:30	121	134	81	1	337	42	221	152	3	418	75	96	14	3	188	88	159	77	8	332	1275
18:45	130	99	72	2	303	38	208	129	4	379	64	107	7	1	179	107	178	86	4	375	1236
Total	520	456	306	18	1300	157	944	618	8	1727	308	461	36	5	810	431	825	412	25	1693	5530
Grand Total	4368	4179	1715	67	10329	1058	6627	3984	45	11714	2082	3374	357	14	5827	2245	6785	3514	84	12628	40498
Apprch %	42.3	40.5	16.6	0.6		9	56.6	34	0.4		35.7	57.9	6.1	0.2		17.8	53.7	27.8	0.7		
Total %	10.8	10.3	4.2	0.2	25.5	2.6	16.4	9.8	0.1	28.9	5.1	8.3	0.9	0	14.4	5.5	16.8	8.7	0.2	31.2	
Unshifted	4350	4159	1701	67	10277	1048	6602	3971	45	11666	2074	3346	357	14	5791	2234	6754	3505	84	12577	40311
% Unshifted	99.6	99.5	99.2	100	99.5	99.1	99.6	99.7	100	99.6	99.6	99.2	100	100	99.4	99.5	99.5	99.7	100	99.6	99.5
Bank 2	18	20	14	0	52	10	25	13	0	48	8	28	0	0	36	11	31	9	0	51	187
% Bank 2	0.4	0.5	0.8	0	0.5	0.9	0.4	0.3	0	0.4	0.4	0.8	0	0	0.6	0.5	0.5	0.3	0	0.4	0.5

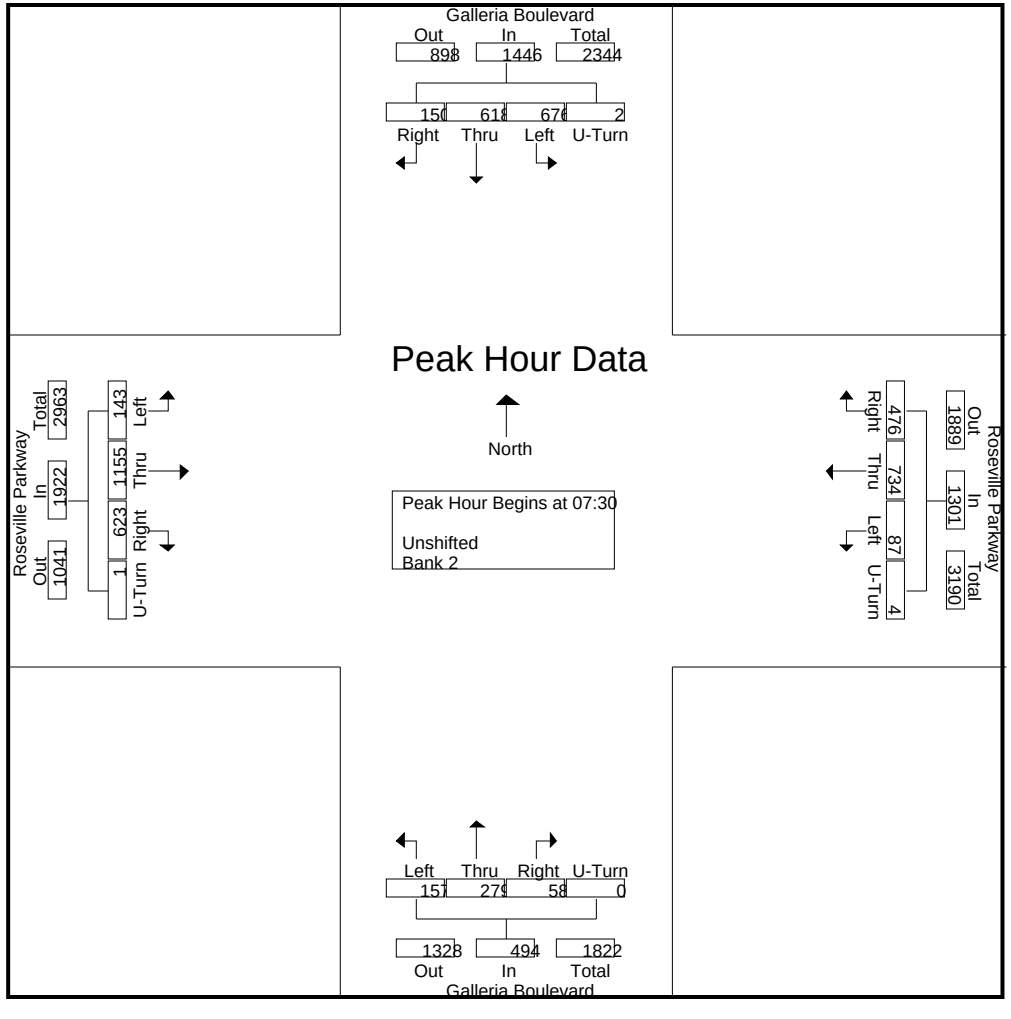
	Galleria Boulevard Southbound					Roseville Parkway Westbound					Galleria Boulevard Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	148	**179**	21	0	348	22	152	97	0	271	31	**90**	17	0	**138**	28	274	162	**1**	465	1222
07:45	**186**	155	39	**1**	**381**	20	**225**	**152**	**2**	**399**	**47**	72	**18**	0	137	**46**	**376**	**196**	0	**618**	**1535**
08:00	178	161	41	0	380	20	158	117	1	296	45	68	16	0	129	37	256	138	0	431	1236
08:15	164	123	**49**	1	337	**25**	199	110	1	335	34	49	7	0	90	32	249	127	0	408	1170
Total Volume	676	618	150	2	1446	87	734	476	4	1301	157	279	58	0	494	143	1155	623	1	1922	5163
% App. Total	46.7	42.7	10.4	0.1		6.7	56.4	36.6	0.3		31.8	56.5	11.7	0		7.4	60.1	32.4	0.1		
PHF	.909	.863	.765	.500	.949	.870	.816	.783	.500	.815	.835	.775	.806	.000	.895	.777	.768	.795	.250	.778	.841

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-014 Galleria-Roseville
Site Code : 00000000
Start Date : 2/9/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-014 Galleria-Roseville
Site Code : 00000000
Start Date : 2/9/2012

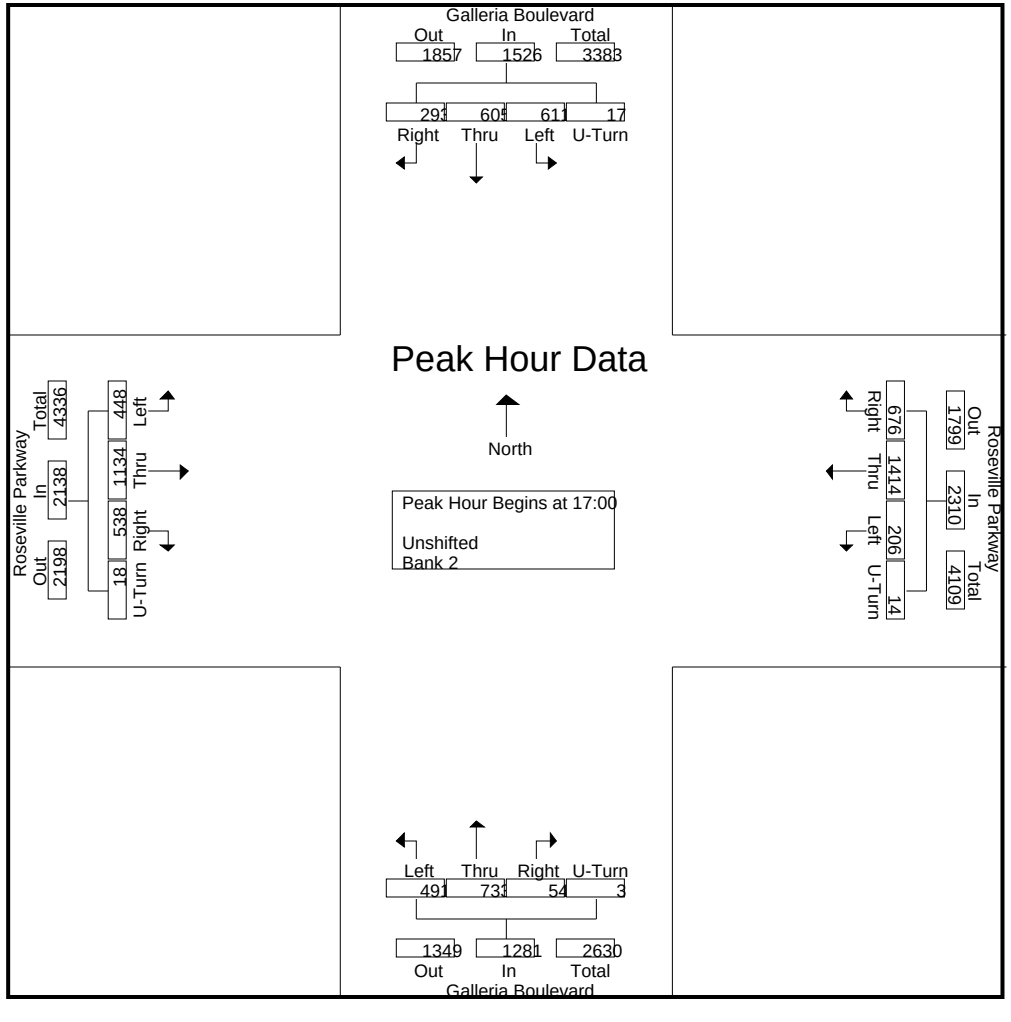
	Galleria Boulevard Southbound					Roseville Parkway Westbound					Galleria Boulevard Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	**179**	**167**		**5**	**420**	**58**						**207**			**350**						
17:15	146	139	**80**	4	369	52	355	171	4	582	**139**	180	**16**	0	335	111	**368**	**169**	2	**650**	**1936**
17:30	151	155	65	3	374	53	354	167	3	577	110	170	13	0	293	104	254	145	**9**	512	1756
17:45	135	144	79	5	363	43	**365**	**173**	**6**	**587**	113	176	12	**2**	303	**131**	289	110	1	531	1784
Total Volume	611	605	293	17	1526	206	1414	676	14	2310	491	733	54	3	1281	448	1134	538	18	2138	7255
% App. Total	40	39.6	19.2	1.1		8.9	61.2	29.3	0.6		38.3	57.2	4.2	0.2		21	53	25.2	0.8		
PHF	.853	.906	.916	.850	.908	.888	.968	.977	.583	.984	.883	.885	.844	.375	.915	.855	.770	.796	.500	.822	.937

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-014 Galleria-Roseville
Site Code : 00000000
Start Date : 2/9/2012



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-015 Creekside Ridge-Roseville
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Creekside Ridge Drive Southbound					Roseville Parkway Westbound					Driveway Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00	4	0	1	0	5	1	55	11	1	68	0	0	0	0	0	1	131	0	0	132	205
06:15	5	0	0	0	5	0	74	13	1	88	1	0	0	0	1	2	175	0	0	177	271
06:30	4	0	1	0	5	2	99	18	0	119	0	0	0	0	0	2	205	0	0	207	331
06:45	7	0	3	0	10	1	146	44	0	191	0	0	0	0	0	10	280	0	0	290	491
Total	20	0	5	0	25	4	374	86	2	466	1	0	0	0	1	15	791	0	0	806	1298
07:00	9	0	2	0	11	2	166	28	1	197	0	0	1	0	1	4	289	0	1	294	503
07:15	10	1	9	0	20	0	227	44	0	271	0	1	0	0	1	12	381	0	0	393	685
07:30	9	0	17	0	26	0	272	43	0	315	1	2	1	0	4	15	410	1	1	427	772
07:45	24	0	9	0	33	4	372	71	0	447	0	3	3	0	6	23	553	1	2	579	1065
Total	52	1	37	0	90	6	1037	186	1	1230	1	6	5	0	12	54	1633	2	4	1693	3025
08:00	11	0	5	0	16	3	303	69	2	377	0	0	0	0	0	10	427	1	0	438	831
08:15	17	0	4	0	21	5	324	48	1	378	0	2	0	0	2	15	413	0	0	428	829
08:30	18	0	3	0	21	2	302	71	3	378	0	0	3	0	3	9	354	1	1	365	767
08:45	20	0	6	0	26	3	354	51	1	409	1	0	0	0	1	16	349	1	1	367	803
Total	66	0	18	0	84	13	1283	239	7	1542	1	2	3	0	6	50	1543	3	2	1598	3230
09:00	17	0	6	0	23	3	234	48	1	286	0	1	0	0	1	8	279	1	2	290	600
09:15	20	0	4	0	24	7	281	40	4	332	5	1	0	0	6	5	252	0	4	261	623
09:30	24	1	7	0	32	2	278	27	2	309	0	2	4	0	6	10	236	0	2	248	595
09:45	9	3	4	0	16	2	347	30	1	380	2	2	2	0	6	13	237	1	2	253	655
Total	70	4	21	0	95	14	1140	145	8	1307	7	6	6	0	19	36	1004	2	10	1052	2473
15:00	66	1	9	0	76	8	401	50	2	461	10	1	6	0	17	9	357	2	8	376	930
15:15	45	1	12	0	58	7	437	53	4	501	5	2	3	0	10	9	348	3	6	366	935
15:30	61	0	11	0	72	9	475	56	1	541	4	3	2	0	9	6	365	2	5	378	1000
15:45	47	2	12	0	61	6	489	59	1	555	12	1	6	0	19	11	381	5	4	401	1036
Total	219	4	44	0	267	30	1802	218	8	2058	31	7	17	0	55	35	1451	12	23	1521	3901
16:00	68	2	13	0	83	6	426	44	4	480	7	1	5	0	13	14	395	2	7	418	994
16:15	49	4	15	0	68	5	556	56	3	620	3	2	6	0	11	11	326	4	8	349	1048
16:30	111	3	38	0	152	4	483	49	2	538	4	5	4	0	13	9	341	4	4	358	1061
16:45	56	1	17	0	74	10	530	64	2	606	6	1	3	0	10	18	342	4	1	365	1055
Total	284	10	83	0	377	25	1995	213	11	2244	20	9	18	0	47	52	1404	14	20	1490	4158
17:00	91	2	20	0	113	8	535	52	2	597	4	0	6	0	10	12	386	0	6	404	1124
17:15	69	0	32	0	101	14	528	101	4	647	11	0	7	0	18	24	443	5	5	477	1243
17:30	57	4	19	0	80	9	570	77	3	659	6	2	8	0	16	11	388	7	9	415	1170

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-015 Creekside Ridge-Roseville
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Creekside Ridge Drive Southbound					Roseville Parkway Westbound					Driveway Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
17:45	54	2	21	0	77	11	558	78	5	652	6	1	2	0	9	12	391	0	8	411	1149
Total	271	8	92	0	371	42	2191	308	14	2555	27	3	23	0	53	59	1608	12	28	1707	4686
18:00	76	2	15	0	93	7	491	46	2	546	11	1	4	0	16	11	305	2	6	324	979
18:15	50	1	16	0	67	7	414	57	2	480	8	2	6	0	16	13	399	5	3	420	983
18:30	47	2	11	0	60	7	399	35	1	442	8	1	6	0	15	9	277	3	4	293	810
18:45	29	1	12	0	42	5	339	27	5	376	9	2	6	0	17	6	288	1	5	300	735
Total	202	6	54	0	262	26	1643	165	10	1844	36	6	22	0	64	39	1269	11	18	1337	3507
Grand Total	1184	33	354	0	1571	160	11465	1560	61	13246	124	39	94	0	257	340	10703	56	105	11204	26278
Apprch %	75.4	2.1	22.5	0		1.2	86.6	11.8	0.5		48.2	15.2	36.6	0		3	95.5	0.5	0.9		
Total %	4.5	0.1	1.3	0	6	0.6	43.6	5.9	0.2	50.4	0.5	0.1	0.4	0	1	1.3	40.7	0.2	0.4	42.6	
Unshifted	1177	29	351	0	1557	156	11422	1552	61	13191	119	36	91	0	246	338	10658	54	105	11155	26149
% Unshifted	99.4	87.9	99.2	0	99.1	97.5	99.6	99.5	100	99.6	96	92.3	96.8	0	95.7	99.4	99.6	96.4	100	99.6	99.5
Bank 2	7	4	3	0	14	4	43	8	0	55	5	3	3	0	11	2	45	2	0	49	129
% Bank 2	0.6	12.1	0.8	0	0.9	2.5	0.4	0.5	0	0.4	4	7.7	3.2	0	4.3	0.6	0.4	3.6	0	0.4	0.5

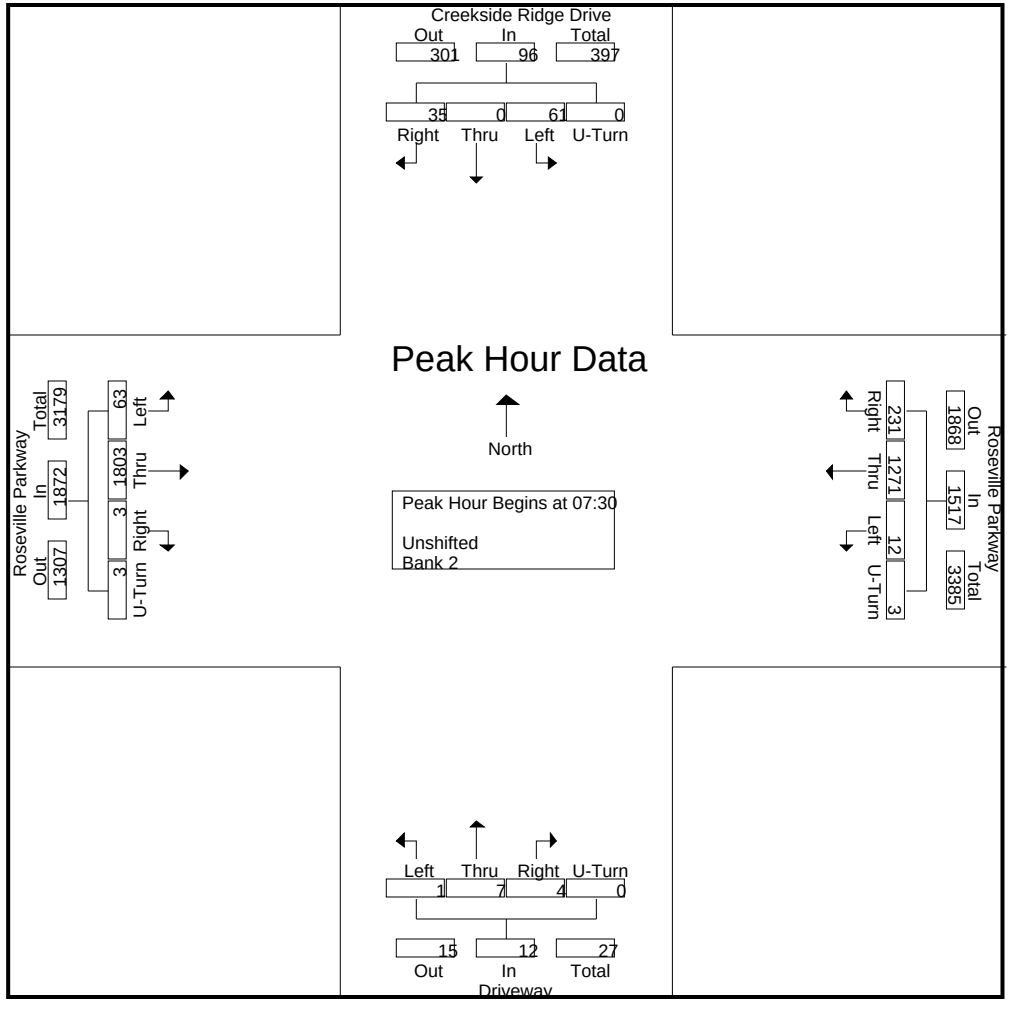
	Creekside Ridge Drive Southbound					Roseville Parkway Westbound					Driveway Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	9	0	**17**	0	26	0	272	43	0	315	**1**	2	1	0	4	15	410	**1**	1	427	772
07:45	**24**	0	9	0	**33**	4	**372**	**71**	0	**447**	0	**3**	**3**	0	**6**	**23**	**553**	1	**2**	**579**	**1065**
08:00	11	0	5	0	16	3	303	69	**2**	377	0	0	0	0	0	10	427	1	0	438	831
08:15	17	0	4	0	21	**5**	324	48	1	378	0	2	0	0	2	15	413	0	0	428	829
Total Volume	61	0	35	0	96	12	1271	231	3	1517	1	7	4	0	12	63	1803	3	3	1872	3497
% App. Total	63.5	0	36.5	0		0.8	83.8	15.2	0.2		8.3	58.3	33.3	0		3.4	96.3	0.2	0.2		
PHF	.635	.000	.515	.000	.727	.600	.854	.813	.375	.848	.250	.583	.333	.000	.500	.685	.815	.750	.375	.808	.821

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-015 Creekside Ridge-Roseville
Site Code : 00000000
Start Date : 2/9/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-015 Creekside Ridge-Roseville
Site Code : 00000000
Start Date : 2/9/2012

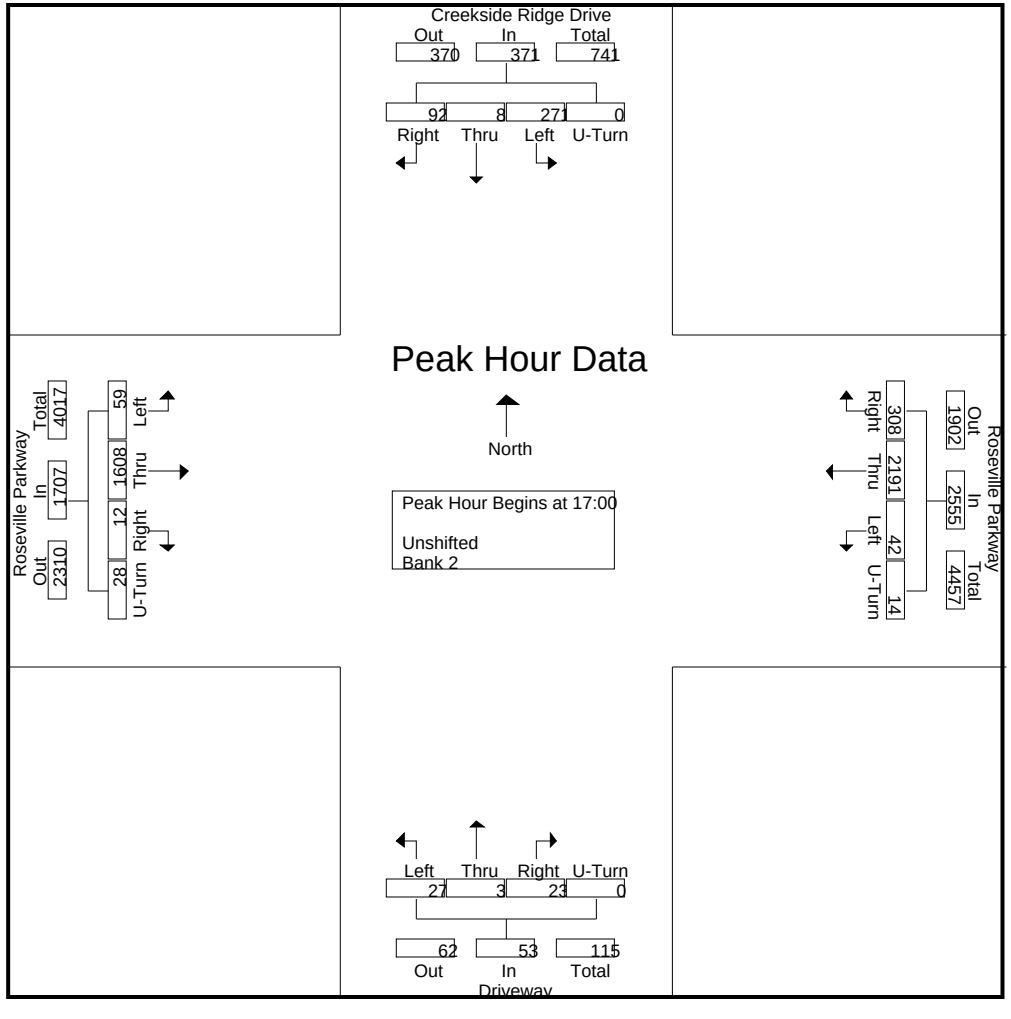
	Creekside Ridge Drive Southbound					Roseville Parkway Westbound					Driveway Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	**91**				**113**																
17:15	69	0	**32**	0	101	**14**	528	**101**	4	647	**11**	0	7	0	**18**	**24**	**443**	5	5	**477**	**1243**
17:30	57	**4**	19	0	80	9	**570**	77	3	**659**	6	**2**	**8**	0	16	11	388	**7**	**9**	415	1170
17:45	54	2	21	0	77	11	558	78	**5**	652	6	1	2	0	9	12	391	0	8	411	1149
Total Volume	271	8	92	0	371	42	2191	308	14	2555	27	3	23	0	53	59	1608	12	28	1707	4686
% App. Total	73	2.2	24.8	0		1.6	85.8	12.1	0.5		50.9	5.7	43.4	0		3.5	94.2	0.7	1.6		
PHF	.745	.500	.719	.000	.821	.750	.961	.762	.700	.969	.614	.375	.719	.000	.736	.615	.907	.429	.778	.895	.942

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-015 Creekside Ridge-Roseville
Site Code : 00000000
Start Date : 2/9/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-016 Taylor-Roseville
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Taylor Road Southbound					Roseville Parkway Westbound					Taylor Road Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00	33	19	2	0	54	33	52	12	3	100	16	7	12	0	35	7	96	29	0	132	321
06:15	44	11	1	0	56	61	60	10	1	132	24	11	16	0	51	9	142	29	0	180	419
06:30	80	20	3	0	103	49	82	18	2	151	28	17	30	0	75	5	182	27	0	214	543
06:45	63	21	4	1	89	61	149	8	5	223	56	18	44	0	118	16	246	26	1	289	719
Total	220	71	10	1	302	204	343	48	11	606	124	53	102	0	279	37	666	111	1	815	2002
07:00	85	20	11	1	117	66	142	19	4	231	35	11	19	0	65	11	246	38	0	295	708
07:15	112	26	15	1	154	57	194	27	6	284	59	31	25	0	115	21	318	32	1	372	925
07:30	112	25	11	4	152	55	268	37	6	366	58	25	39	0	122	27	386	21	1	435	1075
07:45	134	35	12	1	182	63	298	44	7	412	108	33	85	0	226	26	482	41	3	552	1372
Total	443	106	49	7	605	241	902	127	23	1293	260	100	168	0	528	85	1432	132	5	1654	4080
08:00	104	26	16	0	146	55	310	49	5	419	69	24	42	0	135	10	441	33	3	487	1187
08:15	111	30	16	0	157	41	256	36	3	336	89	21	59	0	169	15	365	24	0	404	1066
08:30	103	25	17	2	147	53	280	55	9	397	96	17	51	0	164	17	360	25	2	404	1112
08:45	87	22	9	1	119	44	275	52	6	377	95	37	46	0	178	27	304	22	1	354	1028
Total	405	103	58	3	569	193	1121	192	23	1529	349	99	198	0	646	69	1470	104	6	1649	4393
09:00	61	14	25	1	101	37	223	50	7	317	58	36	28	0	122	15	270	26	0	311	851
09:15	57	17	19	2	95	51	213	36	8	308	54	26	33	0	113	11	233	29	0	273	789
09:30	59	25	26	1	111	48	264	53	3	368	55	27	37	0	119	16	220	26	2	264	862
09:45	73	22	28	1	124	51	251	41	9	352	83	38	35	0	156	18	214	20	2	254	886
Total	250	78	98	5	431	187	951	180	27	1345	250	127	133	0	510	60	937	101	4	1102	3388
15:00	60	18	32	1	111	59	365	88	10	522	72	40	40	0	152	25	351	50	1	427	1212
15:15	69	27	27	4	127	57	363	94	6	520	100	45	35	1	181	23	327	52	3	405	1233
15:30	67	35	35	3	140	59	430	108	4	601	90	48	48	0	186	17	342	64	1	424	1351
15:45	73	32	33	1	139	45	382	99	9	535	116	47	57	0	220	29	360	57	7	453	1347
Total	269	112	127	9	517	220	1540	389	29	2178	378	180	180	1	739	94	1380	223	12	1709	5143
16:00	71	17	28	4	120	53	407	130	6	596	80	55	29	0	164	35	372	65	2	474	1354
16:15	74	44	31	6	155	56	448	108	5	617	121	71	38	0	230	23	292	50	2	367	1369
16:30	54	38	32	2	126	60	446	142	5	653	99	52	44	1	196	36	332	77	1	446	1421
16:45	76	31	37	3	147	43	414	118	10	585	116	63	39	1	219	30	305	40	1	376	1327
Total	275	130	128	15	548	212	1715	498	26	2451	416	241	150	2	809	124	1301	232	6	1663	5471
17:00	66	20	41	0	127	77	523	151	9	760	112	64	41	0	217	27	402	69	6	504	1608
17:15	84	31	35	7	157	57	490	136	5	688	139	87	41	0	267	35	427	69	2	533	1645
17:30	63	30	46	3	142	53	474	133	8	668	126	62	50	1	239	27	360	66	3	456	1505

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-016 Taylor-Roseville
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Taylor Road Southbound					Roseville Parkway Westbound					Taylor Road Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
17:45	82	31	46	4	163	36	433	126	6	601	135	65	36	2	238	30	359	66	3	458	1460
Total	295	112	168	14	589	223	1920	546	28	2717	512	278	168	3	961	119	1548	270	14	1951	6218
18:00	62	30	29	2	123	57	427	124	6	614	103	36	43	2	184	27	296	57	2	382	1303
18:15	59	22	34	3	118	39	347	84	7	477	92	41	30	2	165	28	344	71	6	449	1209
18:30	40	26	19	6	91	45	337	78	3	463	85	28	36	2	151	28	245	48	6	327	1032
18:45	39	14	30	2	85	47	247	52	4	350	84	38	41	1	164	22	267	43	0	332	931
Total	200	92	112	13	417	188	1358	338	20	1904	364	143	150	7	664	105	1152	219	14	1490	4475
Grand Total	2357	804	750	67	3978	1668	9850	2318	187	14023	2653	1221	1249	13	5136	693	9886	1392	62	12033	35170
Apprch %	59.3	20.2	18.9	1.7		11.9	70.2	16.5	1.3		51.7	23.8	24.3	0.3		5.8	82.2	11.6	0.5		
Total %	6.7	2.3	2.1	0.2	11.3	4.7	28	6.6	0.5	39.9	7.5	3.5	3.6	0	14.6	2	28.1	4	0.2	34.2	
Unshifted	2351	804	745	67	3967	1656	9820	2313	187	13976	2643	1210	1235	13	5101	689	9853	1384	62	11988	35032
% Unshifted	99.7	100	99.3	100	99.7	99.3	99.7	99.8	100	99.7	99.6	99.1	98.9	100	99.3	99.4	99.7	99.4	100	99.6	99.6
Bank 2	6	0	5	0	11	12	30	5	0	47	10	11	14	0	35	4	33	8	0	45	138
% Bank 2	0.3	0	0.7	0	0.3	0.7	0.3	0.2	0	0.3	0.4	0.9	1.1	0	0.7	0.6	0.3	0.6	0	0.4	0.4

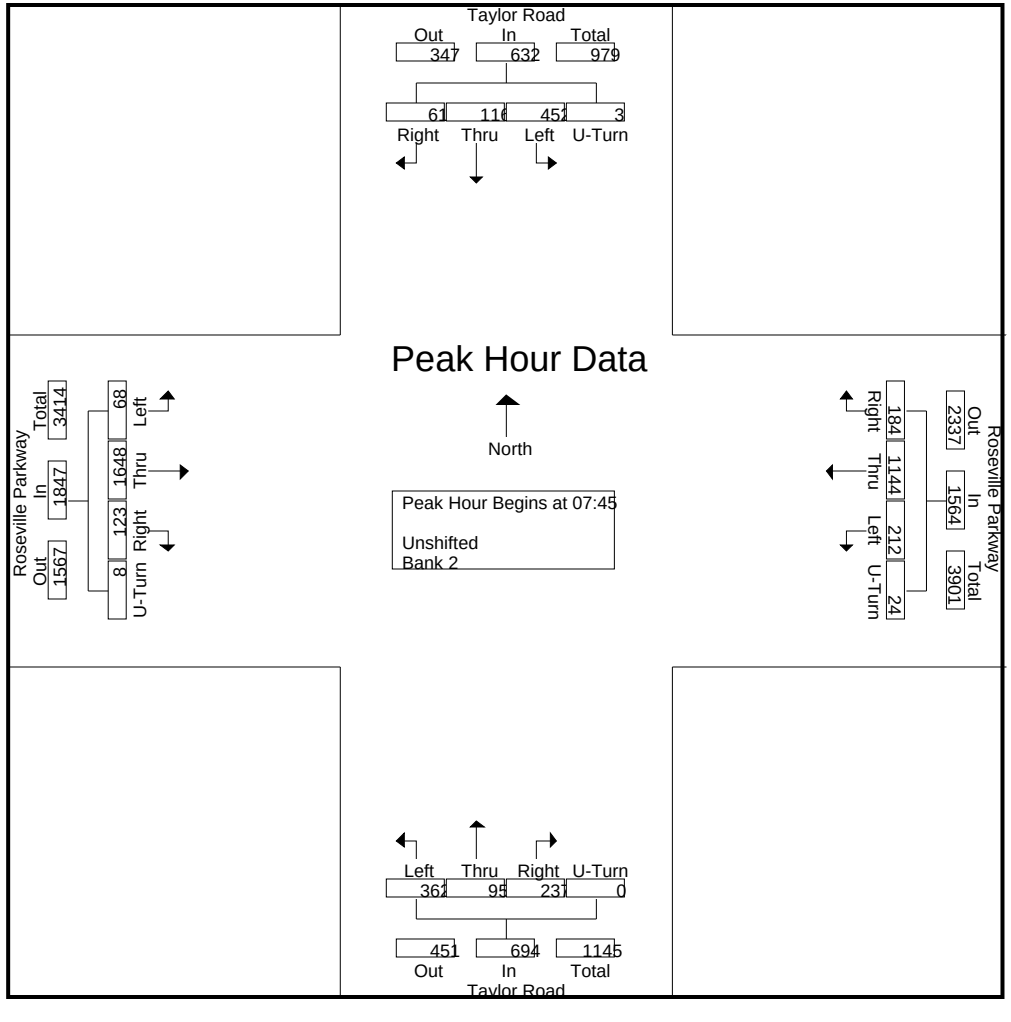
	Taylor Road Southbound					Roseville Parkway Westbound					Taylor Road Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	**134**	**35**	12	1	**182**	**63**	298	44	7	412	**108**	**33**	**85**	0	**226**	**26**	**482**	**41**	**3**	**552**	**1372**
08:00	104	26	16	0	146	55	**310**	49	5	**419**	69	24	42	0	135	10	441	33	3	487	1187
08:15	111	30	16	0	157	41	256	36	3	336	89	21	59	0	169	15	365	24	0	404	1066
08:30	103	25	**17**	**2**	147	53	280	**55**	**9**	397	96	17	51	0	164	17	360	25	2	404	1112
Total Volume	452	116	61	3	632	212	1144	184	24	1564	362	95	237	0	694	68	1648	123	8	1847	4737
% App. Total	71.5	18.4	9.7	0.5		13.6	73.1	11.8	1.5		52.2	13.7	34.1	0		3.7	89.2	6.7	0.4		
PHF	.843	.829	.897	.375	.868	.841	.923	.836	.667	.933	.838	.720	.697	.000	.768	.654	.855	.750	.667	.837	.863

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-016 Taylor-Roseville
Site Code : 00000000
Start Date : 2/9/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-016 Taylor-Roseville
Site Code : 00000000
Start Date : 2/9/2012

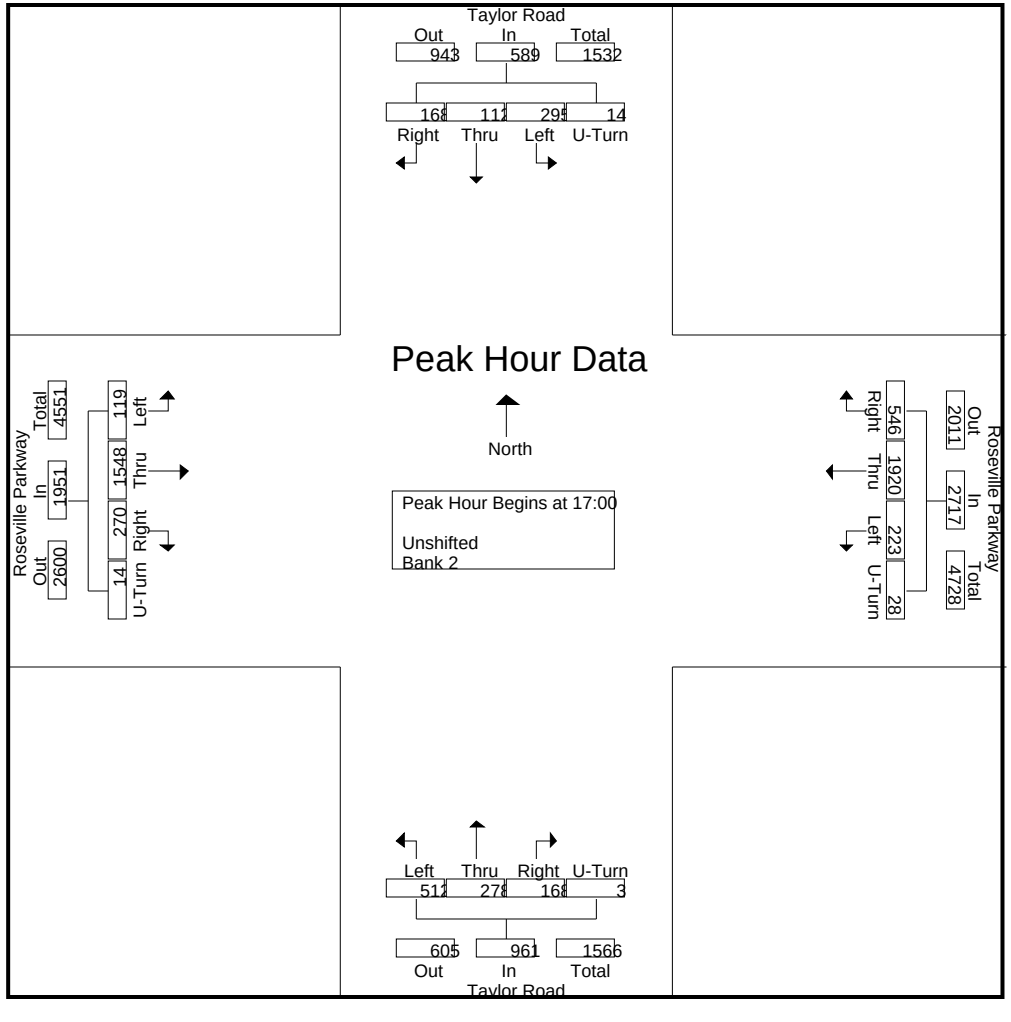
	Taylor Road Southbound					Roseville Parkway Westbound					Taylor Road Northbound					Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	66	20	41	0	127	**77**	**523**	**151**	**9**	**760**								**69**	**6**		
17:15	**84**	**31**	35	**7**	157	57	490	136	5	688	**139**	**87**	41	0	**267**	**35**	**427**	69	2	**533**	**1645**
17:30	63	30	**46**	3	142	53	474	133	8	668	126	62	**50**	1	239	27	360	66	3	456	1505
17:45	82	31	46	4	**163**	36	433	126	6	601	135	65	36	**2**	238	30	359	66	3	458	1460
Total Volume	295	112	168	14	589	223	1920	546	28	2717	512	278	168	3	961	119	1548	270	14	1951	6218
% App. Total	50.1	19	28.5	2.4		8.2	70.7	20.1	1		53.3	28.9	17.5	0.3		6.1	79.3	13.8	0.7		
PHF	.878	.903	.913	.500	.903	.724	.918	.904	.778	.894	.921	.799	.840	.375	.900	.850	.906	.978	.583	.915	.945

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-016 Taylor-Roseville
Site Code : 00000000
Start Date : 2/9/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-017 North Sunrise-East Roseville
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	North Sunrise Avenue Southbound					East Roseville Parkway Westbound					North Sunrise Avenue Northbound					East Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00	2	3	3	0	8	20	84	2	0	106	11	18	9	0	38	22	103	15	1	141	293
06:15	1	5	4	0	10	19	114	4	0	137	11	27	7	6	51	35	157	16	3	211	409
06:30	1	6	14	0	21	17	132	2	0	151	17	28	8	8	61	52	197	32	0	281	514
06:45	1	8	15	0	24	23	181	8	0	212	18	40	10	5	73	92	220	32	0	344	653
Total	5	22	36	0	63	79	511	16	0	606	57	113	34	19	223	201	677	95	4	977	1869
07:00	2	2	16	0	20	33	190	6	0	229	11	33	20	5	69	35	289	37	0	361	679
07:15	4	10	15	0	29	48	244	9	1	302	29	31	14	3	77	45	360	39	0	444	852
07:30	6	23	50	0	79	55	282	5	0	342	23	41	25	7	96	43	406	74	2	525	1042
07:45	5	10	37	0	52	68	347	14	0	429	34	73	30	5	142	105	493	96	1	695	1318
Total	17	45	118	0	180	204	1063	34	1	1302	97	178	89	20	384	228	1548	246	3	2025	3891
08:00	7	16	22	0	45	47	320	6	0	373	39	56	33	6	134	66	437	82	1	586	1138
08:15	7	18	20	0	45	38	292	7	0	337	30	49	26	5	110	73	393	63	1	530	1022
08:30	8	10	20	0	38	53	312	13	0	378	35	35	23	6	99	62	375	77	0	514	1029
08:45	9	13	32	0	54	55	311	9	0	375	49	62	27	11	149	75	294	76	1	446	1024
Total	31	57	94	0	182	193	1235	35	0	1463	153	202	109	28	492	276	1499	298	3	2076	4213
09:00	10	31	24	0	65	32	221	8	0	261	44	33	16	13	106	42	252	57	1	352	784
09:15	3	16	34	0	53	36	226	10	1	273	53	46	27	5	131	56	235	46	1	338	795
09:30	12	23	35	0	70	38	224	13	0	275	74	43	28	5	150	47	217	54	1	319	814
09:45	10	23	48	0	81	33	262	9	0	304	52	50	34	13	149	60	202	59	3	324	858
Total	35	93	141	0	269	139	933	40	1	1113	223	172	105	36	536	205	906	216	6	1333	3251
15:00	16	41	74	0	131	35	321	7	0	363	96	34	38	1	169	38	353	52	0	443	1106
15:15	15	44	63	0	122	50	370	10	1	431	103	49	51	11	214	43	330	65	2	440	1207
15:30	15	58	114	0	187	35	355	7	2	399	94	30	46	4	174	32	326	94	1	453	1213
15:45	12	36	74	0	122	41	390	9	0	440	119	27	65	6	217	43	366	77	0	486	1265
Total	58	179	325	0	562	161	1436	33	3	1633	412	140	200	22	774	156	1375	288	3	1822	4791
16:00	19	51	72	0	142	40	394	7	1	442	102	19	47	7	175	23	362	76	2	463	1222
16:15	11	39	67	0	117	35	391	7	1	434	136	27	46	6	215	25	317	70	4	416	1182
16:30	12	39	79	0	130	43	420	6	0	469	121	22	52	10	205	18	321	85	4	428	1232
16:45	13	35	59	0	107	49	413	3	1	466	104	25	56	3	188	19	365	65	3	452	1213
Total	55	164	277	0	496	167	1618	23	3	1811	463	93	201	26	783	85	1365	296	13	1759	4849
17:00	13	53	90	0	156	32	491	4	0	527	152	16	60	7	235	13	416	69	1	499	1417
17:15	11	28	48	0	87	51	495	3	0	549	155	12	45	3	215	22	422	76	2	522	1373
17:30	12	31	44	0	87	35	447	1	1	484	133	14	60	4	211	14	401	78	3	496	1278

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-017 North Sunrise-East Roseville
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	North Sunrise Avenue Southbound					East Roseville Parkway Westbound					North Sunrise Avenue Northbound					East Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
17:45	4	17	34	0	55	42	482	4	0	528	91	12	55	9	167	15	376	84	7	482	1232
Total	40	129	216	0	385	160	1915	12	1	2088	531	54	220	23	828	64	1615	307	13	1999	5300
18:00	4	19	33	0	56	26	423	2	0	451	111	18	47	9	185	12	345	52	2	411	1103
18:15	1	13	33	0	47	32	365	10	2	409	96	16	44	7	163	19	345	59	3	426	1045
18:30	10	13	20	0	43	22	312	4	1	339	79	18	44	3	144	17	285	43	2	347	873
18:45	4	17	23	0	44	19	263	6	0	288	63	18	33	7	121	40	265	34	3	342	795
Total	19	62	109	0	190	99	1363	22	3	1487	349	70	168	26	613	88	1240	188	10	1526	3816
Grand Total	260	751	1316	0	2327	1202	10074	215	12	11503	2285	1022	1126	200	4633	1303	10225	1934	55	13517	31980
Apprch %	11.2	32.3	56.6	0		10.4	87.6	1.9	0.1		49.3	22.1	24.3	4.3		9.6	75.6	14.3	0.4		
Total %	0.8	2.3	4.1	0	7.3	3.8	31.5	0.7	0	36	7.1	3.2	3.5	0.6	14.5	4.1	32	6	0.2	42.3	
Unshifted	257	742	1305	0	2304	1191	10047	214	12	11464	2270	1008	1106	200	4584	1291	10180	1926	55	13452	31804
% Unshifted	98.8	98.8	99.2	0	99	99.1	99.7	99.5	100	99.7	99.3	98.6	98.2	100	98.9	99.1	99.6	99.6	100	99.5	99.4
Bank 2	3	9	11	0	23	11	27	1	0	39	15	14	20	0	49	12	45	8	0	65	176
% Bank 2	1.2	1.2	0.8	0	1	0.9	0.3	0.5	0	0.3	0.7	1.4	1.8	0	1.1	0.9	0.4	0.4	0	0.5	0.6

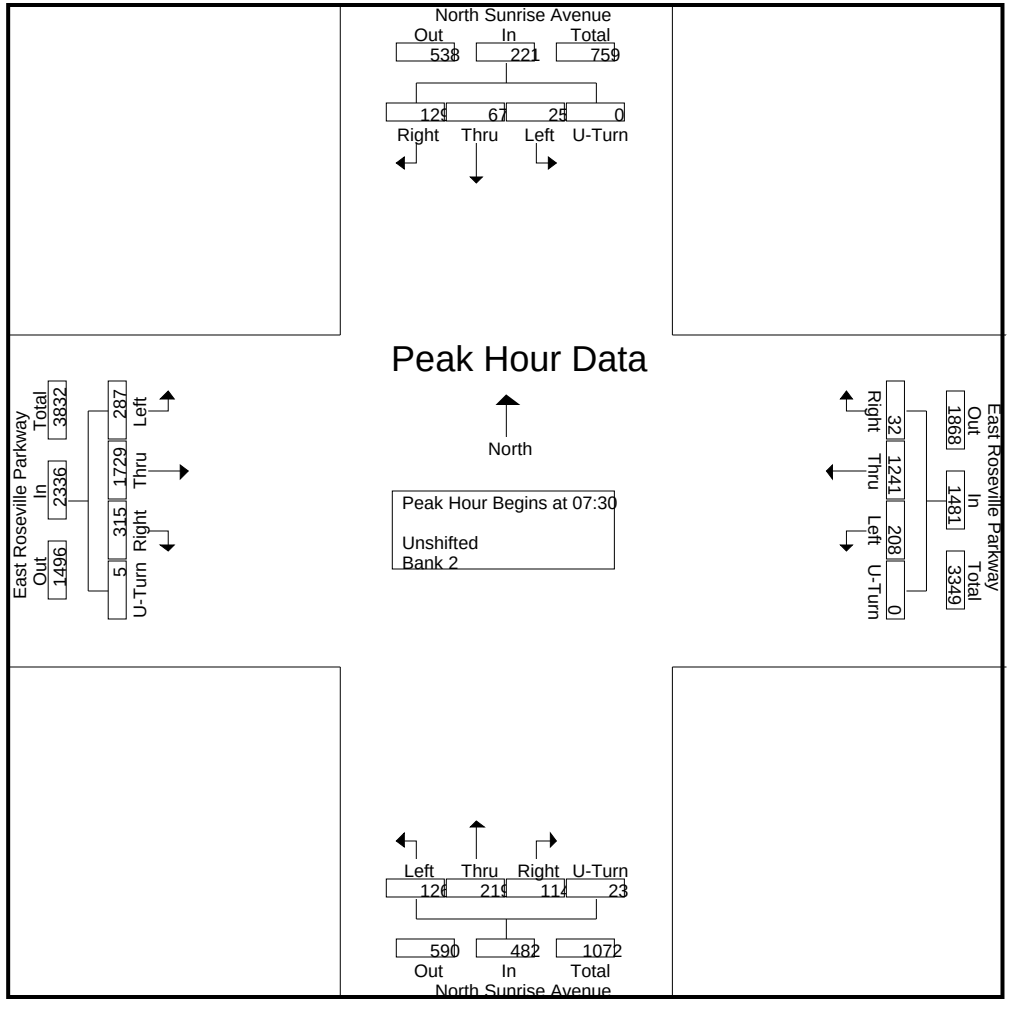
	North Sunrise Avenue Southbound					East Roseville Parkway Westbound					North Sunrise Avenue Northbound					East Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	6	**23**	**50**	0	**79**	55	282	5	0	342	23	41	25	**7**	96	43	406	74	**2**	525	1042
07:45	5	10	37	0	52	**68**	**347**	**14**	0	**429**	34	**73**	30	5	**142**	**105**	**493**	**96**	1	**695**	**1318**
08:00	**7**	16	22	0	45	47	320	6	0	373	**39**	56	**33**	6	134	66	437	82	1	586	1138
08:15	7	18	20	0	45	38	292	7	0	337	30	49	26	5	110	73	393	63	1	530	1022
Total Volume	25	67	129	0	221	208	1241	32	0	1481	126	219	114	23	482	287	1729	315	5	2336	4520
% App. Total	11.3	30.3	58.4	0		14	83.8	2.2	0		26.1	45.4	23.7	4.8		12.3	74	13.5	0.2		
PHF	.893	.728	.645	.000	.699	.765	.894	.571	.000	.863	.808	.750	.864	.821	.849	.683	.877	.820	.625	.840	.857

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-017 North Sunrise-East Roseville
Site Code : 00000000
Start Date : 2/9/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-017 North Sunrise-East Roseville
Site Code : 00000000
Start Date : 2/9/2012

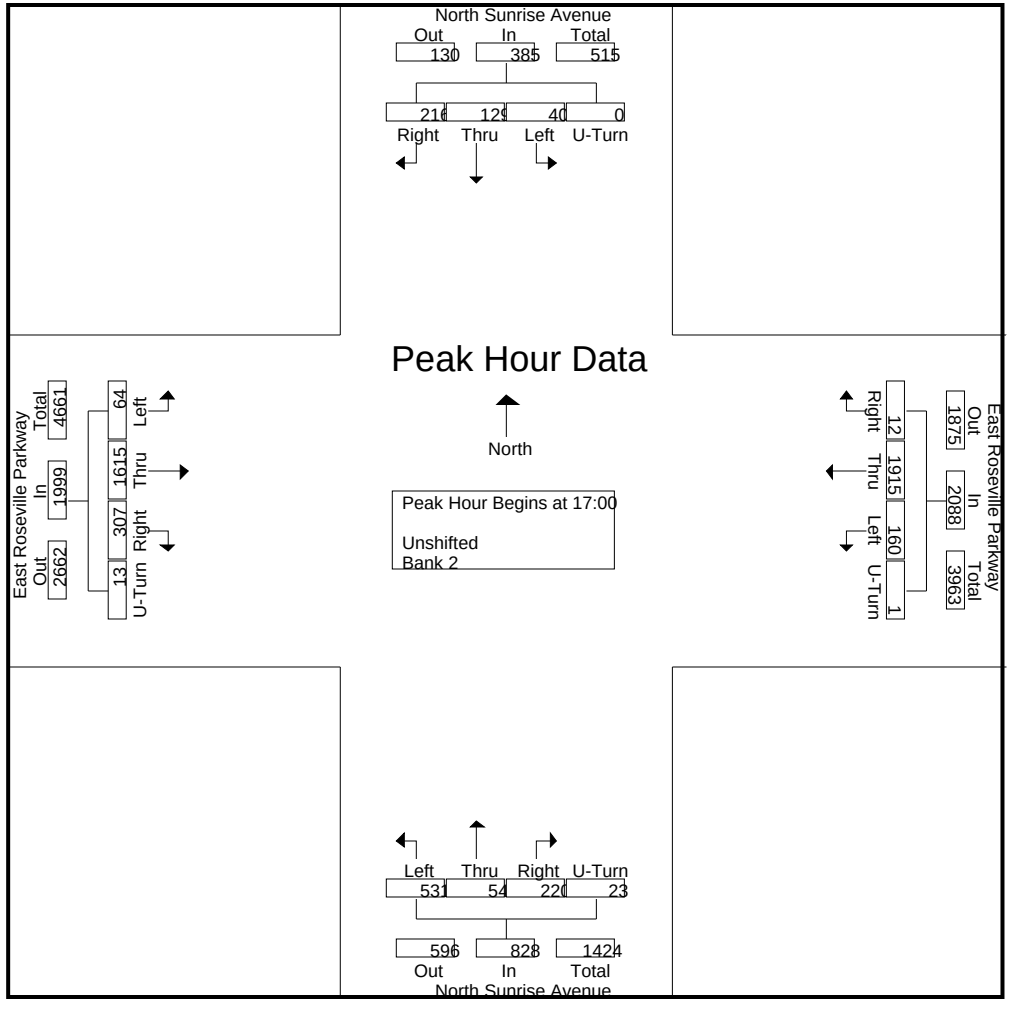
	North Sunrise Avenue Southbound					East Roseville Parkway Westbound					North Sunrise Avenue Northbound					East Roseville Parkway Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	**13**	**53**	**90**		**156**			**4**				**16**	**60**		**235**						**1417**
17:15	11	28	48	0	87	**51**	**495**	3	0	**549**	**155**	12	45	3	215	**22**	**422**	76	2	**522**	1373
17:30	12	31	44	0	87	35	447	1	**1**	484	133	14	60	4	211	14	401	78	3	496	1278
17:45	4	17	34	0	55	42	482	4	0	528	91	12	55	**9**	167	15	376	**84**	**7**	482	1232
Total Volume	40	129	216	0	385	160	1915	12	1	2088	531	54	220	23	828	64	1615	307	13	1999	5300
% App. Total	10.4	33.5	56.1	0		7.7	91.7	0.6	0		64.1	6.5	26.6	2.8		3.2	80.8	15.4	0.7		
PHF	.769	.608	.600	.000	.617	.784	.967	.750	.250	.951	.856	.844	.917	.639	.881	.727	.957	.914	.464	.957	.935

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-017 North Sunrise-East Roseville
Site Code : 00000000
Start Date : 2/9/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-018 Wills-Atlantic
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Southbound				Atlantic Street Westbound				Wills Road Northbound				Atlantic Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	0	0	8	41	0	49	3	0	18	21	0	57	9	66	136
06:15	0	0	0	0	12	54	0	66	2	0	25	27	0	61	15	76	169
06:30	0	0	0	0	16	68	0	84	8	0	35	43	0	100	17	117	244
06:45	0	0	0	0	27	96	0	123	11	0	54	65	0	82	20	102	290
Total	0	0	0	0	63	259	0	322	24	0	132	156	0	300	61	361	839
07:00	0	0	0	0	11	99	0	110	14	0	53	67	0	105	29	134	311
07:15	0	0	0	0	19	105	0	124	26	0	59	85	0	139	39	178	387
07:30	0	0	0	0	37	137	0	174	35	0	80	115	0	199	56	255	544
07:45	0	0	0	0	47	140	0	187	37	0	61	98	0	188	35	223	508
Total	0	0	0	0	114	481	0	595	112	0	253	365	0	631	159	790	1750
08:00	0	0	0	0	49	117	0	166	38	0	60	98	0	171	49	220	484
08:15	0	0	0	0	55	87	0	142	26	0	45	71	0	136	43	179	392
08:30	0	0	0	0	55	97	0	152	27	0	40	67	0	111	33	144	363
08:45	0	0	0	0	53	95	0	148	30	0	49	79	0	124	59	183	410
Total	0	0	0	0	212	396	0	608	121	0	194	315	0	542	184	726	1649
09:00	0	0	0	0	47	96	0	143	31	0	42	73	0	131	49	180	396
09:15	0	0	0	0	38	81	0	119	32	0	48	80	0	84	42	126	325
09:30	0	0	0	0	36	82	0	118	34	0	39	73	0	99	46	145	336
09:45	0	0	0	0	38	93	0	131	31	0	31	62	0	108	47	155	348
Total	0	0	0	0	159	352	0	511	128	0	160	288	0	422	184	606	1405
15:00	0	0	0	0	44	142	0	186	70	0	55	125	0	142	79	221	532
15:15	0	0	0	0	35	128	0	163	63	0	54	117	0	127	55	182	462
15:30	0	0	0	0	47	149	0	196	63	0	60	123	0	152	45	197	516
15:45	0	0	0	0	56	149	0	205	63	0	74	137	0	116	60	176	518
Total	0	0	0	0	182	568	0	750	259	0	243	502	0	537	239	776	2028
16:00	0	0	0	0	42	189	0	231	62	0	67	129	0	132	46	178	538
16:15	0	0	0	0	46	165	0	211	53	0	60	113	0	137	59	196	520
16:30	0	0	0	0	57	204	0	261	65	0	69	134	0	154	61	215	610

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-018 Wills-Atlantic
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Southbound				Atlantic Street Westbound				Wills Road Northbound				Atlantic Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	0	0	0	43	193	0	236	74	0	70	144	0	141	62	203	583
Total	0	0	0	0	188	751	0	939	254	0	266	520	0	564	228	792	2251
17:00	0	0	0	0	32	219	0	251	83	0	88	171	0	156	69	225	647
17:15	0	0	0	0	58	255	0	313	58	0	60	118	0	150	59	209	640
17:30	0	0	0	0	51	185	0	236	66	0	58	124	0	118	62	180	540
17:45	0	0	0	0	44	162	0	206	52	0	60	112	0	122	46	168	486
Total	0	0	0	0	185	821	0	1006	259	0	266	525	0	546	236	782	2313
18:00	0	0	0	0	37	140	0	177	57	0	56	113	0	116	44	160	450
18:15	0	0	0	0	40	134	0	174	57	0	47	104	0	99	48	147	425
18:30	0	0	0	0	36	113	0	149	48	0	40	88	0	78	39	117	354
18:45	0	0	0	0	23	106	0	129	30	0	38	68	0	64	41	105	302
Total	0	0	0	0	136	493	0	629	192	0	181	373	0	357	172	529	1531
Grand Total	0	0	0	0	1239	4121	0	5360	1349	0	1695	3044	0	3899	1463	5362	13766
Apprch %	0	0	0		23.1	76.9	0		44.3	0	55.7		0	72.7	27.3		
Total %	0	0	0	0	9	29.9	0	38.9	9.8	0	12.3	22.1	0	28.3	10.6	39	
Unshifted	0	0	0	0	1228	4083	0	5311	1336	0	1674	3010	0	3875	1460	5335	13656
% Unshifted	0	0	0	0	99.1	99.1	0	99.1	99	0	98.8	98.9	0	99.4	99.8	99.5	99.2
Bank 2	0	0	0	0	11	38	0	49	13	0	21	34	0	24	3	27	110
% Bank 2	0	0	0	0	0.9	0.9	0	0.9	1	0	1.2	1.1	0	0.6	0.2	0.5	0.8

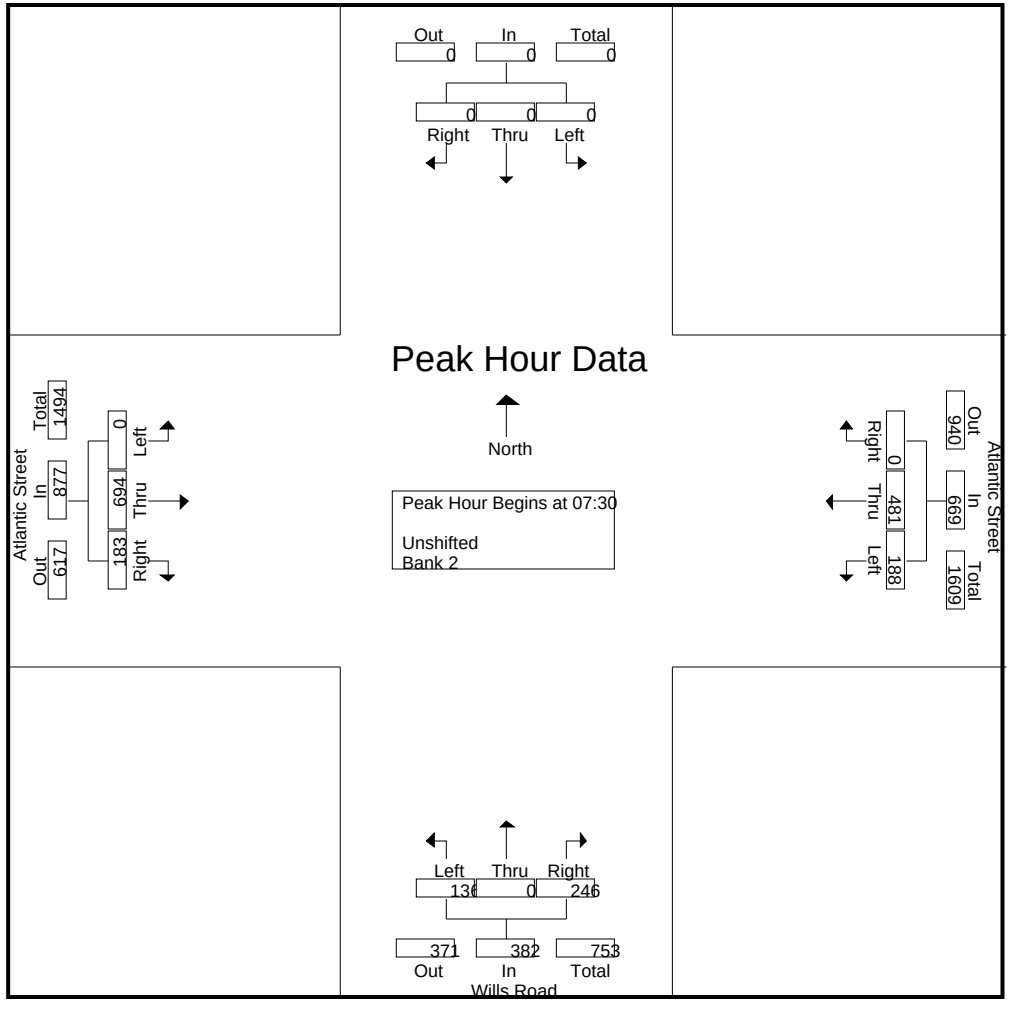
	Southbound				Atlantic Street Westbound				Wills Road Northbound				Atlantic Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	37	137	0	174	35	0	**80**	**115**	0	**199**	**56**	**255**	**544**
07:45	0	0	0	0	47	**140**	0	**187**	37	0	61	98	0	188	35	223	508
08:00	0	0	0	0	49	117	0	166	**38**	0	60	98	0	171	49	220	484
08:15	0	0	0	0	**55**	87	0	142	26	0	45	71	0	136	43	179	392
Total Volume	0	0	0	0	188	481	0	669	136	0	246	382	0	694	183	877	1928
% App. Total	0	0	0		28.1	71.9	0		35.6	0	64.4		0	79.1	20.9		
PHF	.000	.000	.000	.000	.855	.859	.000	.894	.895	.000	.769	.830	.000	.872	.817	.860	.886

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-018 Wills-Atlantic
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-018 Wills-Atlantic
Site Code : 00000000
Start Date : 1/31/2012

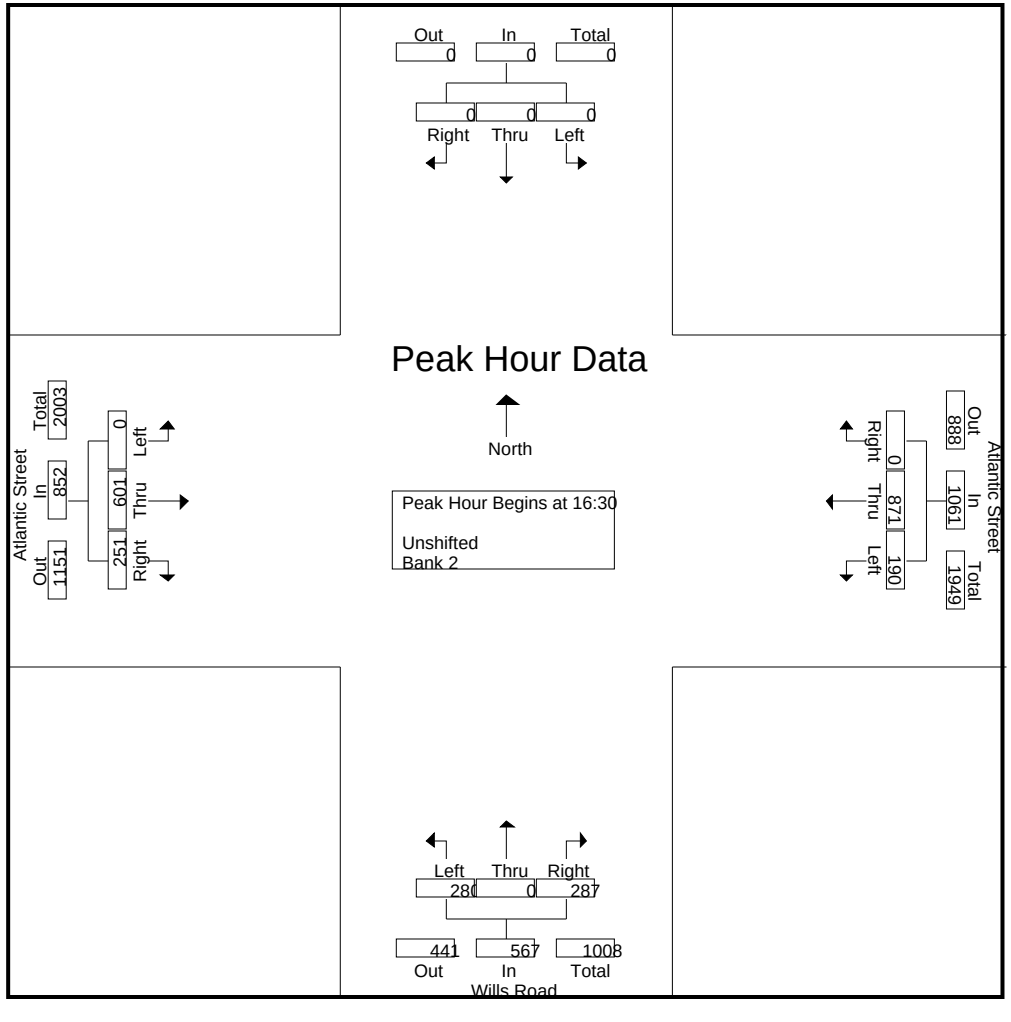
	Southbound				Atlantic Street Westbound				Wills Road Northbound				Atlantic Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	0	0	0	57	204	0	261	65	0	69	134	0	154	61	215	610
16:45	0	0	0	0	43	193	0	236	74	0	70	144	0	141	62	203	583
17:00	0	0	0	0	32	219	0	251	**83**	0	**88**	**171**	0	**156**	**69**	**225**	**647**
17:15	0	0	0	0	**58**	**255**	0	**313**	58	0	60	118	0	150	59	209	640
Total Volume	0	0	0	0	190	871	0	1061	280	0	287	567	0	601	251	852	2480
% App. Total	0	0	0		17.9	82.1	0		49.4	0	50.6		0	70.5	29.5		
PHF	.000	.000	.000	.000	.819	.854	.000	.847	.843	.000	.815	.829	.000	.963	.909	.947	.958

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-018 Wills-Atlantic
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-019 I80 WB-Atlantic
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Westbound Ramps Southbound				Atlantic Street Westbound				I-80 Westbound Ramps Northbound				Atlantic Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	27	27	65	24	0	89	0	0	79	79	0	57	30	87	282
06:15	0	0	37	37	88	29	0	117	0	0	117	117	0	49	35	84	355
06:30	0	0	44	44	93	39	0	132	0	0	84	84	0	75	54	129	389
06:45	0	0	66	66	93	56	0	149	0	0	99	99	0	80	57	137	451
Total	0	0	174	174	339	148	0	487	0	0	379	379	0	261	176	437	1477
07:00	0	0	54	54	119	54	0	173	0	0	129	129	0	88	64	152	508
07:15	0	0	65	65	104	67	0	171	0	0	170	170	0	122	82	204	610
07:30	0	0	87	87	113	99	0	212	0	0	157	157	0	211	62	273	729
07:45	0	0	100	100	96	86	0	182	0	0	231	231	0	195	54	249	762
Total	0	0	306	306	432	306	0	738	0	0	687	687	0	616	262	878	2609
08:00	0	0	82	82	100	83	0	183	0	0	237	237	0	160	63	223	725
08:15	0	0	79	79	106	64	0	170	0	0	235	235	0	129	57	186	670
08:30	0	0	76	76	97	70	0	167	0	0	244	244	0	117	39	156	643
08:45	0	0	75	75	111	78	0	189	0	0	248	248	0	126	40	166	678
Total	0	0	312	312	414	295	0	709	0	0	964	964	0	532	199	731	2716
09:00	0	0	74	74	72	69	0	141	0	0	193	193	0	128	39	167	575
09:15	0	0	54	54	126	67	0	193	0	0	197	197	0	101	36	137	581
09:30	0	0	55	55	128	64	0	192	0	0	185	185	0	101	33	134	566
09:45	0	0	64	64	94	68	0	162	0	0	209	209	0	103	32	135	570
Total	0	0	247	247	420	268	0	688	0	0	784	784	0	433	140	573	2292
15:00	0	0	79	79	152	105	0	257	0	0	142	142	0	141	48	189	667
15:15	0	0	69	69	130	100	0	230	0	0	174	174	0	149	38	187	660
15:30	0	0	82	82	178	113	0	291	0	0	174	174	0	161	47	208	755
15:45	0	0	82	82	150	131	0	281	0	0	172	172	0	134	48	182	717
Total	0	0	312	312	610	449	0	1059	0	0	662	662	0	585	181	766	2799
16:00	0	0	85	85	177	142	0	319	0	0	155	155	0	143	47	190	749
16:15	0	0	87	87	178	139	0	317	0	0	172	172	0	141	53	194	770
16:30	0	0	102	102	228	155	0	383	0	0	160	160	0	171	50	221	866

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-019 I80 WB-Atlantic
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Westbound Ramps Southbound				Atlantic Street Westbound				I-80 Westbound Ramps Northbound				Atlantic Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	0	93	93	156	142	0	298	0	0	183	183	0	143	64	207	781
Total	0	0	367	367	739	578	0	1317	0	0	670	670	0	598	214	812	3166
17:00	0	0	102	102	229	152	0	381	0	0	189	189	0	179	80	259	931
17:15	0	0	108	108	246	210	0	456	0	0	175	175	0	147	57	204	943
17:30	0	0	97	97	159	145	0	304	0	0	142	142	0	125	53	178	721
17:45	0	0	71	71	141	127	0	268	0	0	148	148	0	139	47	186	673
Total	0	0	378	378	775	634	0	1409	0	0	654	654	0	590	237	827	3268
18:00	0	0	65	65	133	112	0	245	0	0	131	131	0	119	49	168	609
18:15	0	0	64	64	134	113	0	247	0	0	149	149	0	108	41	149	609
18:30	0	0	52	52	99	92	0	191	0	0	137	137	0	90	22	112	492
18:45	0	0	44	44	86	90	0	176	0	0	122	122	0	69	36	105	447
Total	0	0	225	225	452	407	0	859	0	0	539	539	0	386	148	534	2157
Grand Total	0	0	2321	2321	4181	3085	0	7266	0	0	5339	5339	0	4001	1557	5558	20484
Apprch %	0	0	100		57.5	42.5	0		0	0	100		0	72	28		
Total %	0	0	11.3	11.3	20.4	15.1	0	35.5	0	0	26.1	26.1	0	19.5	7.6	27.1	
Unshifted	0	0	2305	2305	4140	3056	0	7196	0	0	5291	5291	0	3973	1535	5508	20300
% Unshifted	0	0	99.3	99.3	99	99.1	0	99	0	0	99.1	99.1	0	99.3	98.6	99.1	99.1
Bank 2	0	0	16	16	41	29	0	70	0	0	48	48	0	28	22	50	184
% Bank 2	0	0	0.7	0.7	1	0.9	0	1	0	0	0.9	0.9	0	0.7	1.4	0.9	0.9

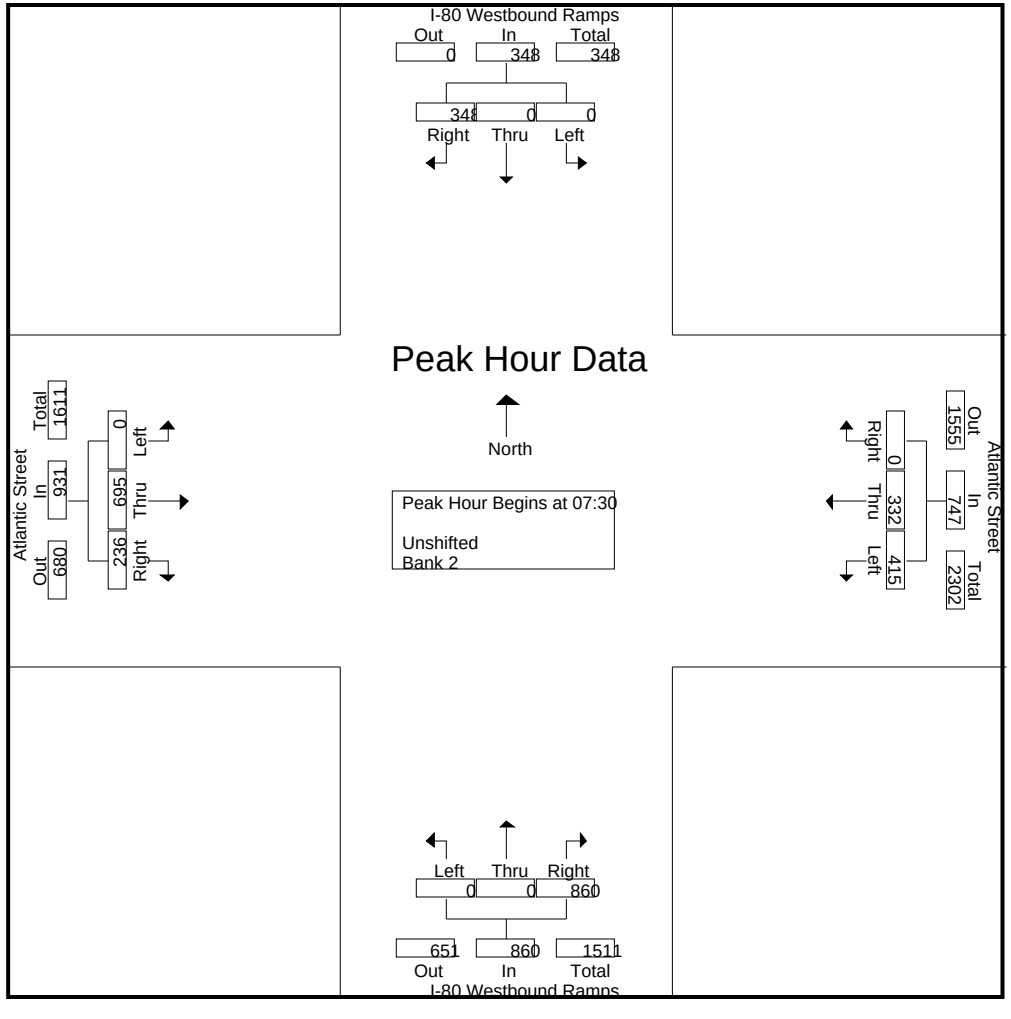
	I-80 Westbound Ramps Southbound				Atlantic Street Westbound				I-80 Westbound Ramps Northbound				Atlantic Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	87	87	**113**	**99**	0	**212**	0	0	157	157	0	**211**	62	**273**	729
07:45	0	0	**100**	**100**	96	86	0	182	0	0	231	231	0	195	54	249	**762**
08:00	0	0	82	82	100	83	0	183	0	0	**237**	**237**	0	160	**63**	223	725
08:15	0	0	79	79	106	64	0	170	0	0	235	235	0	129	57	186	670
Total Volume	0	0	348	348	415	332	0	747	0	0	860	860	0	695	236	931	2886
% App. Total	0	0	100		55.6	44.4	0		0	0	100		0	74.7	25.3		
PHF	.000	.000	.870	.870	.918	.838	.000	.881	.000	.000	.907	.907	.000	.823	.937	.853	.947

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-019 I80 WB-Atlantic
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-019 I80 WB-Atlantic
Site Code : 00000000
Start Date : 1/31/2012

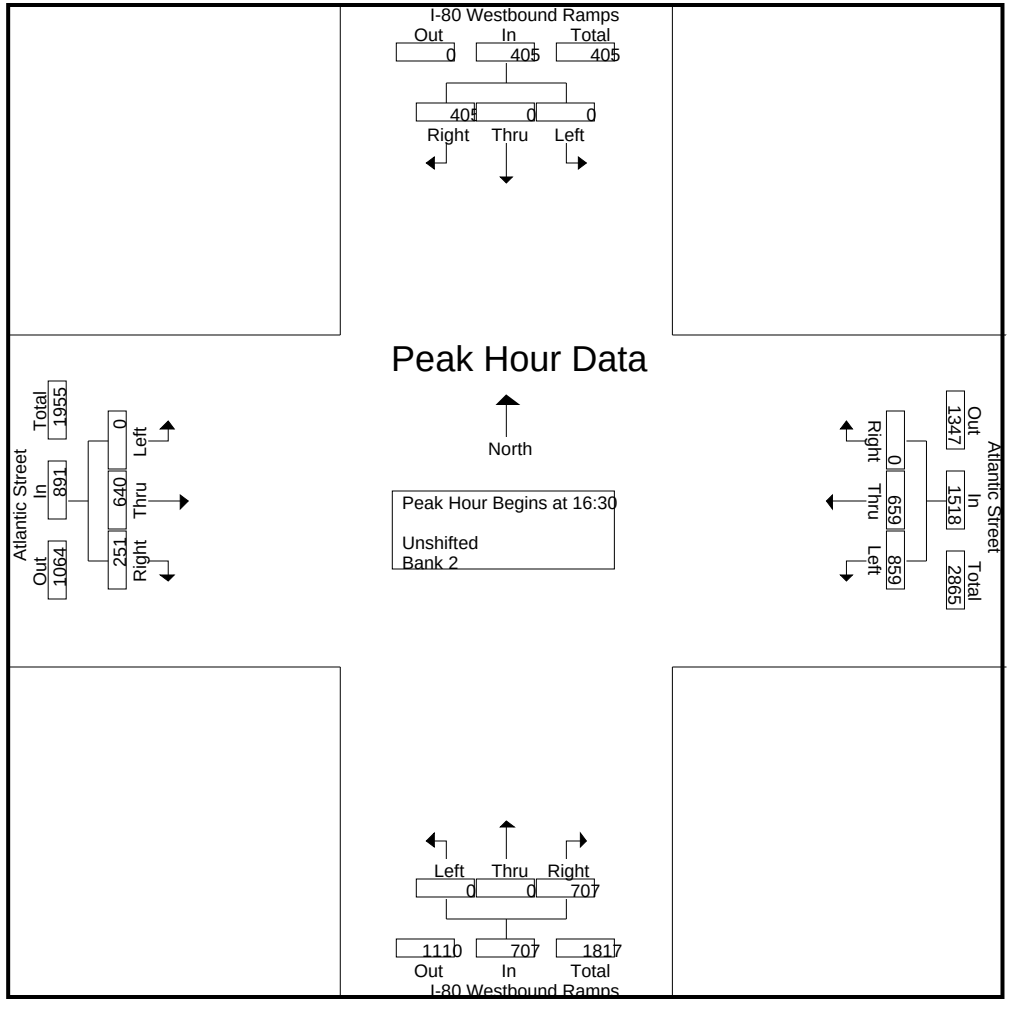
	I-80 Westbound Ramps Southbound				Atlantic Street Westbound				I-80 Westbound Ramps Northbound				Atlantic Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	0	102	102	228	155	0	383	0	0	160	160	0	171	50	221	866
16:45	0	0	93	93	156	142	0	298	0	0	183	183	0	143	64	207	781
17:00	0	0	102	102	229	152	0	381	0	0	**189**	**189**	0	**179**	**80**	**259**	931
17:15	0	0	**108**	**108**	**246**	**210**	0	**456**	0	0	175	175	0	147	57	204	**943**
Total Volume	0	0	405	405	859	659	0	1518	0	0	707	707	0	640	251	891	3521
% App. Total	0	0	100		56.6	43.4	0		0	0	100		0	71.8	28.2		
PHF	.000	.000	.938	.938	.873	.785	.000	.832	.000	.000	.935	.935	.000	.894	.784	.860	.933

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-019 I80 WB-Atlantic
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-020 I80 EB-Eureka
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Taylor Road Southbound					Eureka Road Westbound					I-80 Eastbound Ramps Northbound					Eureka Road Eastbound					I-80 Eastbound Ramps Southeastbound					
Start Time	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Int. Total
06:00	7	0	40	6	53	0	47	29	15	91	9	0	32	30	71	0	35	83	10	128	0	0	0	0	0	343
06:15	18	0	51	5	74	0	40	38	9	87	16	0	47	27	90	0	28	130	13	171	0	0	0	0	0	422
06:30	24	0	52	7	83	0	77	44	16	137	12	0	59	52	123	0	35	127	19	181	0	0	0	0	0	524
06:45	26	0	58	9	93	0	61	68	34	163	24	0	97	81	202	0	30	138	29	197	0	0	0	0	0	655
Total	75	0	201	27	303	0	225	179	74	478	61	0	235	190	486	0	128	478	71	677	0	0	0	0	0	1944
07:00	18	0	57	7	82	0	84	74	17	175	22	0	43	89	154	0	24	146	28	198	0	0	0	0	0	609
07:15	30	0	63	8	101	0	81	79	18	178	36	0	85	97	218	0	19	221	37	277	0	0	0	0	0	774
07:30	24	0	66	13	103	0	91	116	20	227	39	0	118	120	277	0	34	262	77	373	0	0	0	0	0	980
07:45	53	0	64	7	124	0	91	89	15	195	34	0	138	203	375	0	36	333	36	405	0	0	0	0	0	1099
Total	125	0	250	35	410	0	347	358	70	775	131	0	384	509	1024	0	113	962	178	1253	0	0	0	0	0	3462
08:00	23	0	60	17	100	0	86	125	17	228	28	0	109	166	303	0	22	331	50	403	0	0	0	0	0	1034
08:15	38	0	52	6	96	0	95	84	10	189	29	0	118	169	316	0	25	310	25	360	0	0	0	0	0	961
08:30	37	0	50	11	98	0	115	102	22	239	19	0	101	131	251	0	16	319	37	372	0	0	0	0	0	960
08:45	37	0	62	8	107	0	81	106	31	218	28	0	108	158	294	0	18	321	33	372	0	0	0	0	0	991
Total	135	0	224	42	401	0	377	417	80	874	104	0	436	624	1164	0	81	1281	145	1507	0	0	0	0	0	3946
09:00	27	0	41	11	79	0	73	91	28	192	32	0	78	93	203	0	30	272	29	331	0	0	0	0	0	805
09:15	30	0	63	7	100	0	92	88	28	208	37	0	75	102	214	0	36	221	22	279	0	0	0	0	0	801
09:30	41	0	50	19	110	0	98	95	27	220	35	0	80	97	212	0	26	242	25	293	0	0	0	0	0	835
09:45	32	0	49	11	92	0	73	95	24	192	34	0	98	137	269	0	32	243	24	299	0	0	0	0	0	852
Total	130	0	203	48	381	0	336	369	107	812	138	0	331	429	898	0	124	978	100	1202	0	0	0	0	0	3293
15:00	39	0	84	18	141	0	141	195	39	375	32	0	86	86	204	0	41	187	53	281	0	0	0	0	0	1001
15:15	43	0	68	30	141	0	145	219	51	415	36	0	90	118	244	0	35	251	55	341	0	0	0	0	0	1141
15:30	48	0	91	16	155	0	161	150	60	371	33	0	108	89	230	0	37	217	67	321	0	0	0	0	0	1077
15:45	53	0	95	25	173	0	157	194	57	408	39	0	110	130	279	0	33	209	80	322	0	0	0	0	0	1182
Total	183	0	338	89	610	0	604	758	207	1569	140	0	394	423	957	0	146	864	255	1265	0	0	0	0	0	4401
16:00	62	0	85	31	178	0	188	206	83	477	46	0	119	77	242	0	33	196	60	289	0	0	0	0	0	1186
16:15	74	0	98	27	199	0	179	219	70	468	31	0	105	74	210	0	49	244	50	343	0	0	0	0	0	1220

All Traffic Data

(916) 771-8700

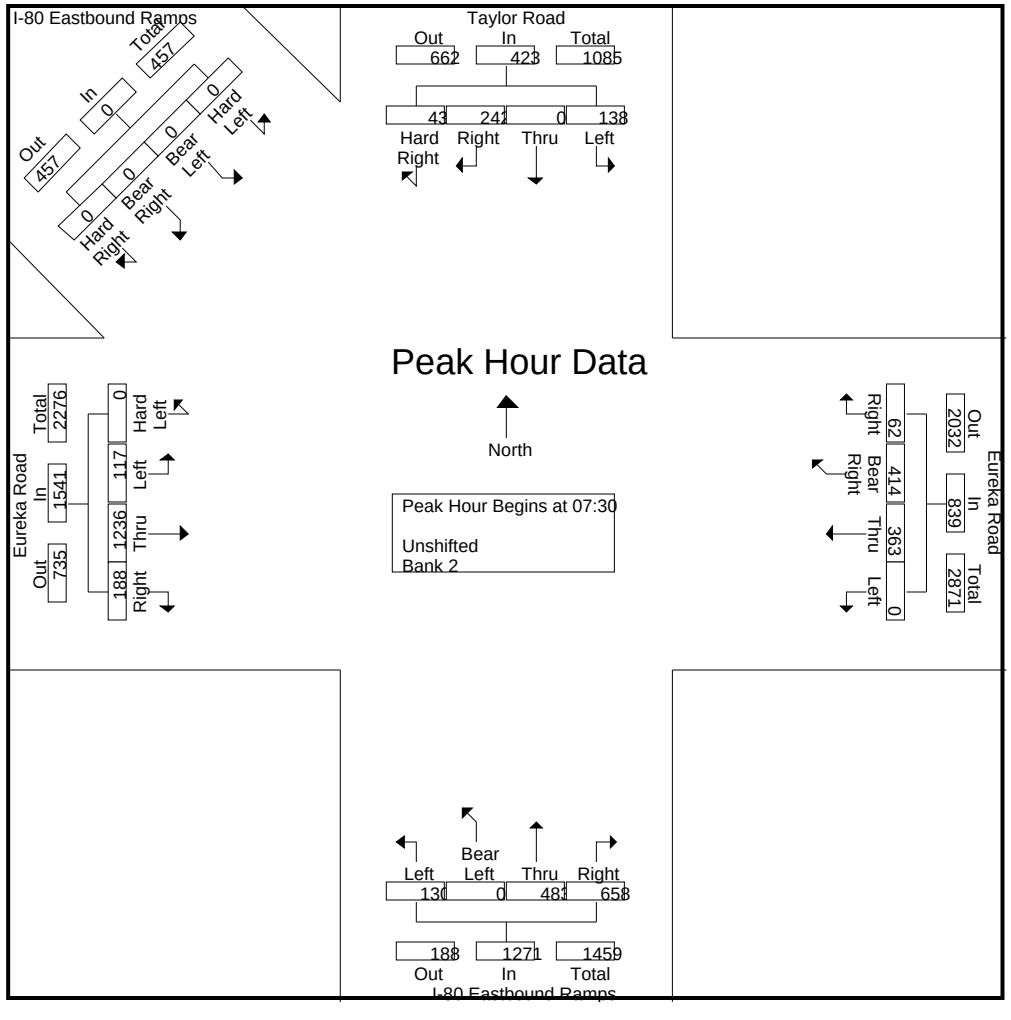
Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-020 I80 EB-Eureka
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Taylor Road Southbound					Eureka Road Westbound					I-80 Eastbound Ramps Northbound					Eureka Road Eastbound					I-80 Eastbound Ramps Southeastbound					
Start Time	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Int. Total
16:30	71	0	111	30	212	0	227	191	95	513	36	0	110	88	234	0	48	207	59	314	0	0	0	0	0	1273
16:45	40	0	78	35	153	0	213	217	51	481	28	0	128	106	262	0	41	251	68	360	0	0	0	0	0	1256
Total	247	0	372	123	742	0	807	833	299	1939	141	0	462	345	948	0	171	898	237	1306	0	0	0	0	0	4935
17:00	43	0	96	16	155	0	232	199	49	480	28	0	117	75	220	0	53	221	62	336	0	0	0	0	0	1191
17:15	58	0	102	23	183	0	306	220	57	583	37	0	94	85	216	0	45	233	62	340	0	0	0	0	0	1322
17:30	56	0	79	15	150	0	182	160	44	386	44	0	133	89	266	0	46	171	41	258	0	0	0	0	0	1060
17:45	45	0	77	21	143	0	163	188	57	408	34	0	111	87	232	0	33	195	55	283	0	0	0	0	0	1066
Total	202	0	354	75	631	0	883	767	207	1857	143	0	455	336	934	0	177	820	220	1217	0	0	0	0	0	4639
18:00	55	0	70	17	142	0	124	151	41	316	47	0	133	94	274	0	46	157	34	237	0	0	0	0	0	969
18:15	41	0	54	20	115	0	156	148	39	343	32	0	121	72	225	0	49	170	34	253	0	0	0	0	0	936
18:30	42	0	64	12	118	0	93	135	60	288	40	0	130	96	266	0	28	160	24	212	0	0	0	0	0	884
18:45	29	0	49	19	97	0	95	140	38	273	34	0	90	59	183	0	41	147	21	209	0	0	0	0	0	762
Total	167	0	237	68	472	0	468	574	178	1220	153	0	474	321	948	0	164	634	113	911	0	0	0	0	0	3551
Grand Total	1264	0	2179	507	3950	0	4047	4255	1222	9524	1011	0	3171	3177	7359	0	1104	6915	1319	9338	0	0	0	0	0	30171
Apprch %	32	0	55.2	12.8		0	42.5	44.7	12.8		13.7	0	43.1	43.2		0	11.8	74.1	14.1		0	0	0	0		
Total %	4.2	0	7.2	1.7	13.1	0	13.4	14.1	4.1	31.6	3.4	0	10.5	10.5	24.4	0	3.7	22.9	4.4	31	0	0	0	0	0	
Unshifted	1250	0	2163	500	3913	0	4004	4197	1218	9419	999	0	3145	3120	7264	0	1092	6855	1299	9246	0	0	0	0	0	29842
% Unshifted	98.9	0	99.3	98.6	99.1	0	98.9	98.6	99.7	98.9	98.8	0	99.2	98.2	98.7	0	98.9	99.1	98.5	99	0	0	0	0	0	98.9
Bank 2	14	0	16	7	37	0	43	58	4	105	12	0	26	57	95	0	12	60	20	92	0	0	0	0	0	329
% Bank 2	1.1	0	0.7	1.4	0.9	0	1.1	1.4	0.3	1.1	1.2	0	0.8	1.8	1.3	0	1.1	0.9	1.5	1	0	0	0	0	0	1.1

	Taylor Road Southbound					Eureka Road Westbound					I-80 Eastbound Ramps Northbound					Eureka Road Eastbound					I-80 Eastbound Ramps Southeastbound					
Start Time	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:30																										
07:30	24	0	**66**	13	103	0	91	116	**20**	227	**39**	0	118	120	277	0	34	262	**77**	373	0	0	0	0	0	980
07:45	**53**	0	64	7	**124**	0	91	89	15	195	34	0	**138**	**203**	**375**	0	**36**	**333**	36	**405**	0	0	0	0	0	**1099**
08:00	23	0	60	**17**	100	0	86	**125**	17	**228**	28	0	109	166	303	0	22	331	50	403	0	0	0	0	0	1034
08:15	38	0	52	6	96	0	**95**	84	10	189	29	0	118	169	316	0	25	310	25	360	0	0	0	0	0	961
Total Volume	138	0	242	43	423	0	363	414	62	839	130	0	483	658	1271	0	117	1236	188	1541	0	0	0	0	0	4074
% App. Total	32.6	0	57.2	10.2		0	43.3	49.3	7.4		10.2	0	38	51.8		0	7.6	80.2	12.2		0	0	0	0		
PHF	.651	.000	.917	.632	.853	.000	.955	.828	.775	.920	.833	.000	.875	.810	.847	.000	.813	.928	.610	.951	.000	.000	.000	.000	.000	.927



Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 16:30

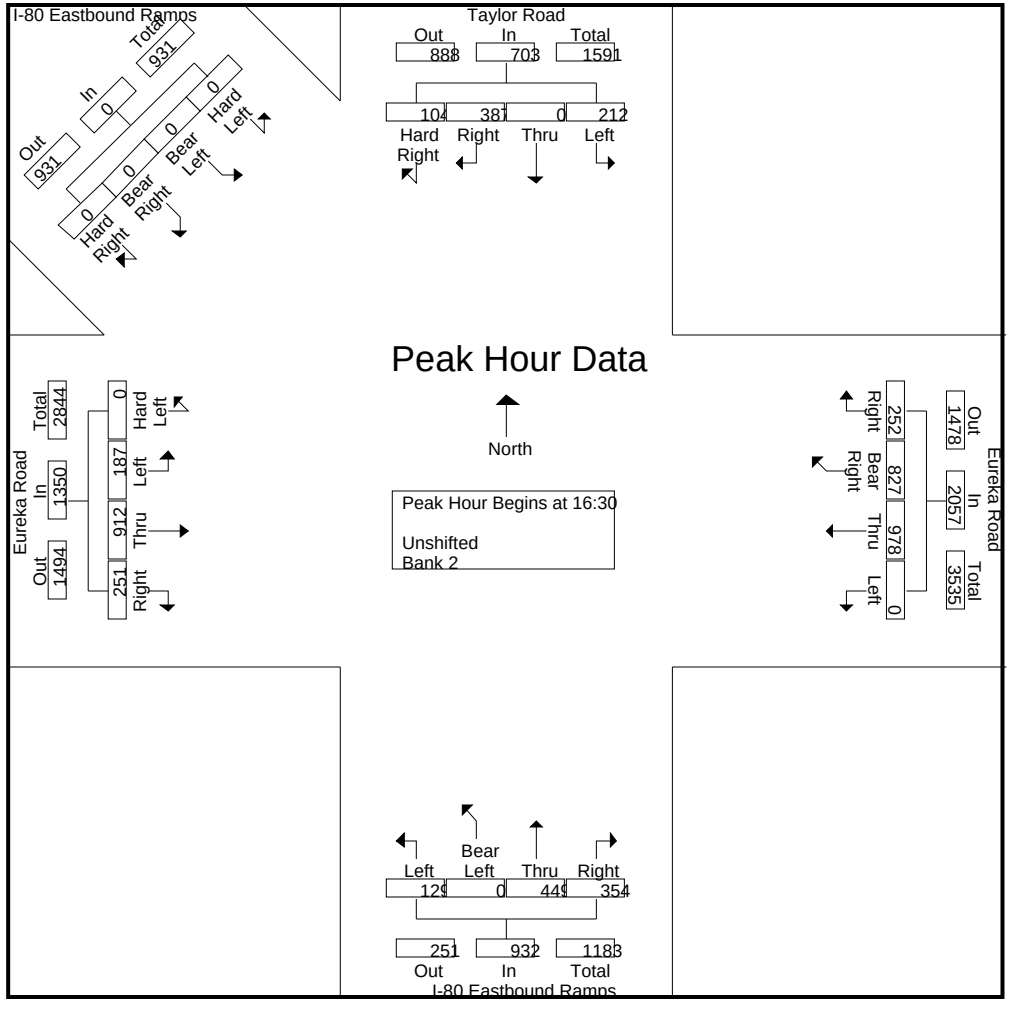
16:30	**71**	0	**111**	30	**212**	0	227	191	**95**	513	36	0	110	88	234	0	48	207	59	314	0	0	0	0	0	1273
16:45	40	0	78	**35**	153	0	213	217	51	481	28	0	**128**	**106**	**262**	0	41	**251**	**68**	**360**	0	0	0	0	0	1256
17:00	43	0	96	16	155	0	232	199	49	480	28	0	117	75	220	0	**53**	221	62	336	0	0	0	0	0	1191
17:15	58	0	102	23	183	0	**306**	**220**	57	**583**	**37**	0	94	85	216	0	45	233	62	340	0	0	0	0	0	**1322**
Total Volume	212	0	387	104	703	0	978	827	252	2057	129	0	449	354	932	0	187	912	251	1350	0	0	0	0	0	5042
% App. Total	30.2	0	55	14.8		0	47.5	40.2	12.3		13.8	0	48.2	38		0	13.9	67.6	18.6		0	0	0	0		
PHF	.746	.000	.872	.743	.829	.000	.799	.940	.663	.882	.872	.000	.877	.835	.889	.000	.882	.908	.923	.938	.000	.000	.000	.000	.000	.953

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-020 I80 EB-Eureka
Site Code : 00000000
Start Date : 1/31/2012



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-021 Sunrise-Eureka
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Sunrise Avenue Southbound					Eureka Road Westbound					Sunrise Avenue Northbound					Eureka Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00	3	12	13	0	28	2	63	3	0	68	6	13	8	0	27	10	80	22	2	114	237
06:15	3	20	20	0	43	9	66	1	0	76	12	10	4	0	26	20	122	28	1	171	316
06:30	8	36	26	0	70	5	84	3	1	93	18	15	5	0	38	28	164	35	0	227	428
06:45	7	27	27	1	62	6	89	10	0	105	12	30	6	0	48	38	177	61	0	276	491
Total	21	95	86	1	203	22	302	17	1	342	48	68	23	0	139	96	543	146	3	788	1472
07:00	6	34	28	0	68	9	120	9	1	139	22	24	7	0	53	21	200	42	1	264	524
07:15	17	41	26	1	85	7	146	9	1	163	16	23	8	0	47	30	259	72	2	363	658
07:30	22	78	41	0	141	10	171	7	0	188	24	31	13	0	68	42	245	61	1	349	746
07:45	27	56	43	2	128	14	170	19	0	203	16	57	13	0	86	78	431	115	0	624	1041
Total	72	209	138	3	422	40	607	44	2	693	78	135	41	0	254	171	1135	290	4	1600	2969
08:00	12	57	30	1	100	22	172	12	0	206	36	48	19	1	104	58	361	72	0	491	901
08:15	9	57	31	0	97	18	138	11	1	168	23	39	19	0	81	66	399	72	2	539	885
08:30	21	85	28	1	135	18	138	10	2	168	43	49	23	1	116	52	308	76	1	437	856
08:45	22	71	27	3	123	19	167	13	3	202	41	63	16	1	121	58	355	114	4	531	977
Total	64	270	116	5	455	77	615	46	6	744	143	199	77	3	422	234	1423	334	7	1998	3619
09:00	17	71	15	3	106	19	128	16	2	165	51	81	20	0	152	45	236	76	5	362	785
09:15	16	77	32	4	129	10	126	13	2	151	52	77	31	1	161	41	229	84	5	359	800
09:30	16	88	42	0	146	21	138	20	1	180	48	80	21	1	150	43	210	85	3	341	817
09:45	21	76	28	0	125	24	128	16	5	173	54	67	20	6	147	54	267	86	9	416	861
Total	70	312	117	7	506	74	520	65	10	669	205	305	92	8	610	183	942	331	22	1478	3263
15:00	31	82	43	2	158	24	232	32	5	293	111	113	38	3	265	38	193	84	3	318	1034
15:15	36	92	40	3	171	21	211	30	0	262	95	102	31	2	230	51	250	95	16	412	1075
15:30	32	113	46	3	194	26	273	24	4	327	90	126	46	1	263	43	206	85	14	348	1132
15:45	35	103	46	4	188	18	242	43	7	310	63	101	38	0	202	62	228	101	10	401	1101
Total	134	390	175	12	711	89	958	129	16	1192	359	442	153	6	960	194	877	365	43	1479	4342
16:00	60	130	64	6	260	30	241	41	4	316	120	113	39	1	273	33	200	80	9	322	1171
16:15	36	107	52	2	197	28	277	38	4	347	96	100	49	2	247	39	249	96	12	396	1187
16:30	46	135	63	6	250	26	342	28	6	402	131	109	35	2	277	37	204	96	22	359	1288
16:45	30	93	46	1	170	22	284	29	1	336	107	114	54	2	277	60	263	71	12	406	1189
Total	172	465	225	15	877	106	1144	136	15	1401	454	436	177	7	1074	169	916	343	55	1483	4835
17:00	38	93	43	0	174	26	424	48	4	502	124	118	38	3	283	36	207	71	7	321	1280
17:15	29	83	49	2	163	22	356	47	2	427	109	112	44	2	267	41	253	80	9	383	1240
17:30	26	78	29	0	133	26	285	34	4	349	79	116	39	1	235	36	193	62	14	305	1022

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-021 Sunrise-Eureka
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Sunrise Avenue Southbound					Eureka Road Westbound					Sunrise Avenue Northbound					Eureka Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
17:45	29	64	23	1	117	19	267	28	7	321	80	111	34	2	227	43	211	68	12	334	999
Total	122	318	144	3	587	93	1332	157	17	1599	392	457	155	8	1012	156	864	281	42	1343	4541
18:00	22	61	23	5	111	25	219	29	4	277	83	100	35	0	218	40	181	55	16	292	898
18:15	31	57	25	0	113	22	234	18	4	278	77	84	24	0	185	40	193	60	11	304	880
18:30	18	47	27	0	92	15	176	28	7	226	86	72	26	1	185	42	186	55	19	302	805
18:45	16	44	21	1	82	14	182	24	6	226	68	70	13	1	152	28	156	40	13	237	697
Total	87	209	96	6	398	76	811	99	21	1007	314	326	98	2	740	150	716	210	59	1135	3280
Grand Total	742	2268	1097	52	4159	577	6289	693	88	7647	1993	2368	816	34	5211	1353	7416	2300	235	11304	28321
Apprch %	17.8	54.5	26.4	1.3		7.5	82.2	9.1	1.2		38.2	45.4	15.7	0.7		12	65.6	20.3	2.1		
Total %	2.6	8	3.9	0.2	14.7	2	22.2	2.4	0.3	27	7	8.4	2.9	0.1	18.4	4.8	26.2	8.1	0.8	39.9	
Unshifted	740	2257	1094	52	4143	569	6227	690	88	7574	1951	2352	816	34	5153	1342	7324	2266	235	11167	28037
% Unshifted	99.7	99.5	99.7	100	99.6	98.6	99	99.6	100	99	97.9	99.3	100	100	98.9	99.2	98.8	98.5	100	98.8	99
Bank 2	2	11	3	0	16	8	62	3	0	73	42	16	0	0	58	11	92	34	0	137	284
% Bank 2	0.3	0.5	0.3	0	0.4	1.4	1	0.4	0	1	2.1	0.7	0	0	1.1	0.8	1.2	1.5	0	1.2	1

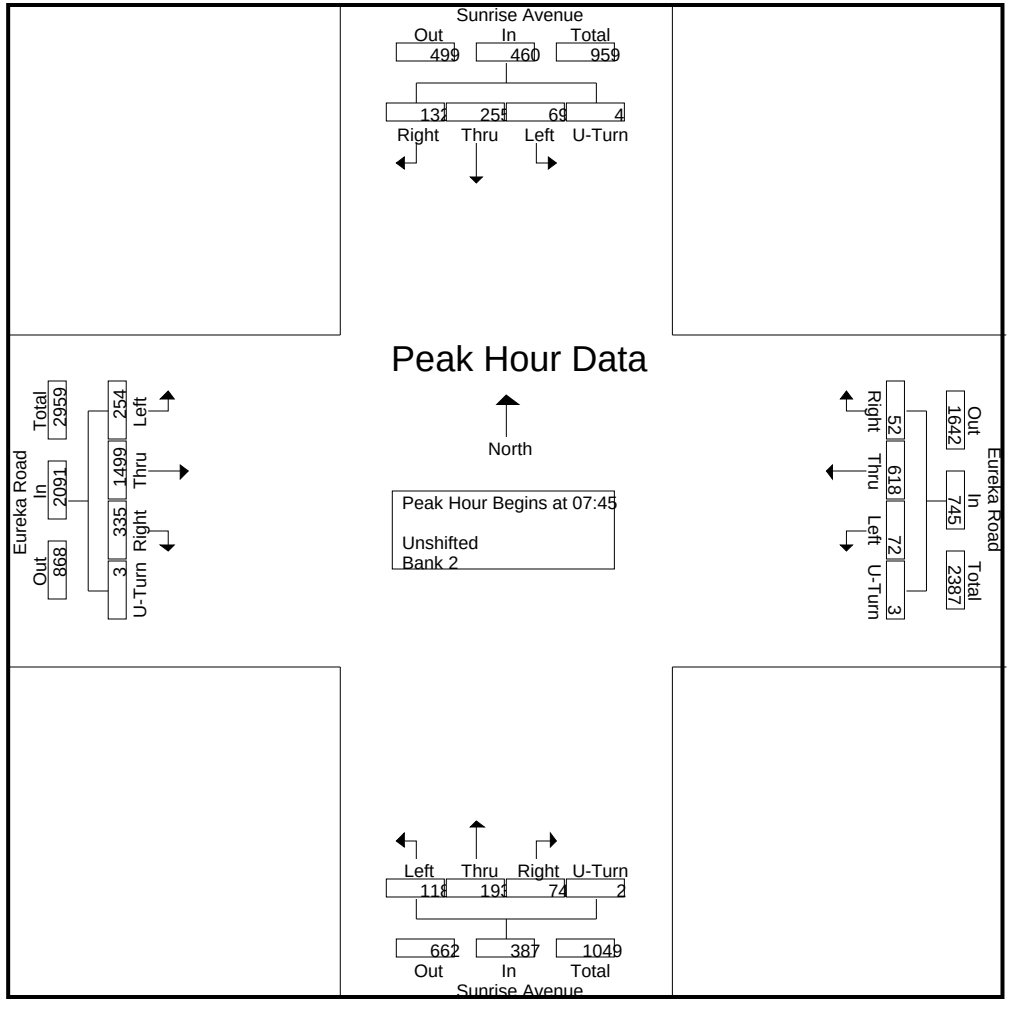
	Sunrise Avenue Southbound					Eureka Road Westbound					Sunrise Avenue Northbound					Eureka Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	**27**	56	**43**	**2**	128	14	170	**19**	0	203	16	**57**	13	0	86	**78**	**431**	**115**	0	**624**	**1041**
08:00	12	57	30	1	100	**22**	**172**	12	0	**206**	36	48	19	**1**	104	58	361	72	0	491	901
08:15	9	57	31	0	97	18	138	11	1	168	23	39	19	0	81	66	399	72	**2**	539	885
08:30	21	**85**	28	1	**135**	18	138	10	**2**	168	**43**	49	**23**	1	**116**	52	308	76	1	437	856
Total Volume	69	255	132	4	460	72	618	52	3	745	118	193	74	2	387	254	1499	335	3	2091	3683
% App. Total	15	55.4	28.7	0.9		9.7	83	7	0.4		30.5	49.9	19.1	0.5		12.1	71.7	16	0.1		
PHF	.639	.750	.767	.500	.852	.818	.898	.684	.375	.904	.686	.846	.804	.500	.834	.814	.869	.728	.375	.838	.884

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-021 Sunrise-Eureka
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-021 Sunrise-Eureka
Site Code : 00000000
Start Date : 1/31/2012

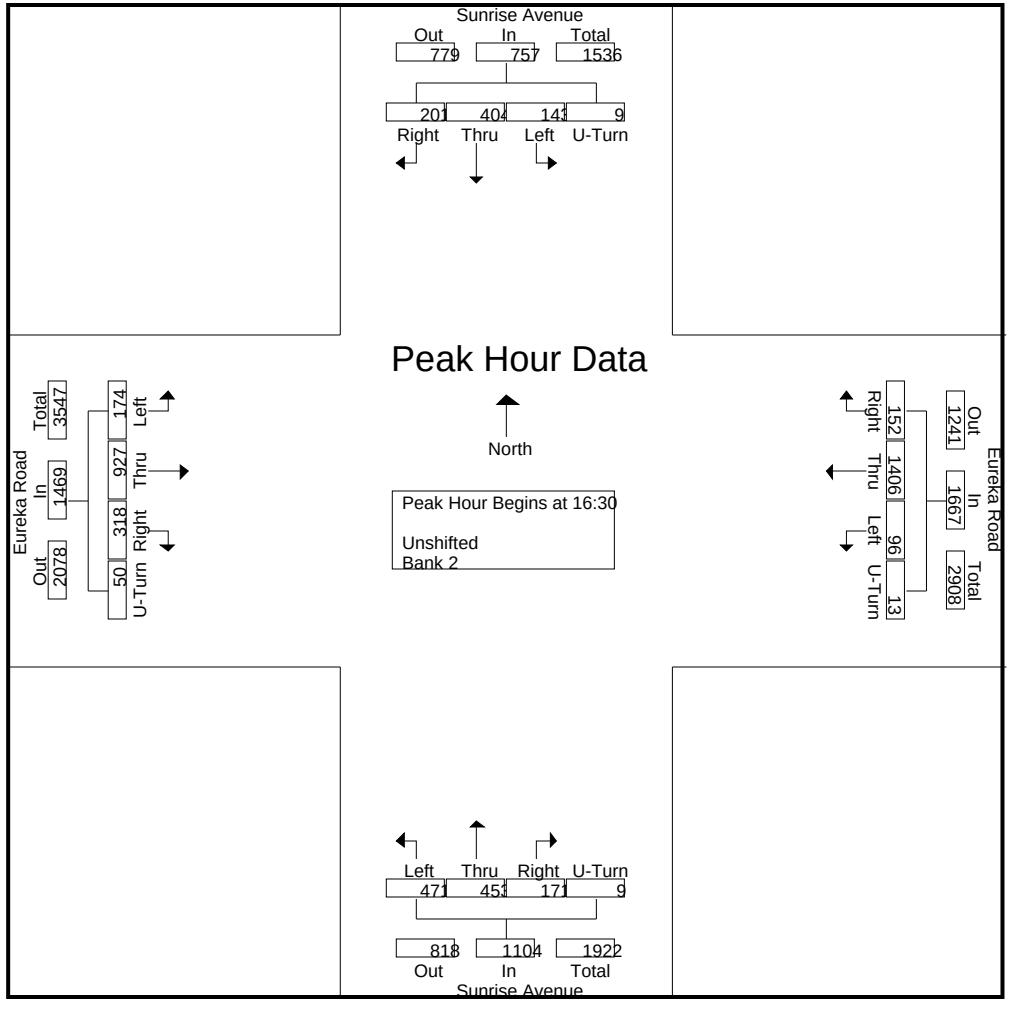
	Sunrise Avenue Southbound					Eureka Road Westbound					Sunrise Avenue Northbound					Eureka Road Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	**46**	**135**	**63**	**6**	**250**	**26**			**6**		**131**							**96**	**22**		**1288**
16:45	30	93	46	1	170	22	284	29	1	336	107	114	**54**	2	277	**60**	**263**	71	12	**406**	1189
17:00	38	93	43	0	174	26	**424**	**48**	4	**502**	124	**118**	38	**3**	**283**	36	207	71	7	321	1280
17:15	29	83	49	2	163	22	356	47	2	427	109	112	44	2	267	41	253	80	9	383	1240
Total Volume	143	404	201	9	757	96	1406	152	13	1667	471	453	171	9	1104	174	927	318	50	1469	4997
% App. Total	18.9	53.4	26.6	1.2		5.8	84.3	9.1	0.8		42.7	41	15.5	0.8		11.8	63.1	21.6	3.4		
PHF	.777	.748	.798	.375	.757	.923	.829	.792	.542	.830	.899	.960	.792	.750	.975	.725	.881	.828	.568	.905	.970

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-021 Sunrise-Eureka
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-022 Harding-Wills
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Galleria Boulevard Southbound				Wills Road Westbound				Harding Boulevard Northbound				Wills Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	47	18	65	0	0	0	0	4	17	0	21	6	0	12	18	104
06:15	0	72	18	90	0	0	0	0	7	21	1	29	10	1	18	29	148
06:30	0	102	34	136	0	0	0	0	9	38	0	47	16	0	19	35	218
06:45	0	135	58	193	0	0	0	0	5	41	0	46	25	0	19	44	283
Total	0	356	128	484	0	0	0	0	25	117	1	143	57	1	68	126	753
07:00	1	142	58	201	0	0	0	0	10	45	0	55	12	2	23	37	293
07:15	0	231	63	294	0	2	0	2	26	76	1	103	26	3	32	61	460
07:30	0	254	74	328	0	1	0	1	35	96	0	131	29	1	63	93	553
07:45	2	286	70	358	1	0	1	2	32	121	1	154	30	2	52	84	598
Total	3	913	265	1181	1	3	1	5	103	338	2	443	97	8	170	275	1904
08:00	2	229	54	285	1	0	1	2	40	111	2	153	26	2	65	93	533
08:15	1	212	47	260	0	0	5	5	20	88	2	110	48	1	53	102	477
08:30	1	212	47	260	2	1	0	3	23	96	0	119	30	5	51	86	468
08:45	1	209	49	259	1	1	3	5	24	103	1	128	49	0	63	112	504
Total	5	862	197	1064	4	2	9	15	107	398	5	510	153	8	232	393	1982
09:00	1	188	39	228	1	1	1	3	30	128	1	159	35	2	51	88	478
09:15	0	157	53	210	2	2	1	5	30	80	3	113	42	0	43	85	413
09:30	0	125	46	171	1	2	0	3	25	128	3	156	30	1	46	77	407
09:45	0	122	33	155	1	2	1	4	26	128	1	155	51	0	39	90	404
Total	1	592	171	764	5	7	3	15	111	464	8	583	158	3	179	340	1702
15:00	0	224	67	291	0	2	3	5	56	235	3	294	38	0	81	119	709
15:15	1	236	51	288	3	1	0	4	61	224	1	286	42	1	47	90	668
15:30	1	189	68	258	0	4	1	5	51	186	1	238	40	2	52	94	595
15:45	4	222	72	298	2	3	2	7	68	255	4	327	67	3	50	120	752
Total	6	871	258	1135	5	10	6	21	236	900	9	1145	187	6	230	423	2724
16:00	2	218	61	281	3	1	3	7	63	230	1	294	51	0	40	91	673
16:15	0	179	61	240	0	2	0	2	48	194	1	243	45	1	48	94	579
16:30	0	198	66	264	1	1	1	3	65	256	1	322	61	5	53	119	708

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-022 Harding-Wills
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Galleria Boulevard Southbound				Wills Road Westbound				Harding Boulevard Northbound				Wills Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	217	75	292	2	2	2	6	75	288	0	363	70	1	42	113	774
Total	2	812	263	1077	6	6	6	18	251	968	3	1222	227	7	183	417	2734
17:00	0	211	88	299	2	0	0	2	81	314	0	395	61	0	41	102	798
17:15	1	229	65	295	0	1	3	4	49	271	1	321	54	2	50	106	726
17:30	1	186	81	268	0	3	1	4	43	255	0	298	72	1	46	119	689
17:45	0	166	66	232	0	0	1	1	52	223	0	275	52	1	40	93	601
Total	2	792	300	1094	2	4	5	11	225	1063	1	1289	239	4	177	420	2814
18:00	1	160	66	227	1	0	0	1	45	225	0	270	47	0	45	92	590
18:15	3	144	64	211	1	1	4	6	44	180	0	224	52	0	32	84	525
18:30	1	109	43	153	0	1	1	2	39	207	3	249	51	0	31	82	486
18:45	0	140	41	181	0	0	0	0	28	112	2	142	41	0	20	61	384
Total	5	553	214	772	2	2	5	9	156	724	5	885	191	0	128	319	1985
Grand Total	24	5751	1796	7571	25	34	35	94	1214	4972	34	6220	1309	37	1367	2713	16598
Apprch %	0.3	76	23.7		26.6	36.2	37.2		19.5	79.9	0.5		48.2	1.4	50.4		
Total %	0.1	34.6	10.8	45.6	0.2	0.2	0.2	0.6	7.3	30	0.2	37.5	7.9	0.2	8.2	16.3	
Unshifted	21	5736	1778	7535	23	29	30	82	1206	4954	29	6189	1301	36	1363	2700	16506
% Unshifted	87.5	99.7	99	99.5	92	85.3	85.7	87.2	99.3	99.6	85.3	99.5	99.4	97.3	99.7	99.5	99.4
Bank 2	3	15	18	36	2	5	5	12	8	18	5	31	8	1	4	13	92
% Bank 2	12.5	0.3	1	0.5	8	14.7	14.3	12.8	0.7	0.4	14.7	0.5	0.6	2.7	0.3	0.5	0.6

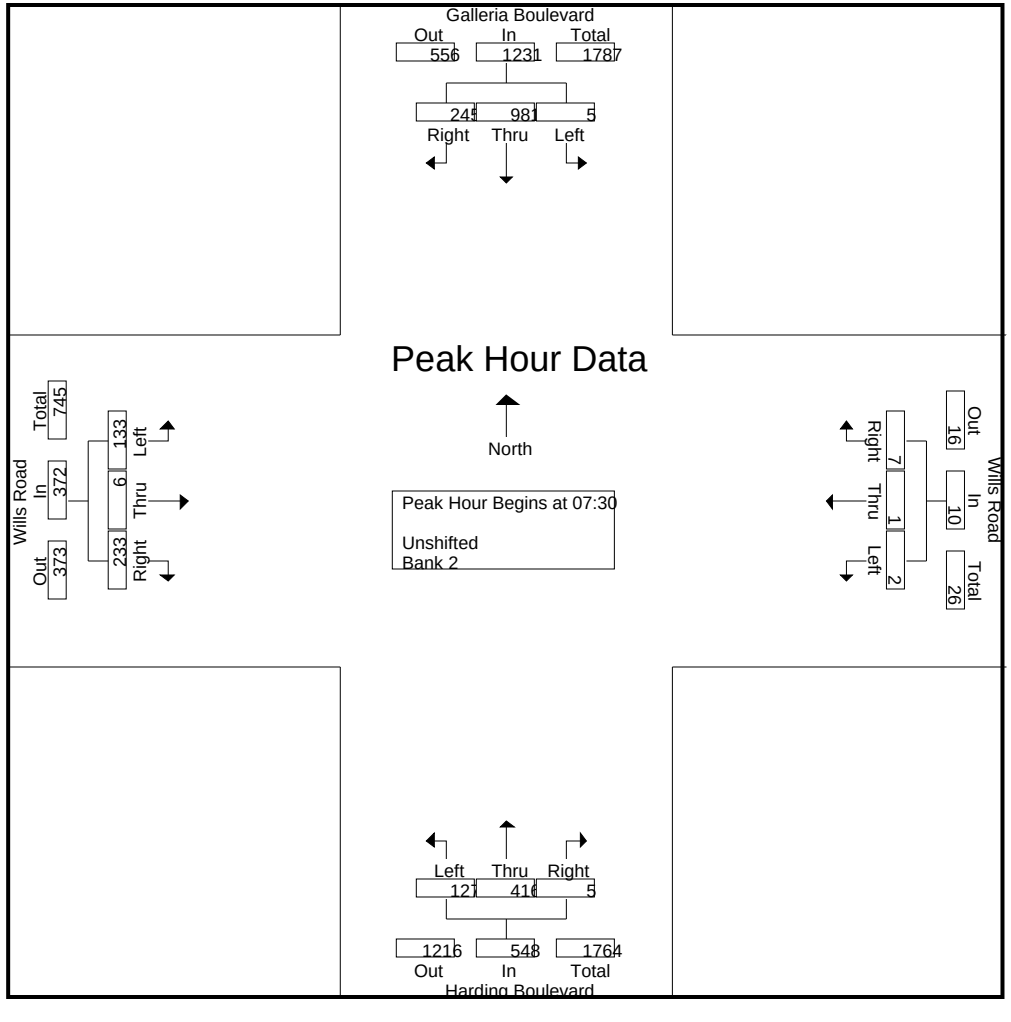
	Galleria Boulevard Southbound				Wills Road Westbound				Harding Boulevard Northbound				Wills Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	254	**74**	328	0	**1**	0	1	35	96	0	131	29	1	63	93	553
07:45	**2**	**286**	70	**358**	**1**	0	1	2	32	**121**	1	**154**	30	**2**	52	84	**598**
08:00	2	229	54	285	1	0	1	2	**40**	111	**2**	153	26	2	**65**	93	533
08:15	1	212	47	260	0	0	**5**	**5**	20	88	2	110	**48**	1	53	**102**	477
Total Volume	5	981	245	1231	2	1	7	10	127	416	5	548	133	6	233	372	2161
% App. Total	0.4	79.7	19.9		20	10	70		23.2	75.9	0.9		35.8	1.6	62.6		
PHF	.625	.858	.828	.860	.500	.250	.350	.500	.794	.860	.625	.890	.693	.750	.896	.912	.903

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-022 Harding-Wills
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-022 Harding-Wills
Site Code : 00000000
Start Date : 1/31/2012

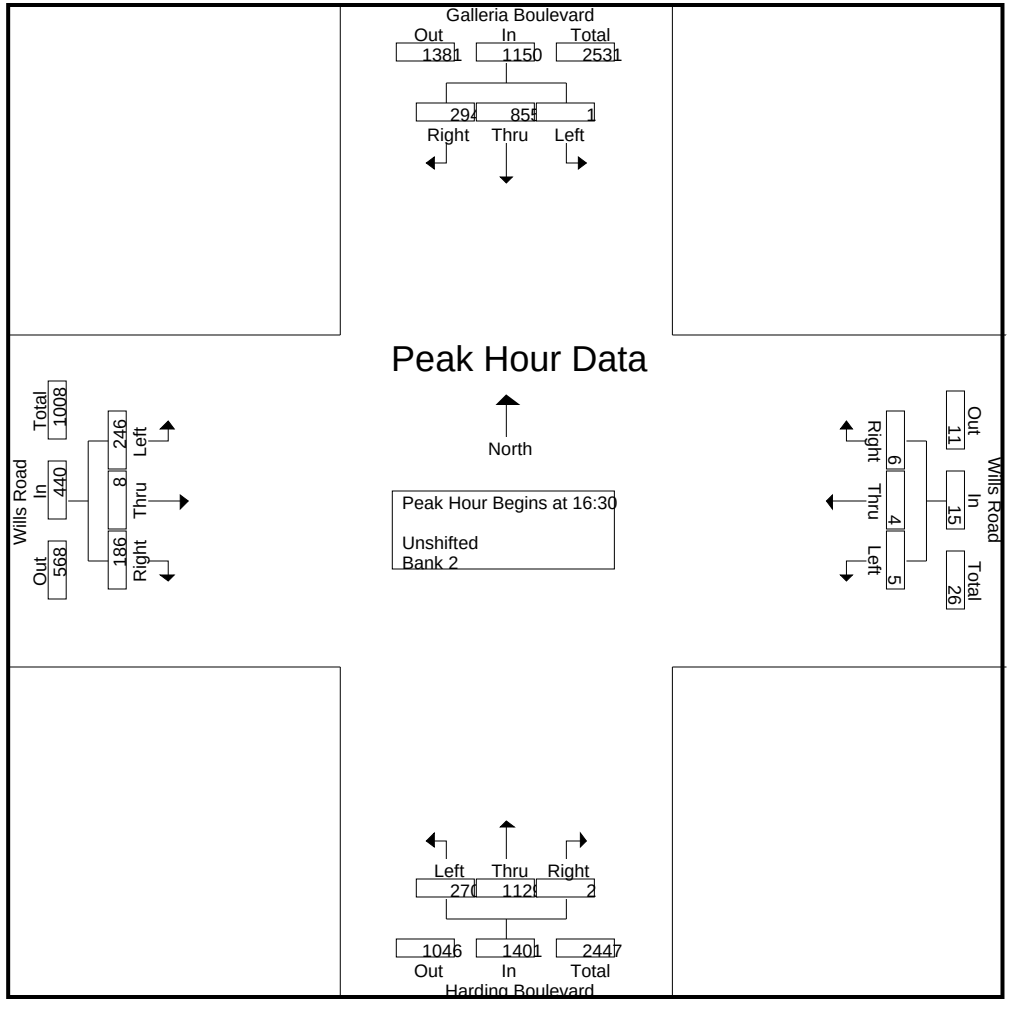
	Galleria Boulevard Southbound				Wills Road Westbound				Harding Boulevard Northbound				Wills Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	198	66	264	1	1	1	3	65	256	**1**	322	61	**5**	**53**	**119**	708
16:45	0	217	75	292	**2**	**2**	2	**6**	75	288	0	363	**70**	1	42	113	774
17:00	0	211	**88**	**299**	2	0	0	2	**81**	**314**	0	**395**	61	0	41	102	**798**
17:15	**1**	**229**	65	295	0	1	**3**	4	49	271	1	321	54	2	50	106	726
Total Volume	1	855	294	1150	5	4	6	15	270	1129	2	1401	246	8	186	440	3006
% App. Total	0.1	74.3	25.6		33.3	26.7	40		19.3	80.6	0.1		55.9	1.8	42.3		
PHF	.250	.933	.835	.962	.625	.500	.500	.625	.833	.899	.500	.887	.879	.400	.877	.924	.942

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-022 Harding-Wills
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-023 Harding-Douglas
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Harding Boulevard Southbound				Douglas Boulevard Westbound				Harding Boulevard Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	33	0	5	38	3	37	4	44	0	0	1	1	8	58	0	66	149
06:15	54	2	11	67	5	61	24	90	2	1	3	6	7	72	1	80	243
06:30	59	0	12	71	4	84	25	113	2	0	4	6	9	109	3	121	311
06:45	78	1	4	83	6	63	27	96	2	0	2	4	11	122	2	135	318
Total	224	3	32	259	18	245	80	343	6	1	10	17	35	361	6	402	1021
07:00	105	1	14	120	6	88	19	113	0	0	8	8	14	164	2	180	421
07:15	124	0	25	149	15	160	41	216	0	1	9	10	21	151	4	176	551
07:30	118	3	25	146	14	178	58	250	4	1	9	14	25	220	7	252	662
07:45	132	1	43	176	14	205	69	288	3	1	6	10	50	245	5	300	774
Total	479	5	107	591	49	631	187	867	7	3	32	42	110	780	18	908	2408
08:00	118	0	36	154	6	184	70	260	0	1	1	2	37	193	3	233	649
08:15	120	5	23	148	14	154	85	253	1	3	3	7	45	224	4	273	681
08:30	109	4	23	136	15	161	88	264	0	4	9	13	39	218	2	259	672
08:45	126	6	33	165	16	186	92	294	2	1	9	12	47	197	1	245	716
Total	473	15	115	603	51	685	335	1071	3	9	22	34	168	832	10	1010	2718
09:00	112	6	40	158	13	141	88	242	3	2	9	14	35	184	2	221	635
09:15	113	4	18	135	15	173	82	270	4	4	13	21	34	176	2	212	638
09:30	98	6	32	136	10	145	72	227	2	0	14	16	44	155	0	199	578
09:45	93	4	30	127	15	173	91	279	3	4	14	21	40	154	4	198	625
Total	416	20	120	556	53	632	333	1018	12	10	50	72	153	669	8	830	2476
15:00	183	6	48	237	11	249	101	361	3	11	16	30	48	198	5	251	879
15:15	161	9	55	225	22	278	112	412	2	5	17	24	42	204	3	249	910
15:30	156	5	45	206	19	259	103	381	3	6	17	26	44	197	7	248	861
15:45	149	7	63	219	11	249	121	381	4	5	25	34	42	189	3	234	868
Total	649	27	211	887	63	1035	437	1535	12	27	75	114	176	788	18	982	3518
16:00	189	4	58	251	13	248	97	358	7	6	23	36	32	208	6	246	891
16:15	172	4	52	228	12	254	125	391	8	7	13	28	44	199	1	244	891
16:30	162	3	41	206	19	267	109	395	3	5	11	19	51	187	9	247	867

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-023 Harding-Douglas
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Harding Boulevard Southbound				Douglas Boulevard Westbound				Harding Boulevard Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	163	9	52	224	31	243	128	402	12	7	25	44	43	187	3	233	903
Total	686	20	203	909	75	1012	459	1546	30	25	72	127	170	781	19	970	3552
17:00	201	1	55	257	22	241	95	358	5	10	32	47	44	212	1	257	919
17:15	214	6	56	276	26	274	115	415	5	2	12	19	43	199	1	243	953
17:30	150	6	38	194	17	240	135	392	5	4	19	28	51	174	1	226	840
17:45	157	3	31	191	17	242	110	369	7	7	18	32	31	143	4	178	770
Total	722	16	180	918	82	997	455	1534	22	23	81	126	169	728	7	904	3482
18:00	162	1	36	199	17	198	85	300	5	3	15	23	30	175	12	217	739
18:15	127	4	34	165	20	233	127	380	4	5	14	23	28	150	3	181	749
18:30	110	3	33	146	13	170	109	292	11	7	21	39	28	127	1	156	633
18:45	105	4	43	152	5	192	82	279	6	3	12	21	22	124	5	151	603
Total	504	12	146	662	55	793	403	1251	26	18	62	106	108	576	21	705	2724
Grand Total	4153	118	1114	5385	446	6030	2689	9165	118	116	404	638	1089	5515	107	6711	21899
Apprch %	77.1	2.2	20.7		4.9	65.8	29.3		18.5	18.2	63.3		16.2	82.2	1.6		
Total %	19	0.5	5.1	24.6	2	27.5	12.3	41.9	0.5	0.5	1.8	2.9	5	25.2	0.5	30.6	
Unshifted	4139	117	1113	5369	445	6001	2676	9122	118	116	400	634	1084	5483	106	6673	21798
% Unshifted	99.7	99.2	99.9	99.7	99.8	99.5	99.5	99.5	100	100	99	99.4	99.5	99.4	99.1	99.4	99.5
Bank 2	14	1	1	16	1	29	13	43	0	0	4	4	5	32	1	38	101
% Bank 2	0.3	0.8	0.1	0.3	0.2	0.5	0.5	0.5	0	0	1	0.6	0.5	0.6	0.9	0.6	0.5

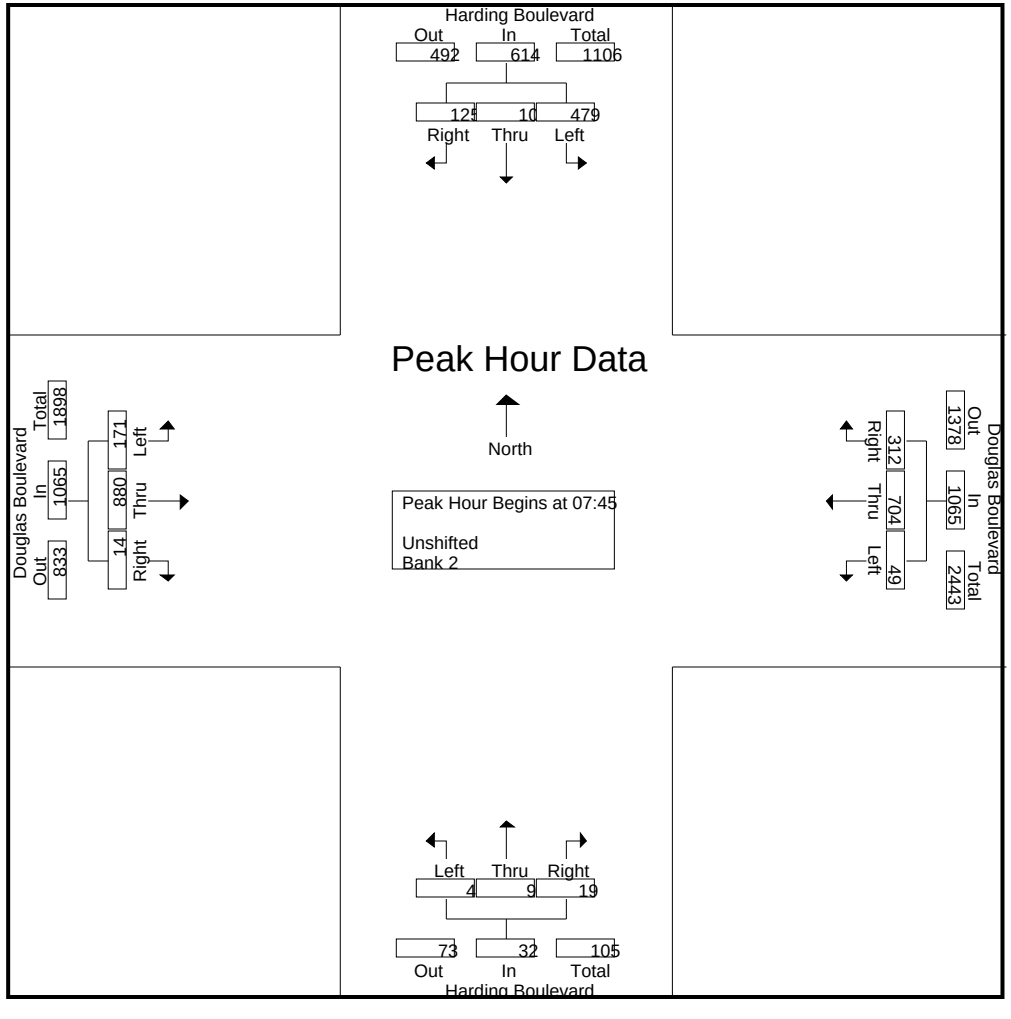
	Harding Boulevard Southbound				Douglas Boulevard Westbound				Harding Boulevard Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	**132**	1	**43**	**176**	14	**205**	69	**288**	**3**	1	6	10	**50**	**245**	**5**	**300**	**774**
08:00	118	0	36	154	6	184	70	260	0	1	1	2	37	193	3	233	649
08:15	120	**5**	23	148	14	154	85	253	1	3	3	7	45	224	4	273	681
08:30	109	4	23	136	**15**	161	**88**	264	0	**4**	**9**	**13**	39	218	2	259	672
Total Volume	479	10	125	614	49	704	312	1065	4	9	19	32	171	880	14	1065	2776
% App. Total	78	1.6	20.4		4.6	66.1	29.3		12.5	28.1	59.4		16.1	82.6	1.3		
PHF	.907	.500	.727	.872	.817	.859	.886	.924	.333	.563	.528	.615	.855	.898	.700	.888	.897

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-023 Harding-Douglas
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-023 Harding-Douglas
Site Code : 00000000
Start Date : 1/31/2012

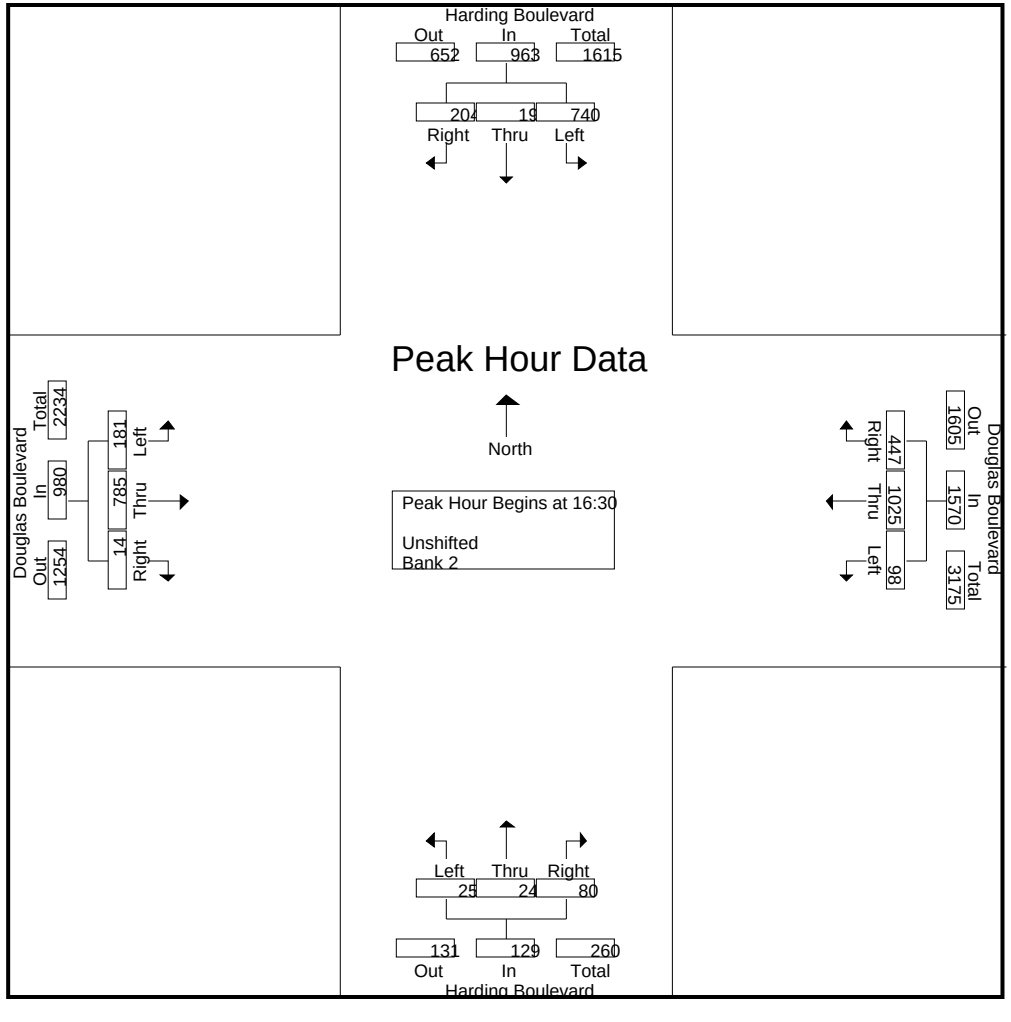
	Harding Boulevard Southbound				Douglas Boulevard Westbound				Harding Boulevard Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	162	3	41	206	19	267	109	395	3	5	11	19	**51**	187	**9**	247	867
16:45	163	**9**	52	224	**31**	243	**128**	402	**12**	7	25	44	43	187	3	233	903
17:00	201	1	55	257	22	241	95	358	5	**10**	**32**	**47**	44	**212**	1	**257**	919
17:15	**214**	6	**56**	**276**	26	**274**	115	**415**	5	2	12	19	43	199	1	243	**953**
Total Volume	740	19	204	963	98	1025	447	1570	25	24	80	129	181	785	14	980	3642
% App. Total	76.8	2	21.2		6.2	65.3	28.5		19.4	18.6	62		18.5	80.1	1.4		
PHF	.864	.528	.911	.872	.790	.935	.873	.946	.521	.600	.625	.686	.887	.926	.389	.953	.955

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-023 Harding-Douglas
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-024 I80 WB-Douglas
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Westbound Ramps Southbound					Douglas Blvd Westbound					Sunrise Blvd Flyover Ramp Northwestbound					I-80 Westbound Ramps Northbound					Douglas Blvd Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
06:00	26	59	0	14	99	0	0	25	71	96	0	0	0	0	0	0	0	0	0	0	0	22	28	46	96	291
06:15	30	70	0	13	113	0	0	54	112	166	0	0	0	0	0	0	0	0	0	0	0	42	28	49	119	398
06:30	41	95	0	19	155	0	0	79	136	215	0	0	0	0	0	0	0	0	0	0	0	70	34	66	170	540
06:45	21	111	0	13	145	0	0	99	176	275	0	0	0	0	0	0	0	0	0	0	0	85	39	87	211	631
Total	118	335	0	59	512	0	0	257	495	752	0	0	0	0	0	0	0	0	0	0	0	219	129	248	596	1860
07:00	25	127	0	12	164	0	0	99	177	276	0	0	0	0	0	0	0	0	0	0	0	99	67	104	270	710
07:15	36	137	0	49	222	0	0	111	218	329	0	0	0	0	0	0	0	0	0	0	0	98	85	112	295	846
07:30	36	139	0	33	208	0	0	195	198	393	0	0	0	0	0	0	0	0	0	0	0	160	92	103	355	956
07:45	60	120	0	46	226	0	0	250	165	415	0	0	0	0	0	0	0	0	0	0	0	187	75	98	360	1001
Total	157	523	0	140	820	0	0	655	758	1413	0	0	0	0	0	0	0	0	0	0	0	544	319	417	1280	3513
08:00	47	125	0	36	208	0	0	182	193	375	0	0	0	0	0	0	0	0	0	0	0	139	80	105	324	907
08:15	74	133	0	45	252	0	0	202	202	404	0	0	0	0	0	0	0	0	0	0	0	187	78	96	361	1017
08:30	63	129	0	54	246	0	0	238	195	433	0	0	0	0	0	0	0	0	0	0	0	167	79	73	319	998
08:45	67	126	0	43	236	0	0	295	186	481	0	0	0	0	0	0	0	0	0	0	0	205	62	69	336	1053
Total	251	513	0	178	942	0	0	917	776	1693	0	0	0	0	0	0	0	0	0	0	0	698	299	343	1340	3975
09:00	50	114	0	40	204	0	0	193	176	369	0	0	0	0	0	0	0	0	0	0	0	145	75	78	298	871
09:15	73	135	0	39	247	0	0	202	156	358	0	0	0	0	0	0	0	0	0	0	0	166	67	73	306	911
09:30	57	137	0	40	234	0	0	186	182	368	0	0	0	0	0	0	0	0	0	0	0	127	48	67	242	844
09:45	81	116	0	47	244	0	0	232	150	382	0	0	0	0	0	0	0	0	0	0	0	163	46	56	265	891
Total	261	502	0	166	929	0	0	813	664	1477	0	0	0	0	0	0	0	0	0	0	0	601	236	274	1111	3517
15:00	71	123	0	50	244	0	0	332	237	569	0	0	0	0	0	0	0	0	0	0	0	239	80	101	420	1233
15:15	66	127	0	46	239	0	0	350	231	581	0	0	0	0	0	0	0	0	0	0	0	225	83	87	395	1215
15:30	69	110	0	45	224	0	0	329	266	595	0	0	0	0	0	0	0	0	0	0	0	196	58	96	350	1169
15:45	80	113	0	48	241	0	0	344	226	570	0	0	0	0	0	0	0	0	0	0	0	207	85	91	383	1194
Total	286	473	0	189	948	0	0	1355	960	2315	0	0	0	0	0	0	0	0	0	0	0	867	306	375	1548	4811
16:00	61	138	0	42	241	0	0	335	276	611	0	0	0	0	0	0	0	0	0	0	0	211	85	113	409	1261
16:15	71	120	0	57	248	0	0	323	261	584	0	0	0	0	0	0	0	0	0	0	0	190	86	103	379	1211

All Traffic Data

(916) 771-8700

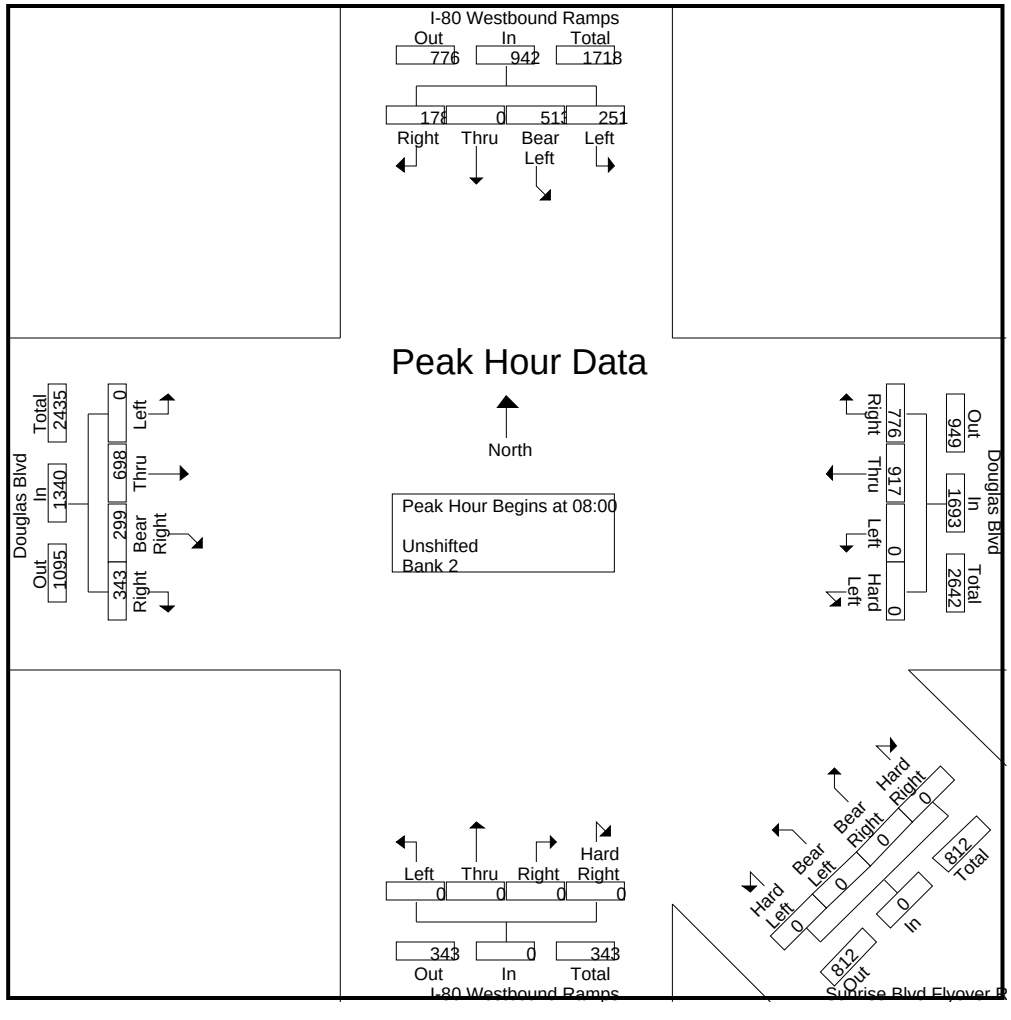
Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-024 I80 WB-Douglas
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Westbound Ramps Southbound					Douglas Blvd Westbound					Sunrise Blvd Flyover Ramp Northwestbound					I-80 Westbound Ramps Northbound					Douglas Blvd Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
16:30	65	116	0	37	218	0	0	337	302	639	0	0	0	0	0	0	0	0	0	0	0	176	72	105	353	1210
16:45	53	113	0	42	208	0	0	372	269	641	0	0	0	0	0	0	0	0	0	0	0	195	84	108	387	1236
Total	250	487	0	178	915	0	0	1367	1108	2475	0	0	0	0	0	0	0	0	0	0	0	772	327	429	1528	4918
17:00	55	118	0	36	209	0	0	344	318	662	0	0	0	0	0	0	0	0	0	0	0	221	87	154	462	1333
17:15	76	129	0	42	247	0	0	354	294	648	0	0	0	0	0	0	0	0	0	0	0	178	92	147	417	1312
17:30	46	107	0	50	203	0	0	386	329	715	0	0	0	0	0	0	0	0	0	0	0	162	73	101	336	1254
17:45	60	109	0	43	212	0	0	277	250	527	0	0	0	0	0	0	0	0	0	0	0	174	54	91	319	1058
Total	237	463	0	171	871	0	0	1361	1191	2552	0	0	0	0	0	0	0	0	0	0	0	735	306	493	1534	4957
18:00	63	106	0	35	204	0	0	291	250	541	0	0	0	0	0	0	0	0	0	0	0	176	77	109	362	1107
18:15	56	123	0	33	212	0	0	335	202	537	0	0	0	0	0	0	0	0	0	0	0	144	67	74	285	1034
18:30	33	74	0	37	144	0	0	275	202	477	0	0	0	0	0	0	0	0	0	0	0	124	57	67	248	869
18:45	36	75	0	35	146	0	0	226	153	379	0	0	0	0	0	0	0	0	0	0	0	120	50	71	241	766
Total	188	378	0	140	706	0	0	1127	807	1934	0	0	0	0	0	0	0	0	0	0	0	564	251	321	1136	3776
Grand Total	1748	3674	0	1221	6643	0	0	7852	6759	14611	0	0	0	0	0	0	0	0	0	0	0	5000	2173	2900	10073	31327
Apprch %	26.3	55.3	0	18.4		0	0	53.7	46.3		0	0	0	0		0	0	0	0		0	49.6	21.6	28.8		
Total %	5.6	11.7	0	3.9	21.2	0	0	25.1	21.6	46.6	0	0	0	0	0	0	0	0	0	0	0	16	6.9	9.3	32.2	
Unshifted	1729	3647	0	1207	6583	0	0	7823	6713	14536	0	0	0	0	0	0	0	0	0	0	0	4975	2163	2883	10021	31140
% Unshifted	98.9	99.3	0	98.9	99.1	0	0	99.6	99.3	99.5	0	0	0	0	0	0	0	0	0	0	0	99.5	99.5	99.4	99.5	99.4
Bank 2	19	27	0	14	60	0	0	29	46	75	0	0	0	0	0	0	0	0	0	0	0	25	10	17	52	187
% Bank 2	1.1	0.7	0	1.1	0.9	0	0	0.4	0.7	0.5	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.6	0.5	0.6

	I-80 Westbound Ramps Southbound					Douglas Blvd Westbound					Sunrise Blvd Flyover Ramp Northwestbound					I-80 Westbound Ramps Northbound					Douglas Blvd Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00																									
08:00	47	125	0	36	208	0	0	182	193	375	0	0	0	0	0	0	0	0	0	0	0	139	**80**	**105**	324	907
08:15	**74**	**133**	0	45	**252**	0	0	202	**202**	404	0	0	0	0	0	0	0	0	0	0	0	187	78	96	**361**	1017
08:30	63	129	0	**54**	246	0	0	238	195	433	0	0	0	0	0	0	0	0	0	0	0	167	79	73	319	998
08:45	67	126	0	43	236	0	0	**295**	186	**481**	0	0	0	0	0	0	0	0	0	0	0	**205**	62	69	336	**1053**
Total Volume	251	513	0	178	942	0	0	917	776	1693	0	0	0	0	0	0	0	0	0	0	0	698	299	343	1340	3975
% App. Total	26.6	54.5	0	18.9		0	0	54.2	45.8		0	0	0	0		0	0	0	0		0	52.1	22.3	25.6		
PHF	.848	.964	.000	.824	.935	.000	.000	.777	.960	.880	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.851	.934	.817	.928	.944



Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 16:45

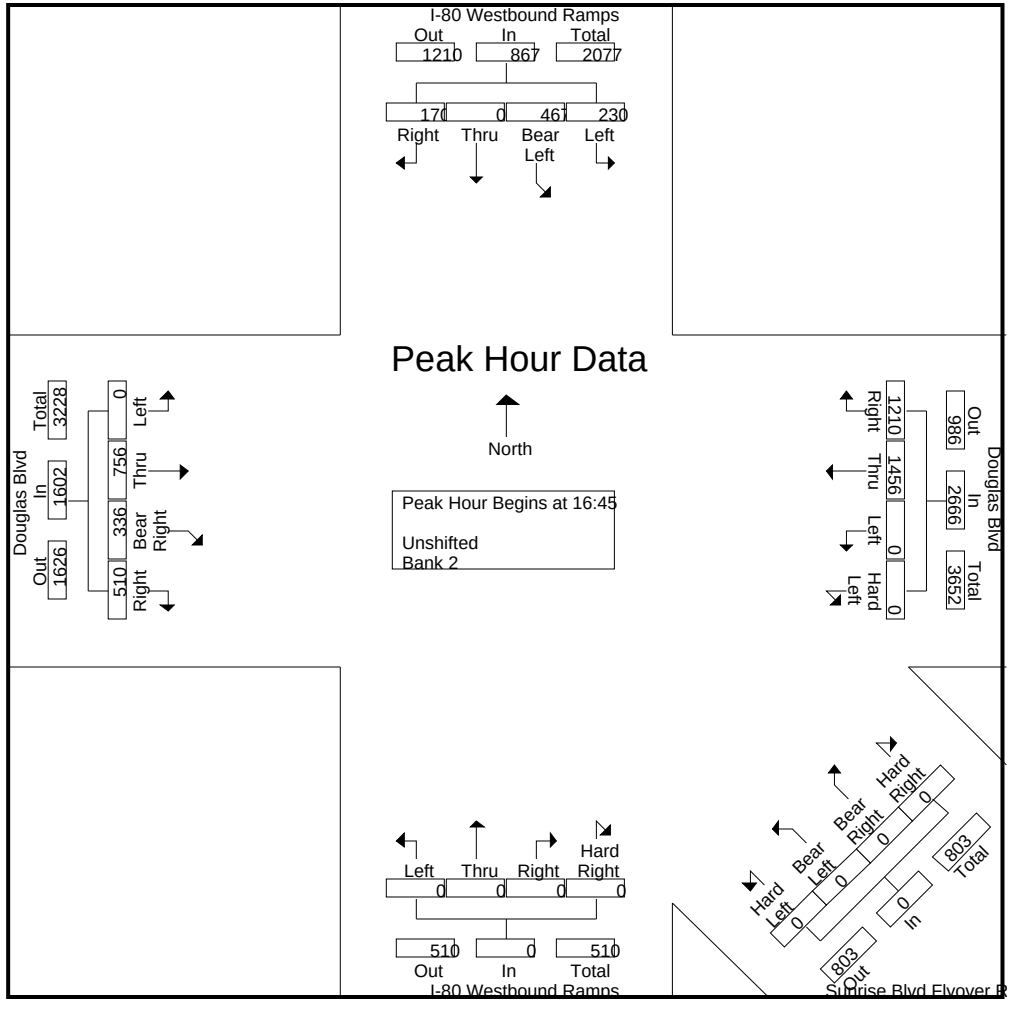
16:45	53	113	0	42	208	0	0	372	269	641	0	0	0	0	0	0	0	0	0	0	0	195	84	108	387	1236
17:00	55	118	0	36	209	0	0	344	318	662	0	0	0	0	0	0	0	0	0	0	0	**221**	87	**154**	**462**	**1333**
17:15	**76**	**129**	0	42	**247**	0	0	354	294	648	0	0	0	0	0	0	0	0	0	0	0	178	**92**	147	417	1312
17:30	46	107	0	**50**	203	0	0	**386**	**329**	**715**	0	0	0	0	0	0	0	0	0	0	0	162	73	101	336	1254
Total Volume	230	467	0	170	867	0	0	1456	1210	2666	0	0	0	0	0	0	0	0	0	0	0	756	336	510	1602	5135
% App. Total	26.5	53.9	0	19.6		0	0	54.6	45.4		0	0	0	0		0	0	0	0		0	47.2	21	31.8		
PHF	.757	.905	.000	.850	.878	.000	.000	.943	.919	.932	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.855	.913	.828	.867	.963

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-024 I80 WB-Douglas
Site Code : 00000000
Start Date : 1/31/2012
Page No : 4



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-025 I80 EB-Douglas
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Eastbound Ramps Southbound				Douglas Boulevard Westbound				I-80 Eastbound Ramps Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	0	11	11	0	95	11	106	0	0	67	67	13	32	0	45	229
06:15	0	0	18	18	0	172	7	179	0	0	111	111	11	43	0	54	362
06:30	0	0	30	30	0	193	16	209	0	0	149	149	16	56	0	72	460
06:45	0	0	31	31	0	217	16	233	0	0	174	174	14	77	0	91	529
Total	0	0	90	90	0	677	50	727	0	0	501	501	54	208	0	262	1580
07:00	0	0	33	33	0	267	20	287	0	0	180	180	19	112	0	131	631
07:15	0	0	44	44	0	282	32	314	0	0	276	276	18	112	0	130	764
07:30	0	0	68	68	0	287	33	320	0	0	273	273	42	158	0	200	861
07:45	0	0	107	107	0	317	40	357	0	0	414	414	54	211	0	265	1143
Total	0	0	252	252	0	1153	125	1278	0	0	1143	1143	133	593	0	726	3399
08:00	0	0	84	84	0	339	35	374	0	0	363	363	41	165	0	206	1027
08:15	0	0	76	76	0	313	46	359	0	0	380	380	31	226	0	257	1072
08:30	0	0	87	87	0	301	54	355	0	0	322	322	30	207	0	237	1001
08:45	0	0	86	86	0	344	50	394	0	0	335	335	35	230	0	265	1080
Total	0	0	333	333	0	1297	185	1482	0	0	1400	1400	137	828	0	965	4180
09:00	0	0	68	68	0	303	61	364	0	0	262	262	35	182	0	217	911
09:15	0	0	64	64	0	345	53	398	0	0	263	263	31	211	0	242	967
09:30	0	0	59	59	0	336	66	402	0	0	219	219	33	171	0	204	884
09:45	0	0	74	74	0	333	58	391	0	0	265	265	35	212	0	247	977
Total	0	0	265	265	0	1317	238	1555	0	0	1009	1009	134	776	0	910	3739
15:00	0	0	91	91	0	507	104	611	0	0	265	265	57	246	0	303	1270
15:15	0	0	80	80	0	494	97	591	0	0	279	279	61	246	0	307	1257
15:30	0	0	101	101	0	530	85	615	0	0	275	275	37	235	0	272	1263
15:45	0	0	95	95	0	466	101	567	0	0	313	313	56	234	1	291	1266
Total	0	0	367	367	0	1997	387	2384	0	0	1132	1132	211	961	1	1173	5056
16:00	0	0	85	85	0	526	94	620	0	0	254	254	53	235	0	288	1247
16:15	0	0	92	92	0	503	81	584	0	0	288	288	46	223	0	269	1233
16:30	0	0	87	87	0	568	100	668	0	0	316	316	42	200	0	242	1313

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-025 I80 EB-Douglas
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Eastbound Ramps Southbound				Douglas Boulevard Westbound				I-80 Eastbound Ramps Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	0	112	112	0	525	76	601	0	0	309	309	44	184	1	229	1251
Total	0	0	376	376	0	2122	351	2473	0	0	1167	1167	185	842	1	1028	5044
17:00	0	0	104	104	0	569	91	660	0	0	245	245	54	220	0	274	1283
17:15	0	0	101	101	0	563	71	634	0	0	288	288	43	226	0	269	1292
17:30	0	0	104	104	0	593	97	690	0	0	264	264	33	171	0	204	1262
17:45	0	0	87	87	0	435	95	530	0	0	325	325	35	183	0	218	1160
Total	0	0	396	396	0	2160	354	2514	0	0	1122	1122	165	800	0	965	4997
18:00	0	0	77	77	0	462	83	545	0	0	301	301	45	166	1	212	1135
18:15	0	0	141	141	0	380	83	463	0	0	285	285	24	172	0	196	1085
18:30	0	0	109	109	0	361	63	424	0	0	244	244	33	132	0	165	942
18:45	0	0	53	53	0	324	45	369	0	0	199	199	30	105	0	135	756
Total	0	0	380	380	0	1527	274	1801	0	0	1029	1029	132	575	1	708	3918
Grand Total	0	0	2459	2459	0	12250	1964	14214	0	0	8503	8503	1151	5583	3	6737	31913
Apprch %	0	0	100		0	86.2	13.8		0	0	100		17.1	82.9	0		
Total %	0	0	7.7	7.7	0	38.4	6.2	44.5	0	0	26.6	26.6	3.6	17.5	0	21.1	
Unshifted	0	0	2449	2449	0	12192	1943	14135	0	0	8460	8460	1147	5539	0	6686	31730
% Unshifted	0	0	99.6	99.6	0	99.5	98.9	99.4	0	0	99.5	99.5	99.7	99.2	0	99.2	99.4
Bank 2	0	0	10	10	0	58	21	79	0	0	43	43	4	44	3	51	183
% Bank 2	0	0	0.4	0.4	0	0.5	1.1	0.6	0	0	0.5	0.5	0.3	0.8	100	0.8	0.6

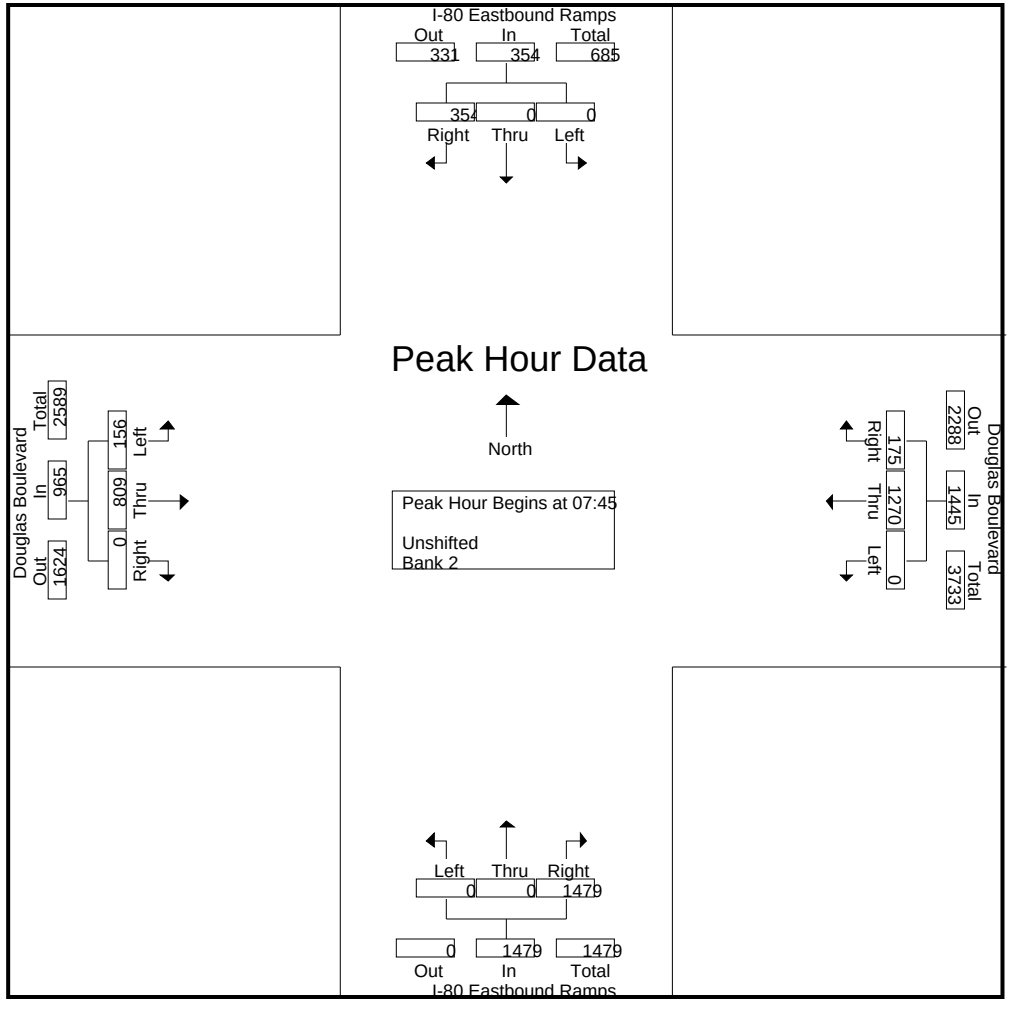
	I-80 Eastbound Ramps Southbound				Douglas Boulevard Westbound				I-80 Eastbound Ramps Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	0	0	**107**	**107**	0	317	40	357	0	0	**414**	**414**	**54**	211	0	**265**	**1143**
08:00	0	0	84	84	0	**339**	35	**374**	0	0	363	363	41	165	0	206	1027
08:15	0	0	76	76	0	313	46	359	0	0	380	380	31	**226**	0	257	1072
08:30	0	0	87	87	0	301	**54**	355	0	0	322	322	30	207	0	237	1001
Total Volume	0	0	354	354	0	1270	175	1445	0	0	1479	1479	156	809	0	965	4243
% App. Total	0	0	100		0	87.9	12.1		0	0	100		16.2	83.8	0		
PHF	.000	.000	.827	.827	.000	.937	.810	.966	.000	.000	.893	.893	.722	.895	.000	.910	.928

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-025 I80 EB-Douglas
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-025 I80 EB-Douglas
Site Code : 00000000
Start Date : 1/31/2012

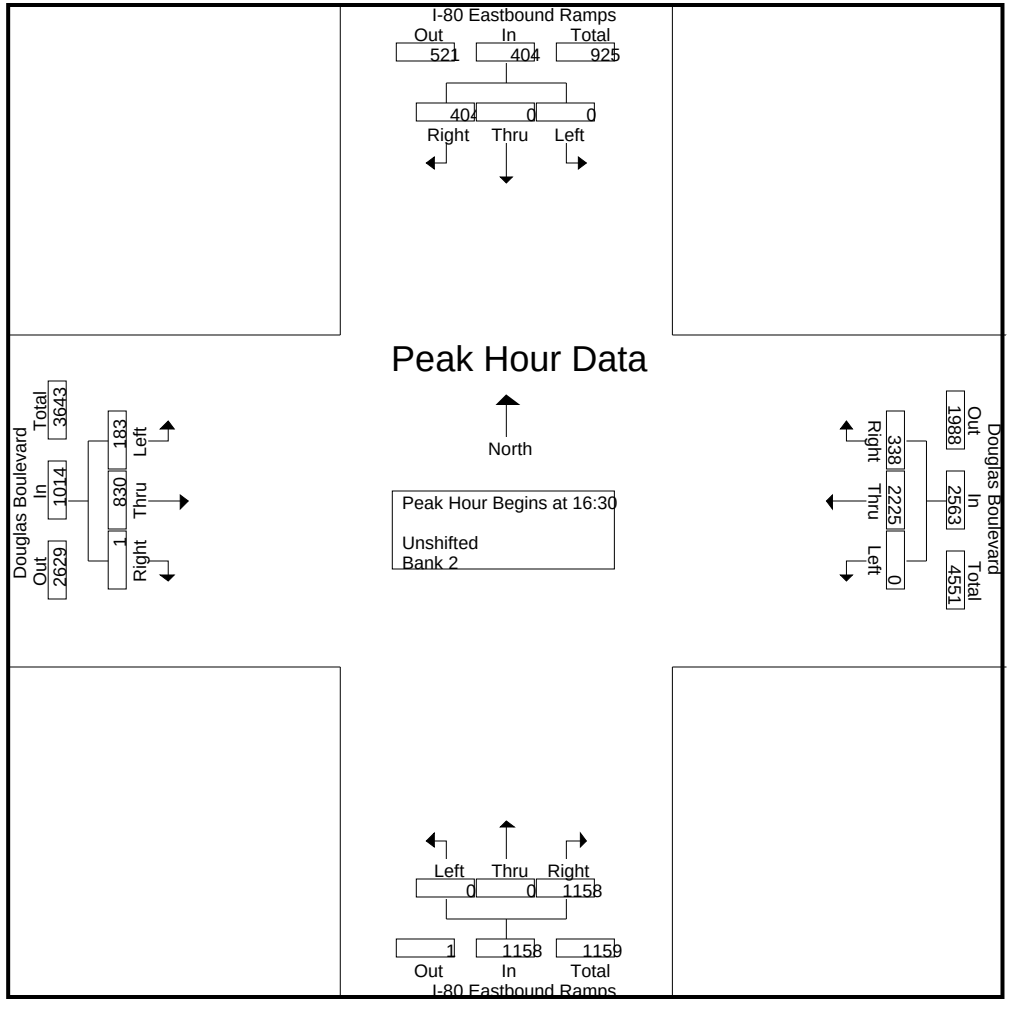
	I-80 Eastbound Ramps Southbound				Douglas Boulevard Westbound				I-80 Eastbound Ramps Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	0	0	87	87	0	568	**100**	**668**	0	0	**316**	**316**	42	200	0	242	**1313**
16:45	0	0	**112**	**112**	0	525	76	601	0	0	309	309	44	184	**1**	229	1251
17:00	0	0	104	104	0	**569**	91	660	0	0	245	245	**54**	220	0	**274**	1283
17:15	0	0	101	101	0	563	71	634	0	0	288	288	43	**226**	0	269	1292
Total Volume	0	0	404	404	0	2225	338	2563	0	0	1158	1158	183	830	1	1014	5139
% App. Total	0	0	100		0	86.8	13.2		0	0	100		18	81.9	0.1		
PHF	.000	.000	.902	.902	.000	.978	.845	.959	.000	.000	.916	.916	.847	.918	.250	.925	.978

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-025 I80 EB-Douglas
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-026 Sunrise-Douglas
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Sunrise Avenue Southbound				Douglas Boulevard Westbound				Sunrise Avenue Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	5	16	7	28	4	90	0	94	6	15	4	25	14	74	9	97	244
06:15	2	10	7	19	8	157	4	169	17	14	1	32	21	121	7	149	369
06:30	2	26	18	46	13	157	6	176	23	32	3	58	40	133	13	186	466
06:45	3	22	19	44	17	192	3	212	21	29	10	60	64	181	12	257	573
Total	12	74	51	137	42	596	13	651	67	90	18	175	139	509	41	689	1652
07:00	6	49	30	85	8	231	7	246	29	39	13	81	57	201	22	280	692
07:15	5	47	27	79	21	256	4	281	38	51	12	101	68	289	38	395	856
07:30	4	70	25	99	22	260	13	295	40	68	24	132	57	321	34	412	938
07:45	8	46	20	74	35	325	12	372	37	79	44	160	96	484	51	631	1237
Total	23	212	102	337	86	1072	36	1194	144	237	93	474	278	1295	145	1718	3723
08:00	13	53	41	107	29	287	16	332	44	88	28	160	105	389	48	542	1141
08:15	16	55	32	103	36	302	14	352	38	60	36	134	75	463	51	589	1178
08:30	21	57	48	126	32	245	19	296	54	75	40	169	85	389	55	529	1120
08:45	14	57	56	127	46	278	24	348	70	81	48	199	94	423	61	578	1252
Total	64	222	177	463	143	1112	73	1328	206	304	152	662	359	1664	215	2238	4691
09:00	21	70	54	145	43	254	28	325	51	86	44	181	72	324	43	439	1090
09:15	25	48	66	139	52	286	33	371	56	74	48	178	76	310	69	455	1143
09:30	21	85	70	176	36	275	28	339	51	80	47	178	82	286	39	407	1100
09:45	13	70	65	148	50	293	32	375	49	91	55	195	87	345	39	471	1189
Total	80	273	255	608	181	1108	121	1410	207	331	194	732	317	1265	190	1772	4522
15:00	25	87	111	223	74	388	27	489	98	122	55	275	87	359	35	481	1468
15:15	25	81	109	215	78	419	28	525	83	101	56	240	94	413	39	546	1526
15:30	26	87	131	244	58	375	37	470	87	133	59	279	84	357	41	482	1475
15:45	27	81	84	192	78	417	33	528	78	98	51	227	109	427	31	567	1514
Total	103	336	435	874	288	1599	125	2012	346	454	221	1021	374	1556	146	2076	5983
16:00	29	121	135	285	66	389	38	493	89	117	50	256	83	345	41	469	1503
16:15	32	100	108	240	64	438	29	531	58	104	39	201	101	399	27	527	1499
16:30	25	141	146	312	49	413	31	493	84	108	42	234	106	348	21	475	1514

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-026 Sunrise-Douglas
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Sunrise Avenue Southbound				Douglas Boulevard Westbound				Sunrise Avenue Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	28	110	110	248	69	425	20	514	81	113	45	239	111	379	28	518	1519
Total	114	472	499	1085	248	1665	118	2031	312	442	176	930	401	1471	117	1989	6035
17:00	32	115	157	304	76	416	30	522	70	85	49	204	92	320	30	442	1472
17:15	25	117	116	258	70	465	29	564	75	94	39	208	89	395	42	526	1556
17:30	19	109	145	273	66	429	35	530	86	106	51	243	74	306	26	406	1452
17:45	22	96	75	193	63	401	27	491	66	86	45	197	105	381	41	527	1408
Total	98	437	493	1028	275	1711	121	2107	297	371	184	852	360	1402	139	1901	5888
18:00	30	85	110	225	61	335	29	425	86	111	50	247	64	321	42	427	1324
18:15	28	68	91	187	55	330	20	405	53	81	44	178	89	359	40	488	1258
18:30	20	72	79	171	51	277	31	359	62	71	31	164	68	256	24	348	1042
18:45	19	58	50	127	45	261	20	326	59	48	26	133	63	245	26	334	920
Total	97	283	330	710	212	1203	100	1515	260	311	151	722	284	1181	132	1597	4544
Grand Total	591	2309	2342	5242	1475	10066	707	12248	1839	2540	1189	5568	2512	10343	1125	13980	37038
Apprch %	11.3	44	44.7		12	82.2	5.8		33	45.6	21.4		18	74	8		
Total %	1.6	6.2	6.3	14.2	4	27.2	1.9	33.1	5	6.9	3.2	15	6.8	27.9	3	37.7	
Unshifted	586	2289	2319	5194	1469	10024	701	12194	1828	2527	1178	5533	2487	10277	1115	13879	36800
% Unshifted	99.2	99.1	99	99.1	99.6	99.6	99.2	99.6	99.4	99.5	99.1	99.4	99	99.4	99.1	99.3	99.4
Bank 2	5	20	23	48	6	42	6	54	11	13	11	35	25	66	10	101	238
% Bank 2	0.8	0.9	1	0.9	0.4	0.4	0.8	0.4	0.6	0.5	0.9	0.6	1	0.6	0.9	0.7	0.6

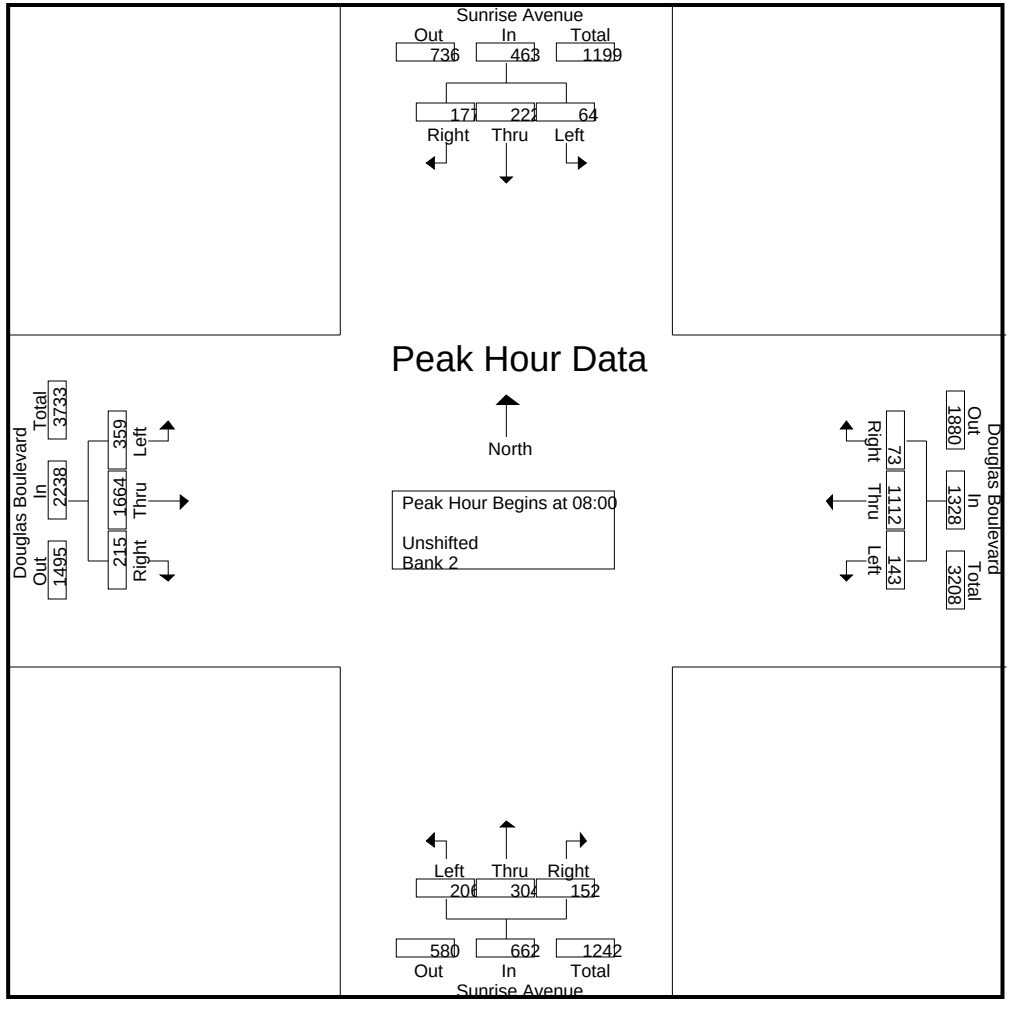
	Sunrise Avenue Southbound				Douglas Boulevard Westbound				Sunrise Avenue Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	13	53	41	107	29	287	16	332	44	**88**	28	160	**105**	389	48	542	1141
08:15	16	55	32	103	36	**302**	14	**352**	38	60	36	134	75	**463**	51	**589**	1178
08:30	**21**	**57**	48	126	32	245	19	296	54	75	40	169	85	389	55	529	1120
08:45	14	57	**56**	**127**	**46**	278	**24**	348	**70**	81	**48**	**199**	94	423	**61**	578	**1252**
Total Volume	64	222	177	463	143	1112	73	1328	206	304	152	662	359	1664	215	2238	4691
% App. Total	13.8	47.9	38.2		10.8	83.7	5.5		31.1	45.9	23		16	74.4	9.6		
PHF	.762	.974	.790	.911	.777	.921	.760	.943	.736	.864	.792	.832	.855	.898	.881	.950	.937

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-026 Sunrise-Douglas
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-026 Sunrise-Douglas
Site Code : 00000000
Start Date : 1/31/2012

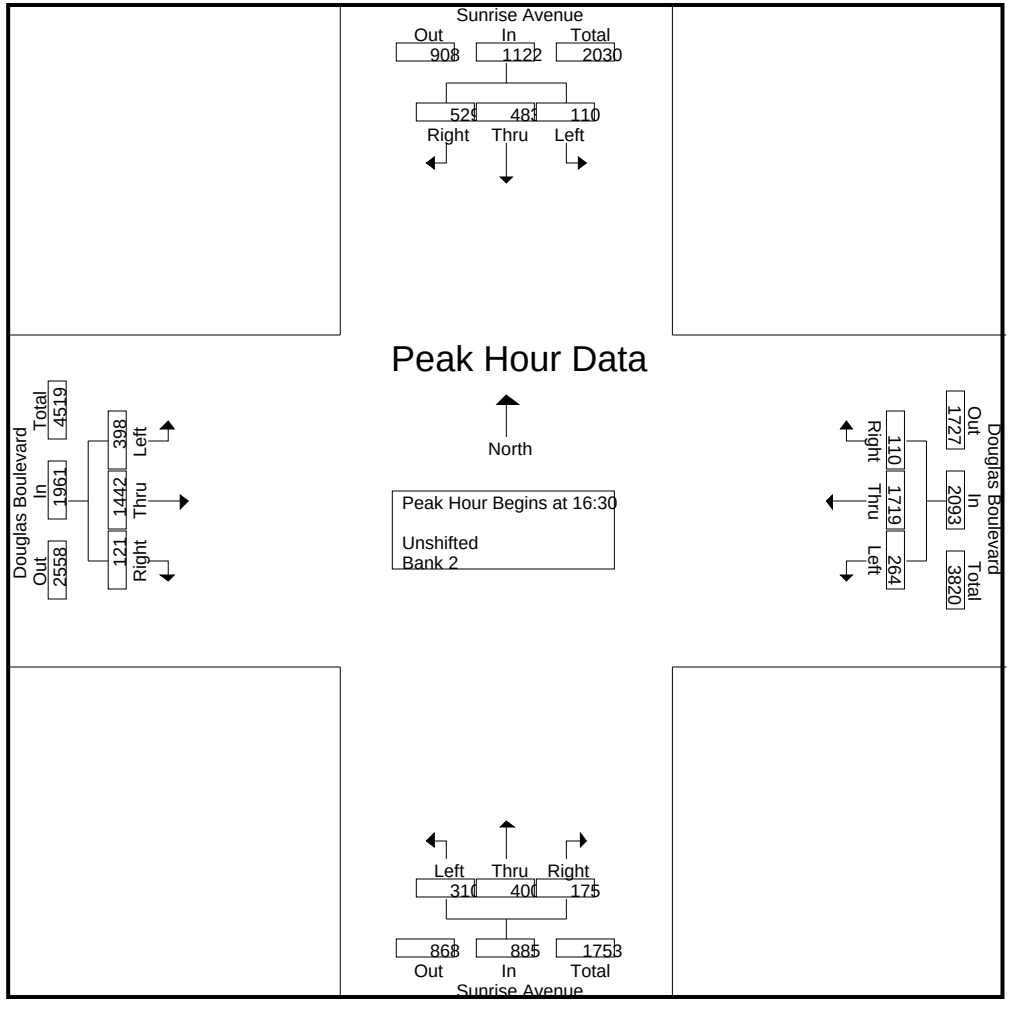
	Sunrise Avenue Southbound				Douglas Boulevard Westbound				Sunrise Avenue Northbound				Douglas Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	25	**141**	146	**312**	49	413	**31**	493	**84**	108	42	234	106	348	21	475	1514
16:45	28	110	110	248	69	425	20	514	81	**113**	45	**239**	**111**	379	28	518	1519
17:00	**32**	115	**157**	304	**76**	416	30	522	70	85	**49**	204	92	320	30	442	1472
17:15	25	117	116	258	70	**465**	29	**564**	75	94	39	208	89	**395**	**42**	**526**	**1556**
Total Volume	110	483	529	1122	264	1719	110	2093	310	400	175	885	398	1442	121	1961	6061
% App. Total	9.8	43	47.1		12.6	82.1	5.3		35	45.2	19.8		20.3	73.5	6.2		
PHF	.859	.856	.842	.899	.868	.924	.887	.928	.923	.885	.893	.926	.896	.913	.720	.932	.974

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-026 Sunrise-Douglas
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-027 Pacific-Woodside
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Pacific Street Southbound				Woodside Drive Westbound				Pacific Street Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	1	101	0	102	16	0	2	18	0	35	1	36	0	0	0	0	156
06:15	2	133	0	135	15	0	1	16	0	47	4	51	0	0	0	0	202
06:30	4	193	0	197	28	0	9	37	0	55	2	57	0	0	0	0	291
06:45	5	212	0	217	23	0	3	26	0	65	2	67	0	0	0	0	310
Total	12	639	0	651	82	0	15	97	0	202	9	211	0	0	0	0	959
07:00	5	217	0	222	22	0	9	31	0	63	4	67	0	0	0	0	320
07:15	2	242	0	244	35	0	8	43	0	97	5	102	0	0	0	0	389
07:30	5	238	0	243	39	0	15	54	0	94	11	105	0	0	0	0	402
07:45	5	284	0	289	24	0	9	33	0	128	7	135	0	0	0	0	457
Total	17	981	0	998	120	0	41	161	0	382	27	409	0	0	0	0	1568
08:00	7	242	0	249	19	0	19	38	0	113	14	127	0	0	0	0	414
08:15	10	272	0	282	30	0	11	41	0	103	5	108	0	0	0	0	431
08:30	4	238	0	242	24	0	3	27	0	97	13	110	0	0	0	0	379
08:45	6	183	0	189	14	0	4	18	0	140	10	150	0	0	0	0	357
Total	27	935	0	962	87	0	37	124	0	453	42	495	0	0	0	0	1581
09:00	1	189	0	190	14	0	4	18	0	116	10	126	0	0	0	0	334
09:15	2	158	0	160	13	0	4	17	0	102	12	114	0	0	0	0	291
09:30	5	172	0	177	20	0	11	31	0	97	9	106	0	0	0	0	314
09:45	4	167	0	171	17	0	4	21	0	137	11	148	0	0	0	0	340
Total	12	686	0	698	64	0	23	87	0	452	42	494	0	0	0	0	1279
15:00	20	180	0	200	14	0	7	21	0	226	15	241	0	0	0	0	462
15:15	18	208	0	226	16	0	9	25	0	240	25	265	0	0	0	0	516
15:30	9	203	0	212	15	0	12	27	0	226	24	250	0	0	0	0	489
15:45	5	205	0	210	11	0	10	21	0	233	33	266	0	0	0	0	497
Total	52	796	0	848	56	0	38	94	0	925	97	1022	0	0	0	0	1964
16:00	12	181	0	193	11	0	4	15	0	265	21	286	0	0	0	0	494
16:15	12	223	0	235	14	0	6	20	0	257	27	284	0	0	0	0	539
16:30	10	197	0	207	12	0	6	18	0	267	27	294	0	0	0	0	519

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-027 Pacific-Woodside
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Pacific Street Southbound				Woodside Drive Westbound				Pacific Street Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	8	199	0	207	11	0	9	20	0	259	31	290	0	0	0	0	517
Total	42	800	0	842	48	0	25	73	0	1048	106	1154	0	0	0	0	2069
17:00	12	219	0	231	25	0	6	31	0	304	27	331	0	0	0	0	593
17:15	8	207	0	215	13	0	7	20	0	374	39	413	0	0	0	0	648
17:30	13	196	0	209	18	0	14	32	0	304	29	333	0	0	0	0	574
17:45	7	179	0	186	13	0	12	25	0	299	24	323	0	0	0	0	534
Total	40	801	0	841	69	0	39	108	0	1281	119	1400	0	0	0	0	2349
18:00	10	187	0	197	18	0	10	28	0	254	23	277	0	0	0	0	502
18:15	8	153	0	161	18	0	8	26	0	255	29	284	0	0	0	0	471
18:30	7	142	0	149	13	0	5	18	0	184	18	202	0	0	0	0	369
18:45	13	103	0	116	16	0	7	23	0	155	16	171	0	0	0	0	310
Total	38	585	0	623	65	0	30	95	0	848	86	934	0	0	0	0	1652
Grand Total	240	6223	0	6463	591	0	248	839	0	5591	528	6119	0	0	0	0	13421
Apprch %	3.7	96.3	0		70.4	0	29.6		0	91.4	8.6		0	0	0		
Total %	1.8	46.4	0	48.2	4.4	0	1.8	6.3	0	41.7	3.9	45.6	0	0	0	0	
Unshifted	231	6189	0	6420	582	0	245	827	0	5534	513	6047	0	0	0	0	13294
% Unshifted	96.2	99.5	0	99.3	98.5	0	98.8	98.6	0	99	97.2	98.8	0	0	0	0	99.1
Bank 2	9	34	0	43	9	0	3	12	0	57	15	72	0	0	0	0	127
% Bank 2	3.8	0.5	0	0.7	1.5	0	1.2	1.4	0	1	2.8	1.2	0	0	0	0	0.9

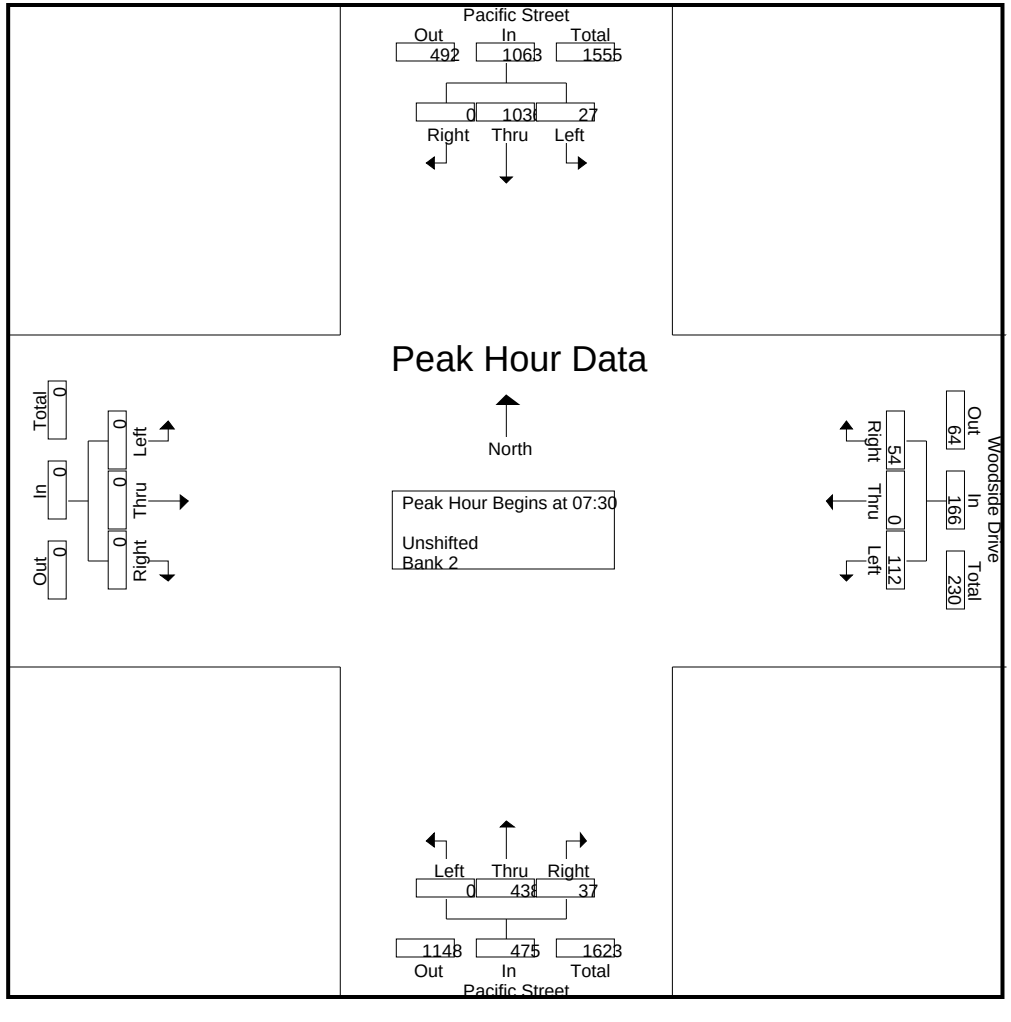
	Pacific Street Southbound				Woodside Drive Westbound				Pacific Street Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	5	238	0	243	**39**	0	15	**54**	0	94	11	105	0	0	0	0	402
07:45	5	**284**	0	**289**	24	0	9	33	0	**128**	7	**135**	0	0	0	0	**457**
08:00	7	242	0	249	19	0	**19**	38	0	113	**14**	127	0	0	0	0	414
08:15	**10**	272	0	282	30	0	11	41	0	103	5	108	0	0	0	0	431
Total Volume	27	1036	0	1063	112	0	54	166	0	438	37	475	0	0	0	0	1704
% App. Total	2.5	97.5	0		67.5	0	32.5		0	92.2	7.8		0	0	0		
PHF	.675	.912	.000	.920	.718	.000	.711	.769	.000	.855	.661	.880	.000	.000	.000	.000	.932

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-027 Pacific-Woodside
Site Code : 00000000
Start Date : 2/9/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-027 Pacific-Woodside
Site Code : 00000000
Start Date : 2/9/2012

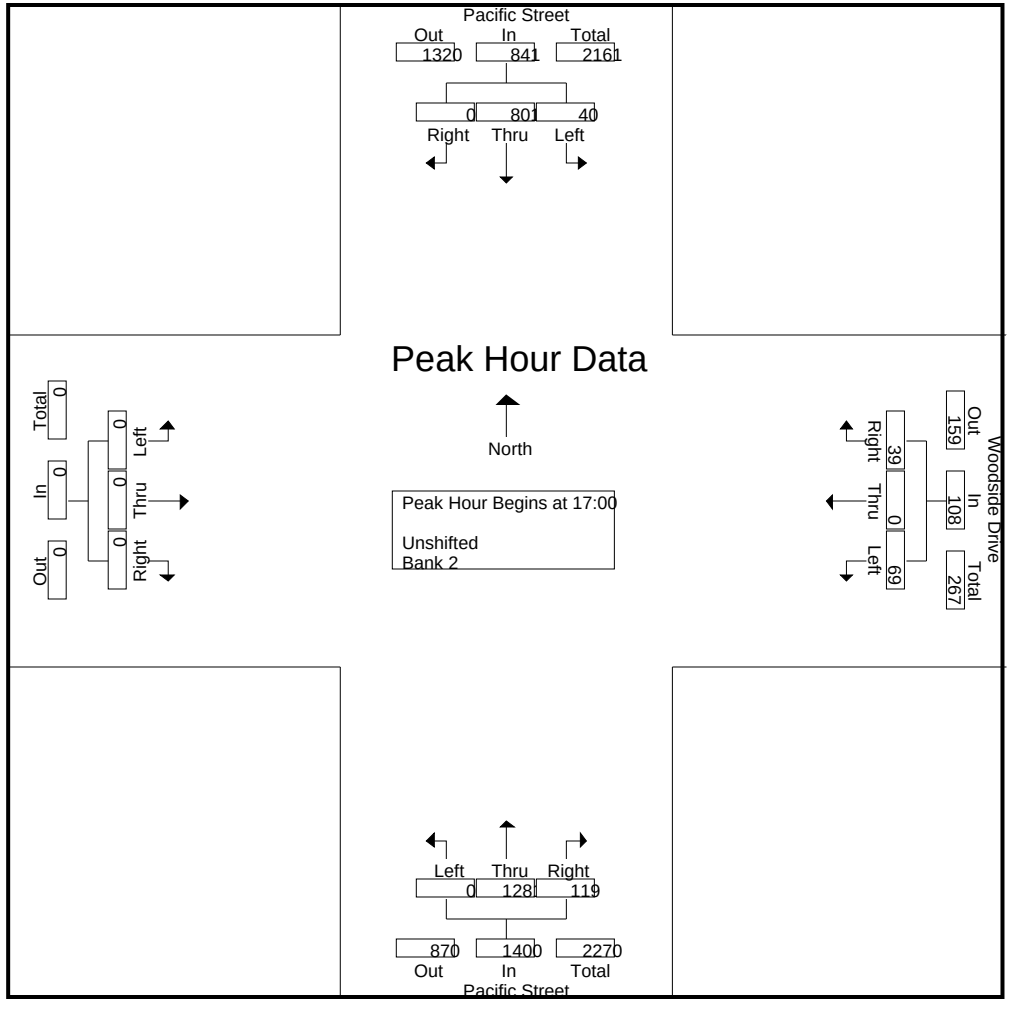
	Pacific Street Southbound				Woodside Drive Westbound				Pacific Street Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	12	**219**	0	**231**	**25**	0	6	31	0	304	27	331	0	0	0	0	593
17:15	8	207	0	215	13	0	7	20	0	**374**	**39**	**413**	0	0	0	0	**648**
17:30	**13**	196	0	209	18	0	**14**	**32**	0	304	29	333	0	0	0	0	574
17:45	7	179	0	186	13	0	12	25	0	299	24	323	0	0	0	0	534
Total Volume	40	801	0	841	69	0	39	108	0	1281	119	1400	0	0	0	0	2349
% App. Total	4.8	95.2	0		63.9	0	36.1		0	91.5	8.5		0	0	0		
PHF	.769	.914	.000	.910	.690	.000	.696	.844	.000	.856	.763	.847	.000	.000	.000	.000	.906

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-027 Pacific-Woodside
Site Code : 00000000
Start Date : 2/9/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-028 Pacific-Sunset
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Pacific Street Southbound				Sunset Boulevard Westbound				Pacific Street Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	2	23	6	31	1	1	3	5	11	24	1	36	25	5	74	104	176
06:15	7	29	14	50	2	6	1	9	13	26	0	39	22	4	104	130	228
06:30	2	45	16	63	4	7	1	12	24	39	0	63	42	2	141	185	323
06:45	3	77	38	118	3	7	9	19	25	36	0	61	57	7	144	208	406
Total	14	174	74	262	10	21	14	45	73	125	1	199	146	18	463	627	1133
07:00	2	65	26	93	5	10	8	23	35	35	0	70	67	8	155	230	416
07:15	6	63	50	119	7	14	15	36	25	69	0	94	92	9	170	271	520
07:30	8	70	54	132	1	15	17	33	37	69	2	108	148	6	175	329	602
07:45	9	89	67	165	5	13	21	39	48	82	1	131	155	11	192	358	693
Total	25	287	197	509	18	52	61	131	145	255	3	403	462	34	692	1188	2231
08:00	13	78	76	167	5	18	30	53	40	74	3	117	115	8	169	292	629
08:15	19	98	76	193	8	14	20	42	38	79	1	118	131	12	169	312	665
08:30	13	98	74	185	7	16	14	37	38	50	3	91	102	11	140	253	566
08:45	10	65	86	161	7	14	9	30	69	75	2	146	96	6	112	214	551
Total	55	339	312	706	27	62	73	162	185	278	9	472	444	37	590	1071	2411
09:00	7	78	89	174	5	6	11	22	42	69	2	113	99	10	112	221	530
09:15	16	59	70	145	9	13	12	34	47	56	2	105	97	9	96	202	486
09:30	8	80	70	158	9	18	7	34	40	65	4	109	77	14	98	189	490
09:45	11	56	75	142	5	16	14	35	65	68	5	138	96	13	104	213	528
Total	42	273	304	619	28	53	44	125	194	258	13	465	369	46	410	825	2034
15:00	25	83	114	222	6	30	14	50	124	108	7	239	121	24	109	254	765
15:15	20	115	142	277	14	25	21	60	137	100	7	244	134	34	94	262	843
15:30	20	101	139	260	14	27	17	58	120	82	4	206	128	27	86	241	765
15:45	17	109	104	230	13	26	22	61	140	119	1	260	122	21	93	236	787
Total	82	408	499	989	47	108	74	229	521	409	19	949	505	106	382	993	3160
16:00	11	112	135	258	7	28	16	51	142	111	5	258	109	21	88	218	785
16:15	12	112	132	256	17	29	17	63	143	117	7	267	128	23	87	238	824
16:30	14	116	126	256	9	15	14	38	171	104	4	279	115	27	80	222	795

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-028 Pacific-Sunset
Site Code : 00000000
Start Date : 2/9/2012

Groups Printed- Unshifted - Bank 2

	Pacific Street Southbound				Sunset Boulevard Westbound				Pacific Street Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	19	89	141	249	20	33	25	78	154	114	4	272	121	21	96	238	837
Total	56	429	534	1019	53	105	72	230	610	446	20	1076	473	92	351	916	3241
17:00	4	119	174	297	9	23	20	52	172	112	2	286	126	21	97	244	879
17:15	23	101	163	287	9	23	14	46	193	116	8	317	111	24	106	241	891
17:30	28	98	141	267	8	32	21	61	219	114	9	342	124	19	103	246	916
17:45	16	95	145	256	10	33	12	55	213	92	4	309	104	21	91	216	836
Total	71	413	623	1107	36	111	67	214	797	434	23	1254	465	85	397	947	3522
18:00	25	57	125	207	18	32	14	64	158	91	4	253	109	26	104	239	763
18:15	18	60	121	199	6	26	15	47	191	80	6	277	87	8	93	188	711
18:30	14	61	96	171	10	15	12	37	107	75	7	189	96	15	66	177	574
18:45	12	51	85	148	4	16	11	31	79	58	6	143	63	10	56	129	451
Total	69	229	427	725	38	89	52	179	535	304	23	862	355	59	319	733	2499
Grand Total	414	2552	2970	5936	257	601	457	1315	3060	2509	111	5680	3219	477	3604	7300	20231
Apprch %	7	43	50		19.5	45.7	34.8		53.9	44.2	2		44.1	6.5	49.4		
Total %	2	12.6	14.7	29.3	1.3	3	2.3	6.5	15.1	12.4	0.5	28.1	15.9	2.4	17.8	36.1	
Unshifted	414	2527	2948	5889	256	599	455	1310	3051	2476	110	5637	3198	476	3595	7269	20105
% Unshifted	100	99	99.3	99.2	99.6	99.7	99.6	99.6	99.7	98.7	99.1	99.2	99.3	99.8	99.8	99.6	99.4
Bank 2	0	25	22	47	1	2	2	5	9	33	1	43	21	1	9	31	126
% Bank 2	0	1	0.7	0.8	0.4	0.3	0.4	0.4	0.3	1.3	0.9	0.8	0.7	0.2	0.2	0.4	0.6

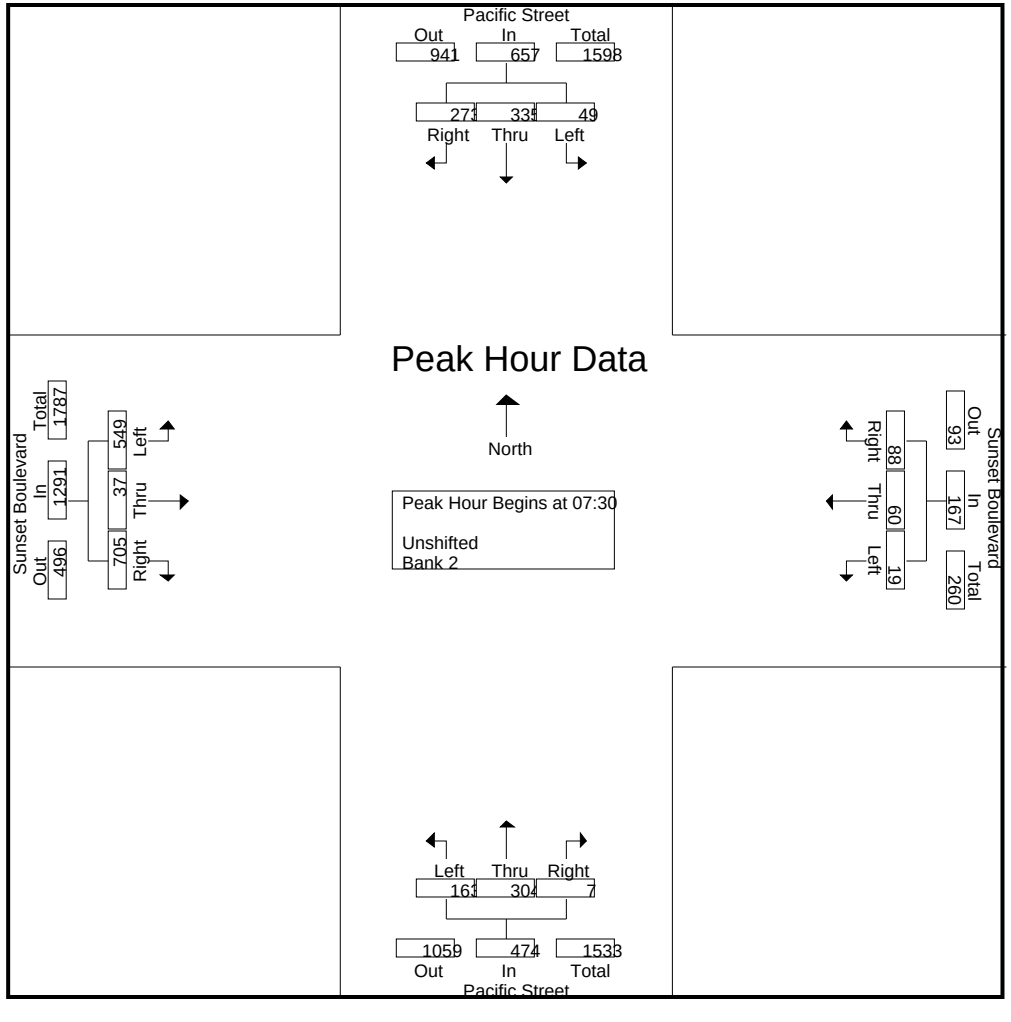
	Pacific Street Southbound				Sunset Boulevard Westbound				Pacific Street Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	8	70	54	132	1	15	17	33	37	69	2	108	148	6	175	329	602
07:45	9	89	67	165	5	13	21	39	**48**	**82**	1	**131**	**155**	11	**192**	**358**	**693**
08:00	13	78	**76**	167	5	**18**	**30**	**53**	40	74	**3**	117	115	8	169	292	629
08:15	**19**	**98**	76	**193**	**8**	14	20	42	38	79	1	118	131	**12**	169	312	665
Total Volume	49	335	273	657	19	60	88	167	163	304	7	474	549	37	705	1291	2589
% App. Total	7.5	51	41.6		11.4	35.9	52.7		34.4	64.1	1.5		42.5	2.9	54.6		
PHF	.645	.855	.898	.851	.594	.833	.733	.788	.849	.927	.583	.905	.885	.771	.918	.902	.934

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-028 Pacific-Sunset
Site Code : 00000000
Start Date : 2/9/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-028 Pacific-Sunset
Site Code : 00000000
Start Date : 2/9/2012

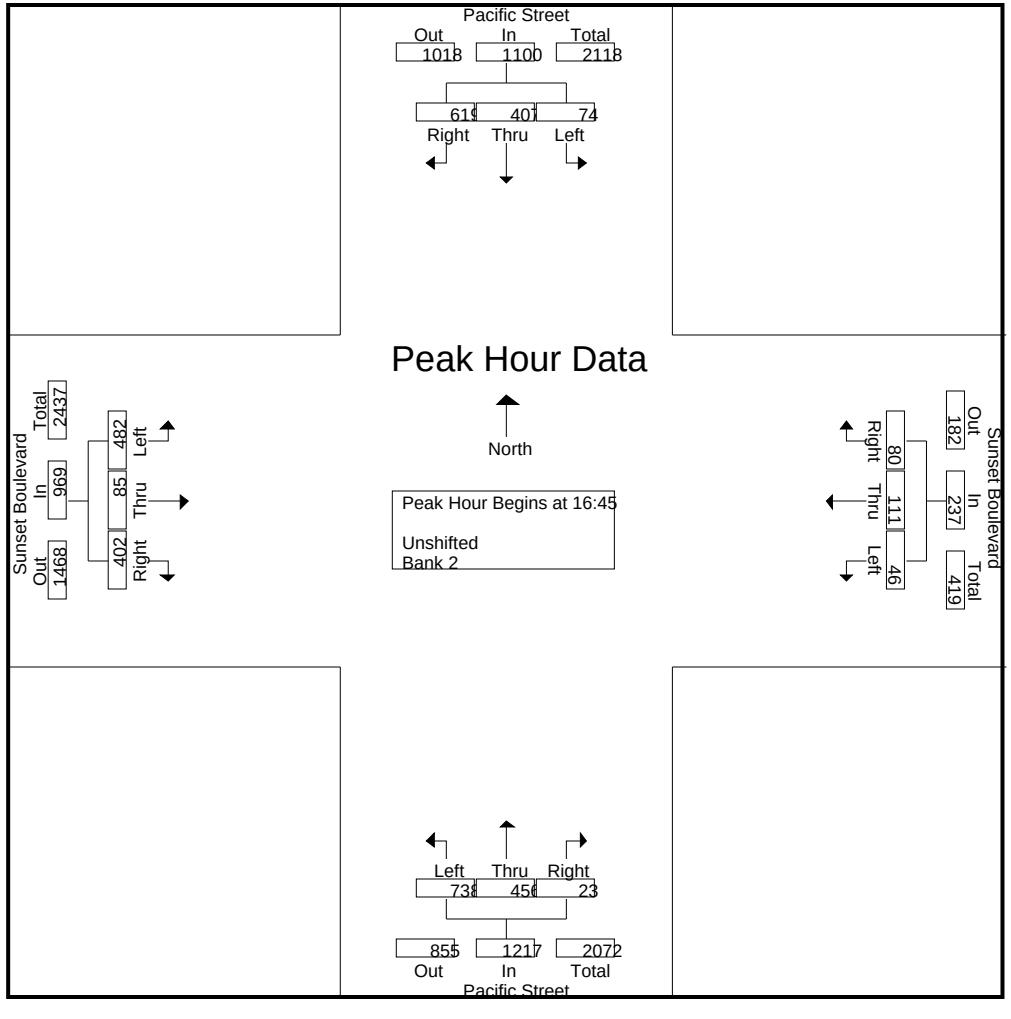
	Pacific Street Southbound				Sunset Boulevard Westbound				Pacific Street Northbound				Sunset Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	19	89	141	249	**20**	**33**	**25**	**78**	154	114	4	272	121	21	96	238	837
17:00	4	**119**	**174**	**297**	9	23	20	52	172	112	2	286	**126**	21	97	244	879
17:15	23	101	163	287	9	23	14	46	193	**116**	8	317	111	**24**	**106**	241	891
17:30	**28**	98	141	267	8	32	21	61	**219**	114	**9**	**342**	124	19	103	**246**	**916**
Total Volume	74	407	619	1100	46	111	80	237	738	456	23	1217	482	85	402	969	3523
% App. Total	6.7	37	56.3		19.4	46.8	33.8		60.6	37.5	1.9		49.7	8.8	41.5		
PHF	.661	.855	.889	.926	.575	.841	.800	.760	.842	.983	.639	.890	.956	.885	.948	.985	.962

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2

File Name : 12-7003-028 Pacific-Sunset
Site Code : 00000000
Start Date : 2/9/2012
Page No : 5



Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Granite Dr -- Rocklin Rd

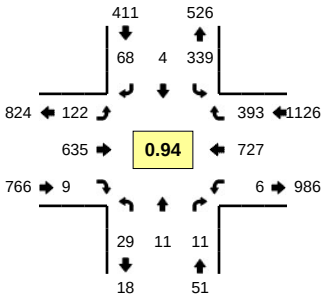
QC JOB #: 10680109

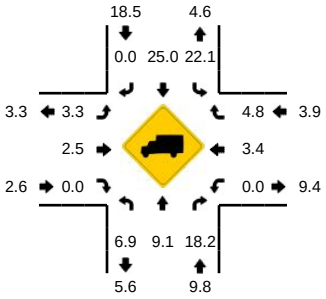
CITY/STATE: Rocklin, CA

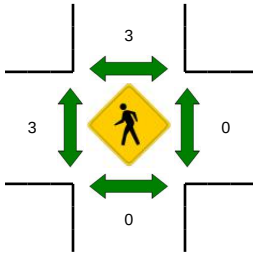
DATE: Wed, Nov 16 2011

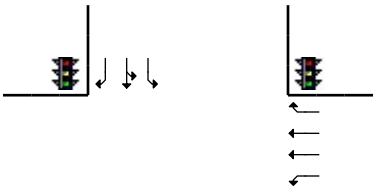
Peak-Hour: 8:00 AM -- 9:00 AM

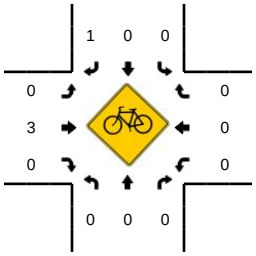
Peak 15-Min: 8:00 AM -- 8:15 AM

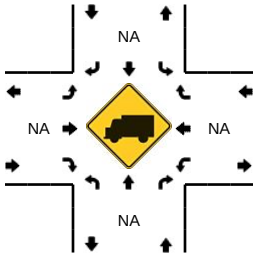


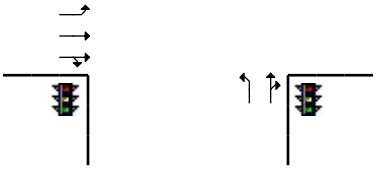


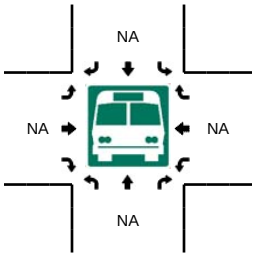












5-Min Count Period Beginning At	Granite Dr (Northbound)				Granite Dr (Southbound)				Rocklin Rd (Eastbound)				Rocklin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:30 AM	2	0	2	0	17	0	4	0	7	55	0	0	1	30	36	0	154	1316
7:35 AM	1	0	0	0	27	0	3	0	5	68	3	0	0	27	28	0	162	1403
7:40 AM	1	2	3	0	12	1	4	0	4	70	1	0	1	31	35	0	165	1487
7:45 AM	4	1	3	0	19	0	3	0	8	49	0	0	0	23	40	0	150	1538
7:50 AM	0	2	0	0	15	0	6	0	10	65	0	1	2	53	38	0	192	1620
7:55 AM	2	0	0	0	9	1	4	0	4	29	0	0	1	21	28	0	99	1615
8:00 AM	1	1	0	0	13	0	6	0	14	60	0	0	0	72	56	0	223	1726
8:05 AM	2	3	0	0	24	2	7	0	7	60	0	0	0	59	35	0	199	1810
8:10 AM	4	0	1	0	20	0	8	0	7	83	0	0	0	45	35	0	203	1892
8:15 AM	4	0	0	0	14	0	7	0	8	54	1	0	0	57	38	0	183	1970
8:20 AM	1	0	1	0	24	0	7	0	14	44	0	0	1	62	35	0	189	2024
8:25 AM	2	0	0	0	25	1	4	0	9	62	0	0	0	64	28	0	195	2114
8:30 AM	3	1	2	0	29	0	6	0	6	45	1	0	0	71	30	0	194	2154
8:35 AM	2	0	3	0	19	0	2	0	15	51	1	0	1	61	24	0	179	2171
8:40 AM	1	0	0	0	26	1	3	0	7	48	1	0	1	84	19	1	192	2198
8:45 AM	4	4	3	0	42	0	4	0	12	42	3	0	0	61	22	0	197	2245
8:50 AM	3	1	0	0	58	0	6	0	10	37	0	0	1	48	35	0	199	2252
8:55 AM	2	1	1	0	45	0	8	0	13	49	2	0	1	43	36	0	201	2354
9:00 AM	2	1	2	0	25	0	15	0	6	47	0	0	0	35	39	0	172	2303
9:05 AM	3	1	0	0	21	0	9	0	3	45	2	0	3	31	28	0	146	2250
9:10 AM	0	0	1	0	35	1	14	0	12	49	1	0	1	38	20	0	172	2219
9:15 AM	1	2	0	0	11	1	4	0	9	67	0	1	0	30	25	0	151	2187
9:20 AM	0	0	2	0	19	0	8	0	13	49	0	0	0	27	41	0	159	2157
9:25 AM	1	4	1	0	23	1	8	0	10	37	0	0	0	37	43	0	165	2127

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	16	4	0	228	8	84	0	112	812	0	0	0	704	504	0	2500
Heavy Trucks	4	4	0		4	0	0		0	24	0		0	20	32		88
Pedestrians		0				8				8				0			16
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/1/2011 10:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Granite Dr -- Rocklin Rd

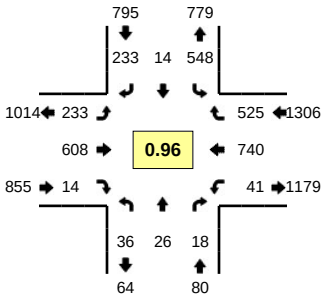
QC JOB #: 10680110

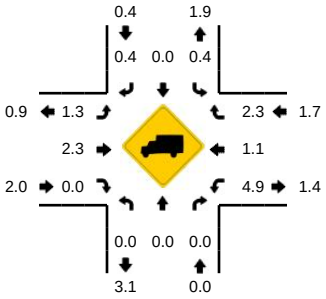
CITY/STATE: Rocklin, CA

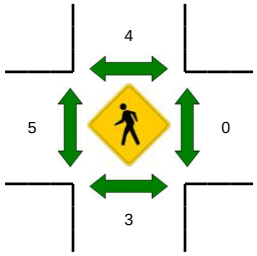
DATE: Tue, Nov 15 2011

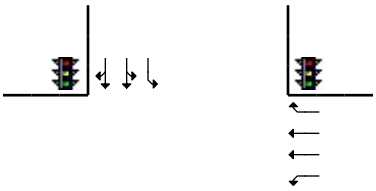
Peak-Hour: 4:25 PM -- 5:25 PM

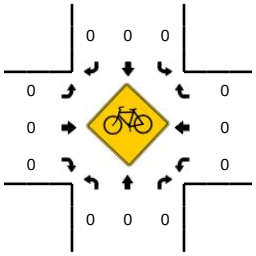
Peak 15-Min: 5:10 PM -- 5:25 PM

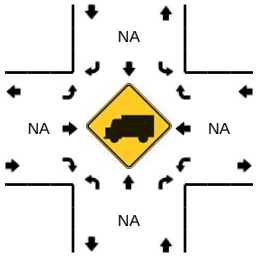


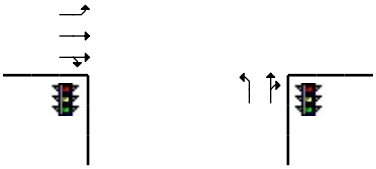


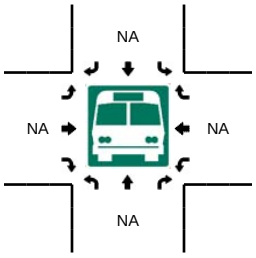












5-Min Count Period Beginning At	Granite Dr (Northbound)				Granite Dr (Southbound)				Rocklin Rd (Eastbound)				Rocklin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:55 PM	7	1	3	0	27	0	15	0	10	37	2	0	1	57	30	0	190	2603
4:00 PM	2	0	0	0	30	2	10	0	24	57	0	0	1	64	37	0	227	2614
4:05 PM	4	0	2	0	35	1	14	0	19	42	1	0	0	49	36	0	203	2627
4:10 PM	1	2	2	0	37	0	16	0	25	47	1	0	3	76	32	1	243	2660
4:15 PM	7	3	5	0	20	0	22	0	17	43	1	0	4	68	41	0	231	2675
4:20 PM	0	2	0	0	43	0	19	0	12	53	1	0	1	52	54	0	237	2667
4:25 PM	5	1	0	0	26	0	17	0	26	52	0	0	2	73	46	2	250	2674
4:30 PM	3	1	0	0	51	0	19	0	11	35	0	1	1	64	44	1	231	2697
4:35 PM	1	0	2	0	43	1	22	0	24	46	3	0	3	69	52	0	266	2747
4:40 PM	2	3	1	0	49	1	23	0	16	55	1	0	4	72	41	0	268	2755
4:45 PM	2	2	4	0	36	2	21	0	23	54	0	1	3	61	39	0	248	2808
4:50 PM	2	1	3	0	43	1	18	0	17	53	1	1	6	63	51	0	260	2854
4:55 PM	3	1	4	0	40	0	14	0	13	48	3	0	3	56	40	0	225	2889
5:00 PM	3	3	0	0	56	1	14	0	21	36	0	0	2	51	40	0	227	2889
5:05 PM	3	4	3	0	62	1	21	0	21	65	1	1	6	47	34	1	270	2956
5:10 PM	4	2	0	0	58	2	16	0	20	59	1	1	3	67	42	1	276	2989
5:15 PM	4	5	1	0	33	1	26	0	11	42	2	0	1	66	35	0	227	2985
5:20 PM	4	3	0	0	51	4	22	0	25	63	2	0	2	51	61	0	288	3036
5:25 PM	4	2	1	0	42	3	16	0	12	51	2	0	2	49	42	0	226	3012
5:30 PM	2	2	4	0	36	1	24	0	16	50	1	0	3	58	47	0	244	3025
5:35 PM	6	0	1	0	41	0	16	0	12	54	2	0	2	71	37	0	242	3001
5:40 PM	5	1	2	0	51	1	28	0	13	52	2	0	3	47	32	0	237	2970
5:45 PM	3	2	0	0	28	3	24	0	14	53	1	0	2	55	32	0	217	2939
5:50 PM	1	6	1	0	23	1	20	0	19	46	0	0	2	50	34	0	203	2882

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	48	40	4	0	568	28	256	0	224	656	20	4	24	736	552	4	3164
Heavy Trucks	0	0	0		0	0	0		4	4	0		4	4	0		16
Pedestrians		4				8				4				0			16
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 3/20/2012 3:29 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-80 WB Ramps -- Rocklin Rd

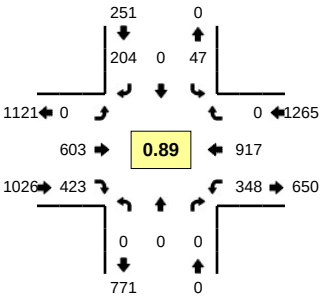
QC JOB #: 10680101

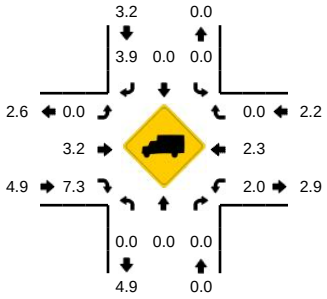
CITY/STATE: Rocklin, CA

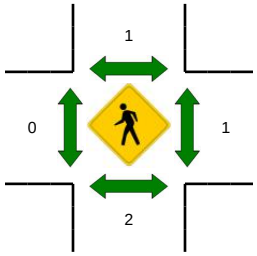
DATE: Thu, Nov 17 2011

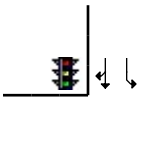
Peak-Hour: 7:45 AM -- 8:45 AM

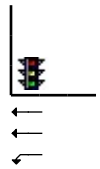
Peak 15-Min: 7:55 AM -- 8:10 AM

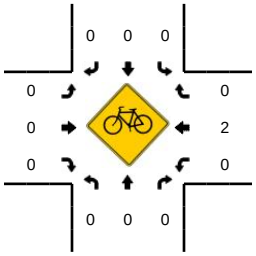


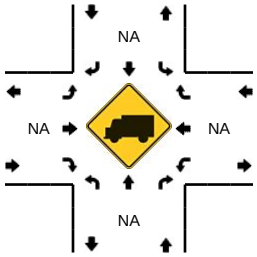


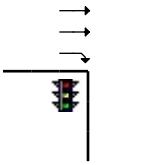


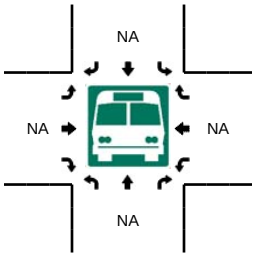












5-Min Count Period Beginning At	I-80 WB Ramps (Northbound)				I-80 WB Ramps (Southbound)				Rocklin Rd (Eastbound)				Rocklin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:15 AM	0	0	0	0	4	0	13	0	0	36	24	0	30	45	0	0	152	1430
7:20 AM	0	0	0	0	7	0	12	0	0	41	22	0	38	39	0	0	159	1526
7:25 AM	0	0	0	0	2	0	16	0	0	45	23	0	45	52	0	0	183	1629
7:30 AM	0	0	0	0	5	0	6	0	0	46	19	0	19	41	0	0	136	1681
7:35 AM	0	0	0	0	6	0	11	0	0	72	27	0	23	59	0	0	198	1780
7:40 AM	0	0	0	0	3	0	8	0	0	55	30	0	24	55	0	0	175	1838
7:45 AM	0	0	0	0	3	0	18	0	0	68	25	0	32	70	0	0	216	1912
7:50 AM	0	0	0	0	5	0	19	0	0	53	23	0	28	71	0	0	199	1966
7:55 AM	0	0	0	0	9	0	23	0	0	46	21	0	41	108	0	0	248	2075
8:00 AM	0	0	0	0	5	0	19	0	0	41	39	0	35	100	0	0	239	2181
8:05 AM	0	0	0	0	0	0	16	0	0	40	40	0	31	98	0	0	225	2267
8:10 AM	0	0	0	0	1	0	21	0	0	51	41	0	25	72	0	0	211	2341
8:15 AM	0	0	0	0	5	0	23	0	0	46	38	0	23	74	0	0	209	2398
8:20 AM	0	0	0	0	4	0	18	0	0	46	40	0	36	77	0	0	221	2460
8:25 AM	0	0	0	0	5	0	14	0	0	65	41	0	22	65	0	0	212	2489
8:30 AM	0	0	0	0	3	0	10	0	0	53	26	0	24	60	0	0	176	2529
8:35 AM	0	0	0	0	4	0	11	0	0	43	31	0	25	54	0	0	168	2499
8:40 AM	0	0	0	0	3	0	12	0	0	51	58	0	26	68	0	0	218	2542
8:45 AM	0	0	0	0	3	0	8	0	0	49	52	0	32	52	0	0	196	2522
8:50 AM	0	0	0	0	6	0	14	0	0	48	43	0	25	72	0	0	208	2531
8:55 AM	0	0	0	0	5	0	14	0	0	40	33	0	28	66	0	0	186	2469
9:00 AM	0	0	0	0	6	0	11	0	0	41	41	0	17	57	0	0	173	2403
9:05 AM	0	0	0	0	6	0	8	0	0	56	34	0	28	48	0	0	180	2358
9:10 AM	0	0	0	0	6	0	9	0	0	61	32	0	31	42	0	0	181	2328

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	56	0	232	0	0	508	400	0	428	1224	0	0	2848
Heavy Trucks	0	0	0		0	0	8		0	12	16		16	20	0		72
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/1/2011 10:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-80 WB Ramps -- Rocklin Rd

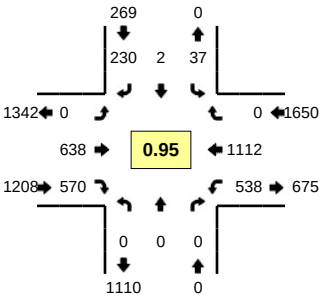
QC JOB #: 10680102

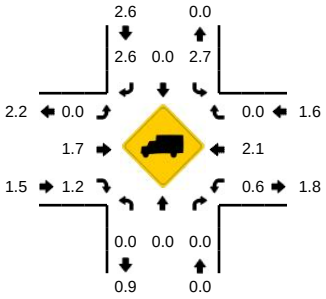
CITY/STATE: Rocklin, CA

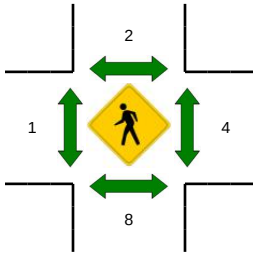
DATE: Tue, Nov 15 2011

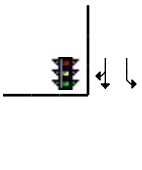
Peak-Hour: 4:20 PM -- 5:20 PM

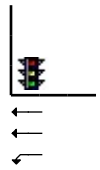
Peak 15-Min: 4:30 PM -- 4:45 PM

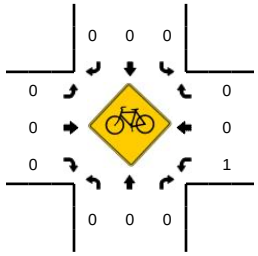


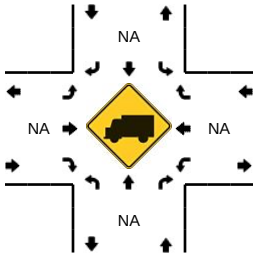


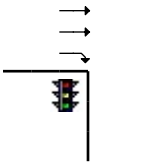


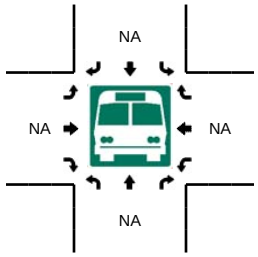












5-Min Count Period Beginning At	I-80 WB Ramps (Northbound)				I-80 WB Ramps (Southbound)				Rocklin Rd (Eastbound)				Rocklin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:50 PM	0	0	0	0	4	0	18	0	0	42	31	0	41	71	0	0	207	
3:55 PM	0	0	0	0	3	0	21	0	0	53	32	0	37	74	0	0	220	2821
4:00 PM	0	0	0	0	5	0	17	0	0	45	33	0	40	88	0	0	228	2846
4:05 PM	0	0	0	0	2	0	21	0	0	39	39	0	33	89	0	0	223	2859
4:10 PM	0	0	0	0	1	0	13	0	0	40	48	0	43	98	0	0	243	2857
4:15 PM	0	0	0	0	6	0	23	0	0	39	35	0	42	90	0	0	235	2842
4:20 PM	0	0	0	0	3	1	21	0	0	52	46	0	31	98	0	0	252	2815
4:25 PM	0	0	0	0	6	1	19	0	0	46	23	0	58	97	0	0	250	2821
4:30 PM	0	0	0	0	7	0	25	0	0	39	63	0	31	97	0	0	262	2831
4:35 PM	0	0	0	0	2	0	23	0	0	45	52	0	57	99	0	0	278	2852
4:40 PM	0	0	0	0	4	0	27	0	0	53	55	0	48	92	0	0	279	2911
4:45 PM	0	0	0	0	1	0	25	0	0	59	35	0	48	91	0	0	259	2936
4:50 PM	0	0	0	0	2	0	12	0	0	70	41	0	31	92	0	0	248	2977
4:55 PM	0	0	0	0	2	0	11	0	0	49	41	0	58	81	0	0	242	2999
5:00 PM	0	0	0	0	1	0	14	0	0	55	51	0	59	111	0	0	291	3062
5:05 PM	0	0	0	0	2	0	18	0	0	67	68	0	32	78	0	0	265	3104
5:10 PM	0	0	0	0	6	0	18	0	0	49	49	0	38	83	0	0	243	3104
5:15 PM	0	0	0	0	1	0	17	0	0	54	46	0	47	93	0	0	258	3127
5:20 PM	0	0	0	0	4	0	32	0	0	46	38	0	30	72	0	0	222	3097
5:25 PM	0	0	0	0	5	0	20	0	0	65	38	0	21	89	0	0	238	3085
5:30 PM	0	0	0	0	2	0	25	0	0	52	45	0	32	87	0	0	243	3066
5:35 PM	0	0	0	0	3	0	18	0	0	55	45	0	33	84	0	0	238	3026
5:40 PM	0	0	0	0	6	0	9	0	0	49	43	0	27	84	0	0	218	2965
5:45 PM	0	0	0	0	4	0	16	0	0	49	38	0	25	69	0	0	201	2907

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	52	0	300	0	0	548	680	0	544	1152	0	0	3276
Heavy Trucks	0	0	0		0	0	8		0	4	8		8	28	0		56
Pedestrians		24				8				0				8			40
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/1/2011 10:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-80 EB Ramps -- Rocklin Rd

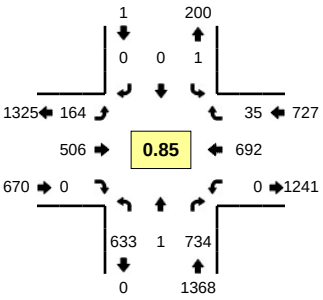
QC JOB #: 10680103

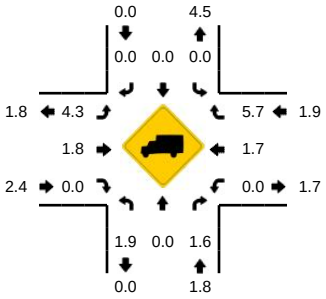
CITY/STATE: Rocklin, CA

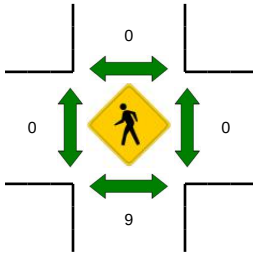
DATE: Tue, Dec 06 2011

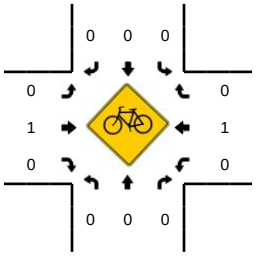
Peak-Hour: 7:35 AM -- 8:35 AM

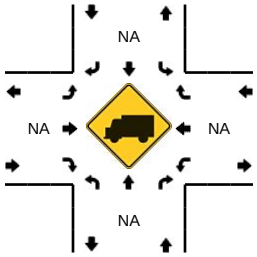
Peak 15-Min: 7:45 AM -- 8:00 AM

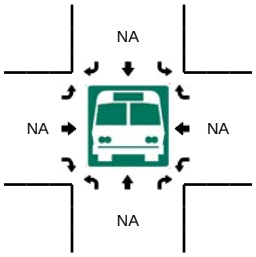












5-Min Count Period Beginning At	I-80 EB Ramps (Northbound)				I-80 EB Ramps (Southbound)				Rocklin Rd (Eastbound)				Rocklin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:05 AM	21	0	29	0	0	0	0	0	4	20	0	0	0	40	1	0	115	1094
7:10 AM	24	0	28	0	0	0	0	0	19	27	0	0	0	37	2	0	137	1159
7:15 AM	31	0	36	0	0	0	0	0	11	25	0	0	0	41	3	0	147	1252
7:20 AM	26	0	41	0	0	0	0	0	11	21	0	0	0	45	1	0	145	1343
7:25 AM	36	0	54	0	0	0	0	0	9	27	0	0	0	42	5	0	173	1454
7:30 AM	20	0	52	0	0	0	0	0	16	35	0	0	0	31	2	0	156	1542
7:35 AM	37	0	83	0	0	0	0	0	23	45	0	0	0	35	3	0	226	1697
7:40 AM	34	0	84	0	0	0	0	0	19	40	0	0	0	42	1	0	220	1816
7:45 AM	63	0	96	0	0	0	0	0	16	67	0	0	0	45	3	0	290	1990
7:50 AM	52	0	87	0	0	0	0	0	10	50	0	0	0	43	4	0	246	2114
7:55 AM	75	0	77	0	0	0	0	0	12	40	0	0	0	67	3	0	274	2258
8:00 AM	88	0	72	0	0	0	0	0	9	29	0	0	0	78	3	0	279	2408
8:05 AM	61	0	42	0	0	0	0	0	9	37	0	0	0	78	0	0	227	2520
8:10 AM	49	1	37	0	0	0	0	0	17	36	0	0	0	68	3	0	211	2594
8:15 AM	63	0	42	0	0	0	0	0	15	36	0	0	0	57	6	0	219	2666
8:20 AM	37	0	39	0	0	0	0	0	15	37	0	0	0	66	2	0	196	2717
8:25 AM	41	0	32	0	0	0	0	0	7	44	0	0	0	56	3	0	183	2727
8:30 AM	33	0	43	0	1	0	0	0	12	45	0	0	0	57	4	0	195	2766
8:35 AM	31	0	36	0	0	0	0	0	6	15	0	0	0	66	4	0	158	2698
8:40 AM	32	0	51	0	0	0	0	0	10	35	0	0	0	40	4	0	172	2650
8:45 AM	39	0	58	0	0	0	0	0	11	27	0	0	0	57	3	0	195	2555
8:50 AM	42	0	46	0	0	0	0	0	9	29	0	0	0	62	3	0	191	2500
8:55 AM	45	0	60	0	0	0	0	0	17	40	0	0	0	50	3	0	215	2441
9:00 AM	37	0	63	0	0	0	0	0	9	40	0	0	0	57	6	0	212	2374

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	760	0	1040	0	0	0	0	0	152	628	0	0	0	620	40	0	3240
Heavy Trucks	8	0	12		0	0	0		12	16	0		0	8	4		60
Pedestrians		4				0				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/9/2011 4:41 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: I-80 EB Ramps -- Rocklin Rd

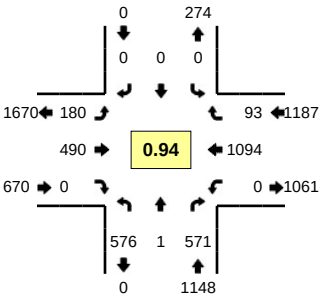
QC JOB #: 10680104

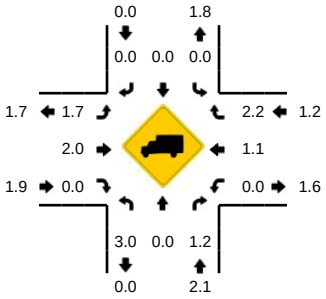
CITY/STATE: Rocklin, CA

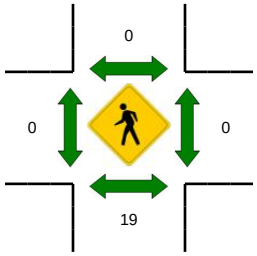
DATE: Tue, Nov 15 2011

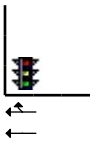
Peak-Hour: 4:20 PM -- 5:20 PM

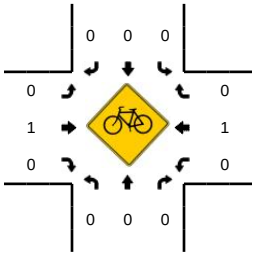
Peak 15-Min: 4:40 PM -- 4:55 PM

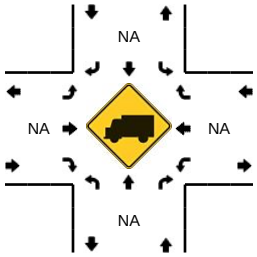


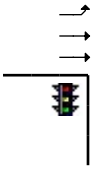


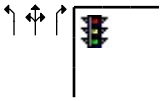


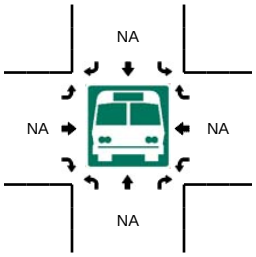












5-Min Count Period Beginning At	I-80 EB Ramps (Northbound)				I-80 EB Ramps (Southbound)				Rocklin Rd (Eastbound)				Rocklin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:50 PM	38	0	39	0	0	0	0	0	15	34	0	0	0	89	1	0	216	
3:55 PM	41	0	40	0	0	0	0	0	10	45	0	0	0	75	10	0	221	2751
4:00 PM	37	0	39	0	0	0	0	0	16	41	0	0	0	68	4	0	205	2779
4:05 PM	43	0	47	0	0	0	0	0	10	32	0	0	0	89	7	0	228	2811
4:10 PM	59	0	36	0	0	0	0	0	14	27	0	0	0	74	4	0	214	2820
4:15 PM	53	0	47	0	0	0	0	0	15	30	0	0	0	81	9	0	235	2806
4:20 PM	45	0	58	0	0	0	0	0	8	37	0	0	0	105	9	0	262	2827
4:25 PM	59	0	30	0	0	0	0	0	14	46	0	0	0	62	2	0	213	2783
4:30 PM	58	0	42	0	0	0	0	0	13	38	0	0	0	89	8	0	248	2766
4:35 PM	51	0	41	0	0	0	0	0	16	27	0	0	0	92	6	0	233	2745
4:40 PM	42	0	57	0	0	0	0	0	16	30	0	0	0	106	7	0	258	2760
4:45 PM	53	0	62	0	0	0	0	0	19	41	0	0	0	91	6	0	272	2805
4:50 PM	53	0	59	0	0	0	0	0	16	46	0	0	0	88	9	0	271	2860
4:55 PM	49	1	40	0	0	0	0	0	22	50	0	0	0	77	6	0	245	2884
5:00 PM	29	0	46	0	0	0	0	0	12	40	0	0	0	112	7	0	246	2925
5:05 PM	47	0	38	0	0	0	0	0	12	39	0	0	0	111	12	0	259	2956
5:10 PM	46	0	48	0	0	0	0	0	23	45	0	0	0	79	8	0	249	2991
5:15 PM	44	0	50	0	0	0	0	0	9	51	0	0	0	82	13	0	249	3005
5:20 PM	46	0	44	0	0	0	0	0	21	36	0	0	0	75	10	0	232	2975
5:25 PM	43	0	50	0	0	0	0	0	14	46	0	0	0	73	4	0	230	2992
5:30 PM	49	1	49	0	0	0	0	0	17	48	0	0	0	68	5	0	237	2981
5:35 PM	45	0	43	0	0	0	0	0	17	39	0	0	0	61	6	0	211	2959
5:40 PM	40	0	50	0	0	0	0	0	17	43	0	0	0	81	3	0	234	2935
5:45 PM	39	0	57	0	0	0	0	0	9	45	0	0	0	60	3	0	213	2876

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	592	0	712	0	0	0	0	0	204	468	0	0	0	1140	88	0	3204
Heavy Trucks	28	0	12		0	0	0		0	8	0		0	8	0		56
Pedestrians		24				0				0				0			24
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/1/2011 10:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Aguilar Rd -- Rocklin Rd

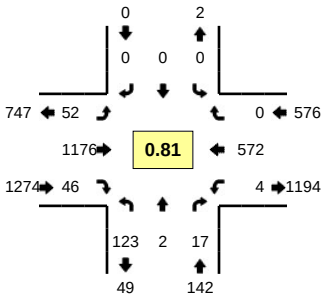
QC JOB #: 10680111

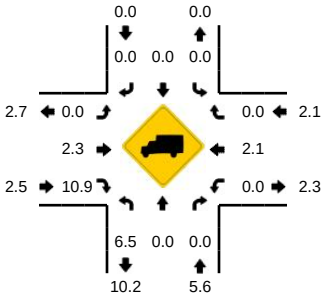
CITY/STATE: Rocklin, CA

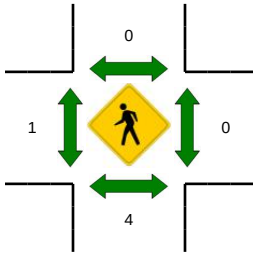
DATE: Wed, Nov 16 2011

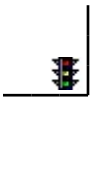
Peak-Hour: 7:30 AM -- 8:30 AM

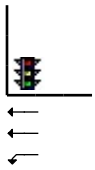
Peak 15-Min: 7:45 AM -- 8:00 AM

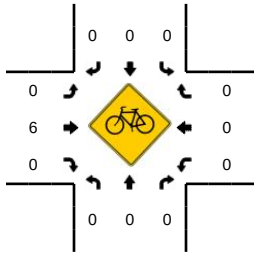


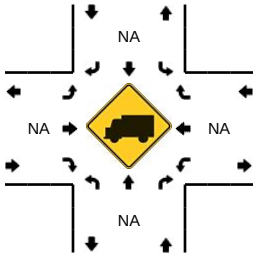


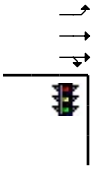


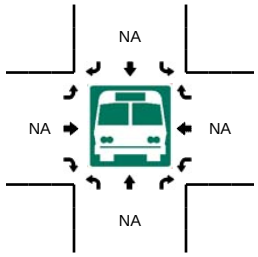












5-Min Count Period Beginning At	Aguilar Rd (Northbound)				Aguilar Rd (Southbound)				Rocklin Rd (Eastbound)				Rocklin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	8	0	2	0	0	0	0	0	0	52	3	4	0	22	0	0	91	715
7:05 AM	11	0	0	0	0	0	0	0	0	59	3	3	0	28	0	0	104	789
7:10 AM	6	0	0	0	0	0	0	0	0	60	1	7	2	45	0	0	121	879
7:15 AM	9	0	0	0	0	0	0	0	0	49	3	4	0	34	0	0	99	948
7:20 AM	15	0	0	0	0	0	0	0	0	61	5	5	1	29	0	0	116	1021
7:25 AM	6	0	0	0	0	0	0	0	1	70	1	5	0	29	0	0	112	1081
7:30 AM	9	0	2	0	0	0	0	0	0	102	2	10	0	35	0	1	161	1191
7:35 AM	8	1	2	0	0	0	0	0	0	119	1	6	0	29	0	0	166	1306
7:40 AM	9	0	1	0	0	0	0	0	0	115	2	3	1	28	0	0	159	1400
7:45 AM	10	0	4	0	0	0	0	0	0	156	5	3	0	30	0	0	208	1529
7:50 AM	14	0	0	0	0	0	0	0	0	134	8	2	0	39	0	0	197	1638
7:55 AM	10	0	1	0	0	0	0	0	0	118	4	0	0	76	0	0	209	1743
8:00 AM	16	0	1	0	0	0	0	0	0	86	3	4	0	47	0	0	157	1809
8:05 AM	7	0	1	0	0	0	0	0	0	84	3	1	0	65	0	0	161	1866
8:10 AM	13	0	1	0	0	0	0	0	0	70	2	7	0	66	0	0	159	1904
8:15 AM	9	0	2	0	0	0	0	0	0	69	4	2	2	61	0	0	149	1954
8:20 AM	11	1	2	0	0	0	0	0	0	63	7	9	0	40	0	0	133	1971
8:25 AM	7	0	0	0	0	0	0	0	0	60	5	5	0	56	0	0	133	1992
8:30 AM	5	0	1	0	0	0	0	0	0	66	4	4	2	51	0	2	135	1966
8:35 AM	2	0	1	0	0	0	0	0	0	73	1	5	1	44	0	1	128	1928
8:40 AM	7	0	1	0	0	0	0	0	0	64	3	4	0	50	0	1	130	1899
8:45 AM	5	0	2	0	0	0	0	0	0	72	6	3	1	39	0	0	128	1819
8:50 AM	4	0	2	0	0	0	0	0	0	91	0	4	1	42	0	0	144	1766
8:55 AM	6	0	2	0	0	0	0	0	0	100	5	5	0	40	0	1	159	1716

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	136	0	20	0	0	0	0	0	0	1632	68	20	0	580	0	0	2456
Heavy Trucks	8	0	0		0	0	0		0	20	0		0	8	0		36
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	2	0		0	0	0		2
Railroad																	
Stopped Buses																	

Comments:

Report generated on 3/20/2012 3:29 PM

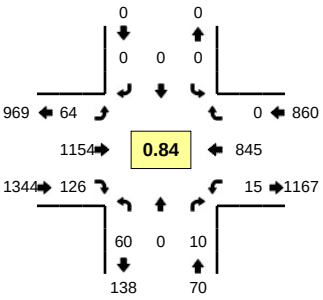
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

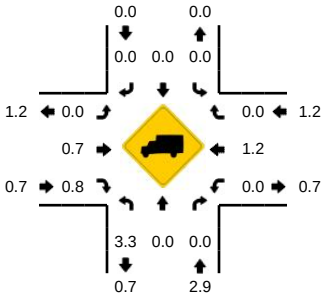
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

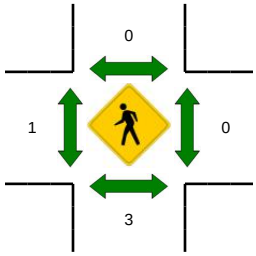
LOCATION: Aguilar Rd -- Rocklin Rd | **QC JOB #:** 10680112

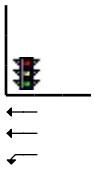
CITY/STATE: Rocklin, CA | **DATE:** Tue, Nov 15 2011

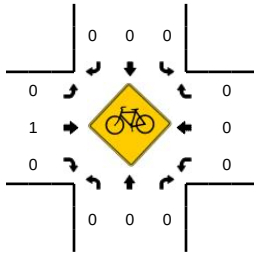
Peak-Hour: 5:40 PM -- 6:40 PM
Peak 15-Min: 6:10 PM -- 6:25 PM

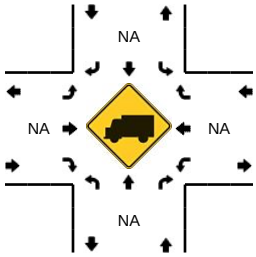


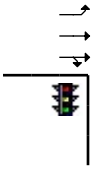


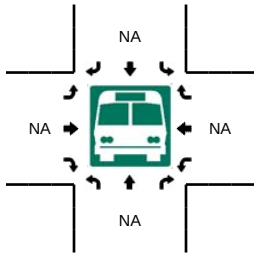












5-Min Count Period Beginning At	Aguilar Rd (Northbound)				Aguilar Rd (Southbound)				Rocklin Rd (Eastbound)				Rocklin Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
5:00 PM	9	0	2	0	0	0	0	0	0	68	10	10	0	106	0	1	206	2163
5:05 PM	7	0	0	0	0	0	0	0	0	84	16	2	2	100	0	0	211	2215
5:10 PM	8	0	0	0	0	0	0	0	0	61	15	4	0	77	0	1	166	2238
5:15 PM	2	0	1	0	0	0	0	0	0	77	12	5	1	75	0	0	173	2208
5:20 PM	4	0	0	0	0	0	0	0	0	85	5	9	0	76	0	0	179	2212
5:25 PM	3	0	0	0	0	0	0	0	0	95	8	10	1	57	0	0	174	2233
5:30 PM	5	0	2	0	0	0	0	0	0	89	7	6	0	66	0	1	176	2245
5:35 PM	7	0	0	0	0	0	0	0	0	50	9	4	1	69	0	1	141	2202
5:40 PM	5	0	0	0	0	0	0	0	0	96	13	6	1	49	0	1	171	2183
5:45 PM	4	0	2	0	0	0	0	0	0	110	11	1	1	57	0	0	186	2162
5:50 PM	6	0	1	0	0	0	0	0	0	73	12	4	0	72	0	0	168	2135
5:55 PM	8	0	0	0	0	0	0	0	0	77	12	6	0	52	0	0	155	2106
6:00 PM	3	0	1	0	0	0	0	0	0	81	8	3	3	65	0	1	165	2065
6:05 PM	4	0	0	0	0	0	0	0	0	108	9	7	1	65	0	0	194	2048
6:10 PM	8	0	0	0	0	0	0	0	0	124	10	2	1	71	0	1	217	2099
6:15 PM	2	0	2	0	0	0	0	0	0	130	15	4	0	79	0	0	232	2158
6:20 PM	3	0	1	0	0	0	0	0	0	129	6	10	1	80	0	0	230	2209
6:25 PM	8	0	1	0	0	0	0	0	0	84	11	5	1	88	0	0	198	2233
6:30 PM	4	0	2	0	0	0	0	0	0	73	10	8	0	98	0	0	195	2252
6:35 PM	5	0	0	0	0	0	0	0	0	69	9	8	3	69	0	0	163	2274
6:40 PM	7	0	0	0	0	0	0	0	0	50	6	8	4	43	0	0	118	2221
6:45 PM	6	0	0	0	0	0	0	0	0	53	10	3	1	51	0	0	124	2159
6:50 PM	4	0	0	0	0	0	0	0	0	49	8	4	0	56	0	0	121	2112
6:55 PM	8	0	2	0	0	0	0	0	0	38	5	4	0	50	0	0	107	2064

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	52	0	12	0	0	0	0	0	0	1532	124	64	8	920	0	4	2716
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	4	0		4
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 12/1/2011 10:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

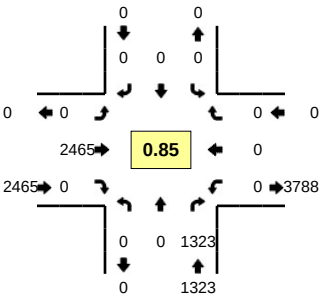
LOCATION: I-80 EB On Ramp from SR 65 -- I-80 EB

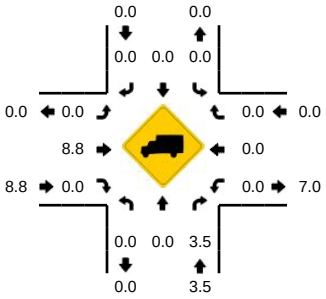
QC JOB #: 10680117

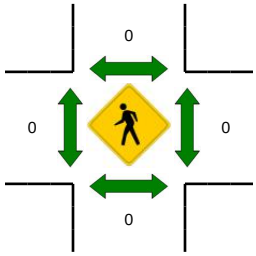
CITY/STATE: Rocklin, CA

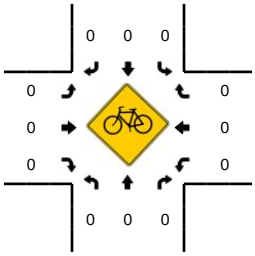
DATE: Wed, Nov 16 2011

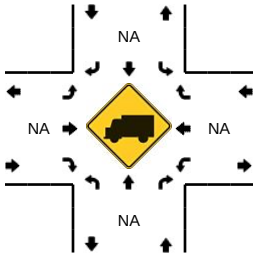
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

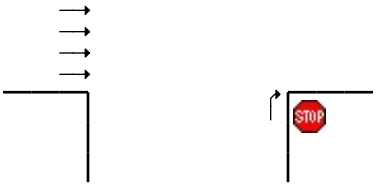


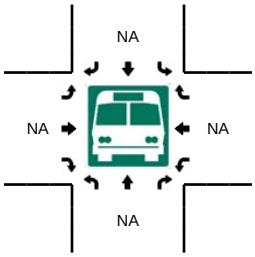












5-Min Count Period Beginning At	I-80 EB On Ramp from SR 65 (Northbound)				I-80 EB On Ramp from SR 65 (Southbound)				I-80 EB (Eastbound)				I-80 EB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	49	0	0	0	0	0	0	124	0	0	0	0	0	0	173	1877
7:05 AM	0	0	45	0	0	0	0	0	0	130	0	0	0	0	0	0	175	1947
7:10 AM	0	0	85	0	0	0	0	0	0	153	0	0	0	0	0	0	238	2082
7:15 AM	0	0	87	0	0	0	0	0	0	161	0	0	0	0	0	0	248	2216
7:20 AM	0	0	81	0	0	0	0	0	0	180	0	0	0	0	0	0	261	2358
7:25 AM	0	0	93	0	0	0	0	0	0	152	0	0	0	0	0	0	245	2443
7:30 AM	0	0	114	0	0	0	0	0	0	213	0	0	0	0	0	0	327	2615
7:35 AM	0	0	115	0	0	0	0	0	0	204	0	0	0	0	0	0	319	2770
7:40 AM	0	0	143	0	0	0	0	0	0	230	0	0	0	0	0	0	373	2947
7:45 AM	0	0	129	0	0	0	0	0	0	245	0	0	0	0	0	0	374	3143
7:50 AM	0	0	113	0	0	0	0	0	0	255	0	0	0	0	0	0	368	3322
7:55 AM	0	0	112	0	0	0	0	0	0	247	0	0	0	0	0	0	359	3460
8:00 AM	0	0	140	0	0	0	0	0	0	208	0	0	0	0	0	0	348	3635
8:05 AM	0	0	100	0	0	0	0	0	0	166	0	0	0	0	0	0	266	3726
8:10 AM	0	0	100	0	0	0	0	0	0	159	0	0	0	0	0	0	259	3747
8:15 AM	0	0	107	0	0	0	0	0	0	173	0	0	0	0	0	0	280	3779
8:20 AM	0	0	81	0	0	0	0	0	0	177	0	0	0	0	0	0	258	3776
8:25 AM	0	0	69	0	0	0	0	0	0	188	0	0	0	0	0	0	257	3788
8:30 AM	0	0	80	0	0	0	0	0	0	192	0	0	0	0	0	0	272	3733
8:35 AM	0	0	64	0	0	0	0	0	0	199	0	0	0	0	0	0	263	3677
8:40 AM	0	0	72	0	0	0	0	0	0	196	0	0	0	0	0	0	268	3572
8:45 AM	0	0	69	0	0	0	0	0	0	216	0	0	0	0	0	0	285	3483
8:50 AM	0	0	69	0	0	0	0	0	0	206	0	0	0	0	0	0	275	3390
8:55 AM	0	0	89	0	0	0	0	0	0	202	0	0	0	0	0	0	291	3322

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	1540	0	0	0	0	0	0	2920	0	0	0	0	0	0	4460
Heavy Trucks	0	0	36		0	0	0		0	176	0		0	0	0		212
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: Freeway Video Count

Report generated on 12/1/2011 10:53 AM

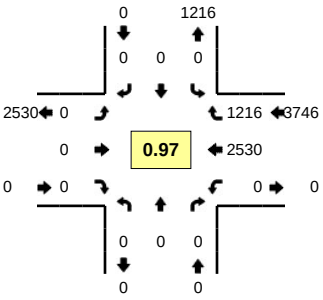
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

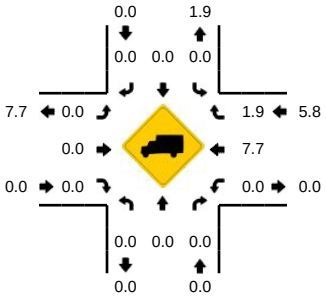
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

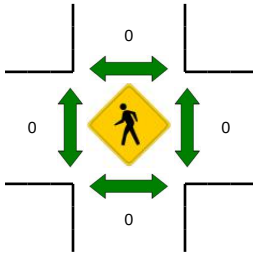
LOCATION: I-80 WB Off Ramp to SR 65 -- I-80 WB | **QC JOB #:** 10680116

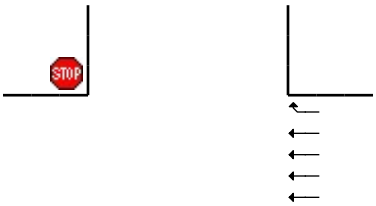
CITY/STATE: Rocklin, CA | **DATE:** Tue, Nov 15 2011

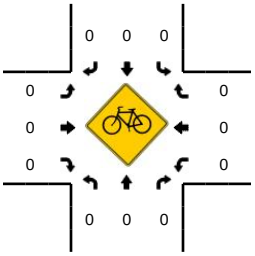
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:35 PM -- 4:50 PM

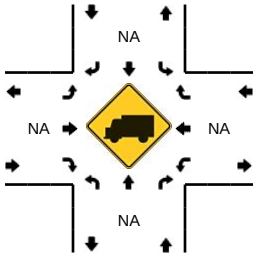


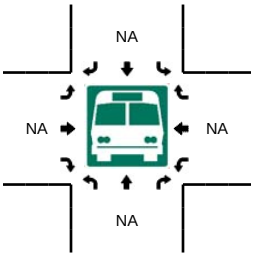












5-Min Count Period Beginning At	I-80 WB Off Ramp to SR 65 (Northbound)				I-80 WB Off Ramp to SR 65 (Southbound)				I-80 WB (Eastbound)				I-80 WB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	217	94	0	311	
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	199	100	0	299	
3:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	175	77	0	252	3680
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	192	87	0	279	3679
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	191	87	0	278	3655
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	211	94	0	305	3658
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	244	106	0	350	3703
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	204	96	0	300	3693
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	192	109	0	301	3688
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	198	92	0	290	3664
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	198	105	0	303	3616
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	223	98	0	321	3589
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	232	111	0	343	3621
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	201	88	0	289	3611
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	203	99	0	302	3661
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	196	105	0	301	3683
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	223	100	0	323	3728
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	216	107	0	323	3746
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	220	101	0	321	3717
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	215	91	0	306	3723
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	194	102	0	296	3718
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	203	86	0	289	3717
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	216	105	0	321	3735
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	211	108	0	319	3733

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	2612	1256	0	3868
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	224	24		248
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: Freeway Video Count

Report generated on 12/1/2011 10:53 AM

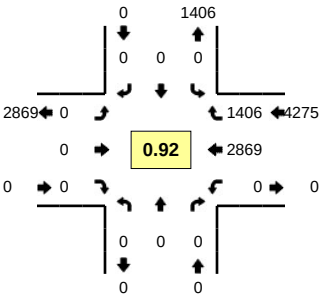
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

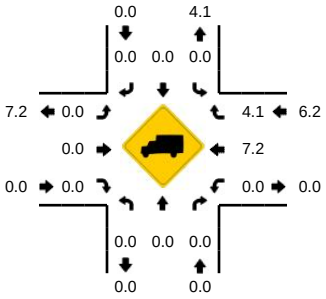
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

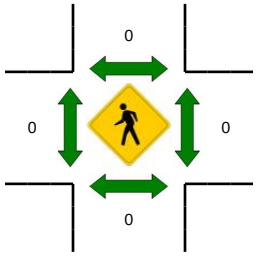
LOCATION: I-80 WB Off Ramp to SR 65 -- I-80 WB | **QC JOB #:** 10680115

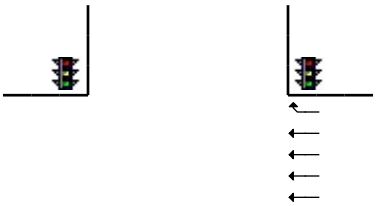
CITY/STATE: Rocklin, CA | **DATE:** Wed, Nov 16 2011

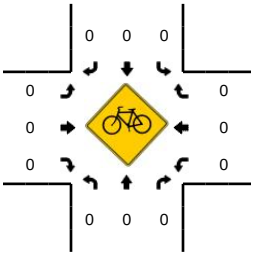
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:50 AM -- 8:05 AM

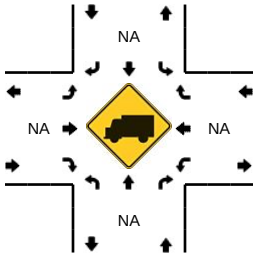


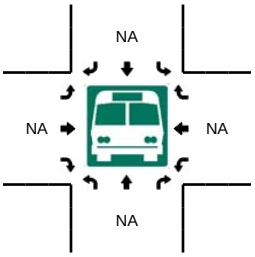












5-Min Count Period Beginning At	I-80 WB Off Ramp to SR 65 (Northbound)				I-80 WB Off Ramp to SR 65 (Southbound)				I-80 WB (Eastbound)				I-80 WB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	263	49	0	312	
6:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	238	83	0	321	2884
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	240	56	0	296	3021
7:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	228	70	0	298	3138
7:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	219	73	0	292	3238
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	238	84	0	322	3349
7:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	244	116	0	360	3514
7:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	238	101	0	339	3611
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	192	92	0	284	3680
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	230	99	0	329	3760
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	237	132	0	369	3843
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	212	118	0	330	3852
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	259	130	0	389	3929
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	280	136	0	416	4024
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	240	112	0	352	4080
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	234	135	0	369	4151
8:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	252	112	0	364	4223
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	251	123	0	374	4275
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	243	48	0	291	4206
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	269	42	0	311	4178
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	289	44	0	333	4227
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	250	42	0	292	4190
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	295	30	0	325	4146
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	282	42	0	324	4140

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	3116	1512	0	4628
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	224	48		272
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: Freeway Video Count

Report generated on 3/20/2012 3:29 PM

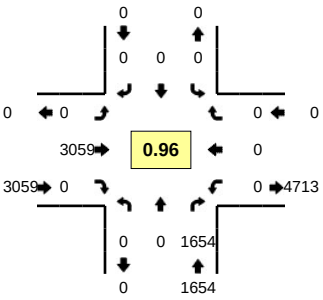
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

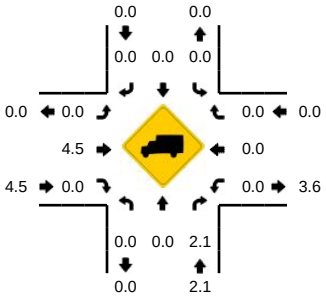
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

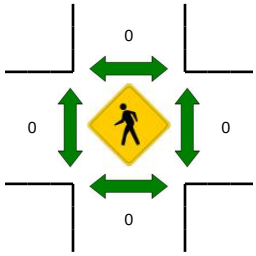
LOCATION: I-80 EB On Ramp from SR 65 -- I-80 EB | **QC JOB #:** 10680118

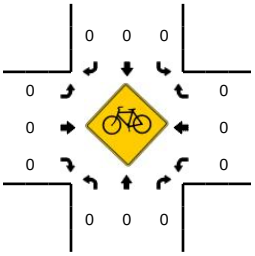
CITY/STATE: Rocklin, CA | **DATE:** Tue, Nov 15 2011

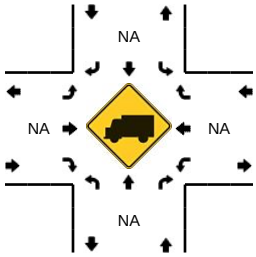
Peak-Hour: 4:35 PM -- 5:35 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

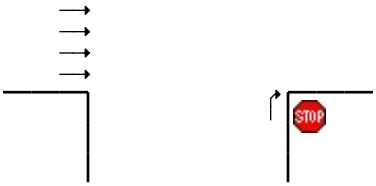


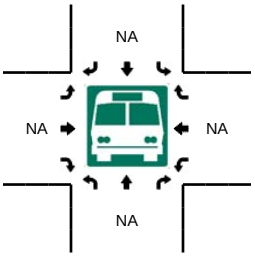












5-Min Count Period Beginning At	I-80 EB On Ramp from SR 65 (Northbound)				I-80 EB On Ramp from SR 65 (Southbound)				I-80 EB (Eastbound)				I-80 EB (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:05 PM	0	0	103	0	0	0	0	0	0	243	0	0	0	0	0	0	346	4313
4:10 PM	0	0	125	0	0	0	0	0	0	289	0	0	0	0	0	0	414	4392
4:15 PM	0	0	139	0	0	0	0	0	0	252	0	0	0	0	0	0	391	4419
4:20 PM	0	0	141	0	0	0	0	0	0	254	0	0	0	0	0	0	395	4440
4:25 PM	0	0	117	0	0	0	0	0	0	272	0	0	0	0	0	0	389	4460
4:30 PM	0	0	113	0	0	0	0	0	0	244	0	0	0	0	0	0	357	4468
4:35 PM	0	0	136	0	0	0	0	0	0	245	0	0	0	0	0	0	381	4486
4:40 PM	0	0	149	0	0	0	0	0	0	217	0	0	0	0	0	0	366	4485
4:45 PM	0	0	164	0	0	0	0	0	0	252	0	0	0	0	0	0	416	4523
4:50 PM	0	0	114	0	0	0	0	0	0	281	0	0	0	0	0	0	395	4559
4:55 PM	0	0	129	0	0	0	0	0	0	261	0	0	0	0	0	0	390	4621
5:00 PM	0	0	129	0	0	0	0	0	0	232	0	0	0	0	0	0	361	4601
5:05 PM	0	0	132	0	0	0	0	0	0	226	0	0	0	0	0	0	358	4613
5:10 PM	0	0	142	0	0	0	0	0	0	276	0	0	0	0	0	0	418	4617
5:15 PM	0	0	136	0	0	0	0	0	0	299	0	0	0	0	0	0	435	4661
5:20 PM	0	0	151	0	0	0	0	0	0	214	0	0	0	0	0	0	365	4631
5:25 PM	0	0	142	0	0	0	0	0	0	280	0	0	0	0	0	0	422	4664
5:30 PM	0	0	130	0	0	0	0	0	0	276	0	0	0	0	0	0	406	4713
5:35 PM	0	0	133	0	0	0	0	0	0	215	0	0	0	0	0	0	348	4680
5:40 PM	0	0	128	0	0	0	0	0	0	263	0	0	0	0	0	0	391	4705
5:45 PM	0	0	125	0	0	0	0	0	0	253	0	0	0	0	0	0	378	4667
5:50 PM	0	0	138	0	0	0	0	0	0	232	0	0	0	0	0	0	370	4642
5:55 PM	0	0	126	0	0	0	0	0	0	183	0	0	0	0	0	0	309	4561
6:00 PM	0	0	106	0	0	0	0	0	0	229	0	0	0	0	0	0	335	4535

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	1716	0	0	0	0	0	0	3172	0	0	0	0	0	0	4888
Heavy Trucks	0	0	28		0	0	0		0	140	0		0	0	0		168
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: Freeway Video Count

Report generated on 12/1/2011 10:53 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-029 Riverside-I80 WB
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Riverside Avenue Southbound				I-80 Westbound Ramps Westbound				Riverside Avenue Northbound				I-80 Westbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	0	53	232	285	19	0	17	36	0	59	30	89	0	0	0	0	410
06:15	0	79	295	374	27	0	25	52	0	89	33	122	0	0	0	0	548
06:30	0	100	347	447	33	0	29	62	0	129	67	196	0	0	0	0	705
06:45	0	113	310	423	55	0	36	91	1	144	73	218	0	0	0	0	732
Total	0	345	1184	1529	134	0	107	241	1	421	203	625	0	0	0	0	2395
07:00	0	152	321	473	58	0	40	98	0	138	81	219	0	0	0	0	790
07:15	0	200	336	536	79	0	37	116	0	212	100	312	0	0	0	0	964
07:30	0	208	320	528	54	0	43	97	0	199	64	263	0	0	0	0	888
07:45	0	189	262	451	64	0	63	127	0	295	37	332	0	0	0	0	910
Total	0	749	1239	1988	255	0	183	438	0	844	282	1126	0	0	0	0	3552
08:00	0	177	253	430	83	0	83	166	0	244	23	267	0	0	0	0	863
08:15	0	207	269	476	85	0	67	152	0	284	27	311	0	0	0	0	939
08:30	0	145	259	404	78	0	66	144	0	209	39	248	0	0	0	0	796
08:45	0	154	223	377	81	0	77	158	0	225	29	254	0	0	0	0	789
Total	0	683	1004	1687	327	0	293	620	0	962	118	1080	0	0	0	0	3387
09:00	0	152	200	352	76	0	75	151	0	188	28	216	0	0	0	0	719
09:15	0	116	211	327	64	0	82	146	0	219	20	239	0	0	0	0	712
09:30	0	133	199	332	64	0	74	138	0	200	25	225	0	0	0	0	695
09:45	0	141	196	337	66	0	60	126	0	198	23	221	0	0	0	0	684
Total	0	542	806	1348	270	0	291	561	0	805	96	901	0	0	0	0	2810
15:00	0	159	171	330	90	0	81	171	0	342	26	368	0	0	0	0	869
15:15	0	185	178	363	89	0	62	151	0	372	45	417	0	0	0	0	931
15:30	0	155	204	359	116	0	73	189	0	350	37	387	0	0	0	0	935
15:45	0	191	190	381	93	0	81	174	0	360	49	409	0	0	0	0	964
Total	0	690	743	1433	388	0	297	685	0	1424	157	1581	0	0	0	0	3699
16:00	0	200	216	416	109	0	59	168	0	350	57	407	0	0	0	0	991
16:15	0	178	206	384	130	0	86	216	0	346	47	393	0	0	0	0	993
16:30	0	207	199	406	116	0	71	187	0	408	44	452	0	0	0	0	1045

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-029 Riverside-I80 WB
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	Riverside Avenue Southbound				I-80 Westbound Ramps Westbound				Riverside Avenue Northbound				I-80 Westbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	0	192	231	423	130	0	62	192	0	391	53	444	0	0	0	0	1059
Total	0	777	852	1629	485	0	278	763	0	1495	201	1696	0	0	0	0	4088
17:00	0	185	255	440	121	0	66	187	0	376	44	420	0	0	0	0	1047
17:15	0	217	269	486	131	0	72	203	0	378	64	442	0	0	0	0	1131
17:30	0	193	215	408	116	0	55	171	0	434	54	488	0	0	0	0	1067
17:45	0	177	190	367	123	0	47	170	0	363	37	400	0	0	0	0	937
Total	0	772	929	1701	491	0	240	731	0	1551	199	1750	0	0	0	0	4182
18:00	0	158	199	357	88	0	49	137	0	344	45	389	0	0	0	0	883
18:15	0	155	156	311	95	0	42	137	0	351	37	388	0	0	0	0	836
18:30	0	111	130	241	87	0	51	138	0	345	34	379	0	0	0	0	758
18:45	0	116	129	245	67	0	50	117	0	230	28	258	0	0	0	0	620
Total	0	540	614	1154	337	0	192	529	0	1270	144	1414	0	0	0	0	3097
Grand Total	0	5098	7371	12469	2687	0	1881	4568	1	8772	1400	10173	0	0	0	0	27210
Apprch %	0	40.9	59.1		58.8	0	41.2		0	86.2	13.8		0	0	0		
Total %	0	18.7	27.1	45.8	9.9	0	6.9	16.8	0	32.2	5.1	37.4	0	0	0	0	
Unshifted	0	5045	7331	12376	2648	0	1842	4490	0	8686	1384	10070	0	0	0	0	26936
% Unshifted	0	99	99.5	99.3	98.5	0	97.9	98.3	0	99	98.9	99	0	0	0	0	99
Bank 2	0	53	40	93	39	0	39	78	1	86	16	103	0	0	0	0	274
% Bank 2	0	1	0.5	0.7	1.5	0	2.1	1.7	100	1	1.1	1	0	0	0	0	1

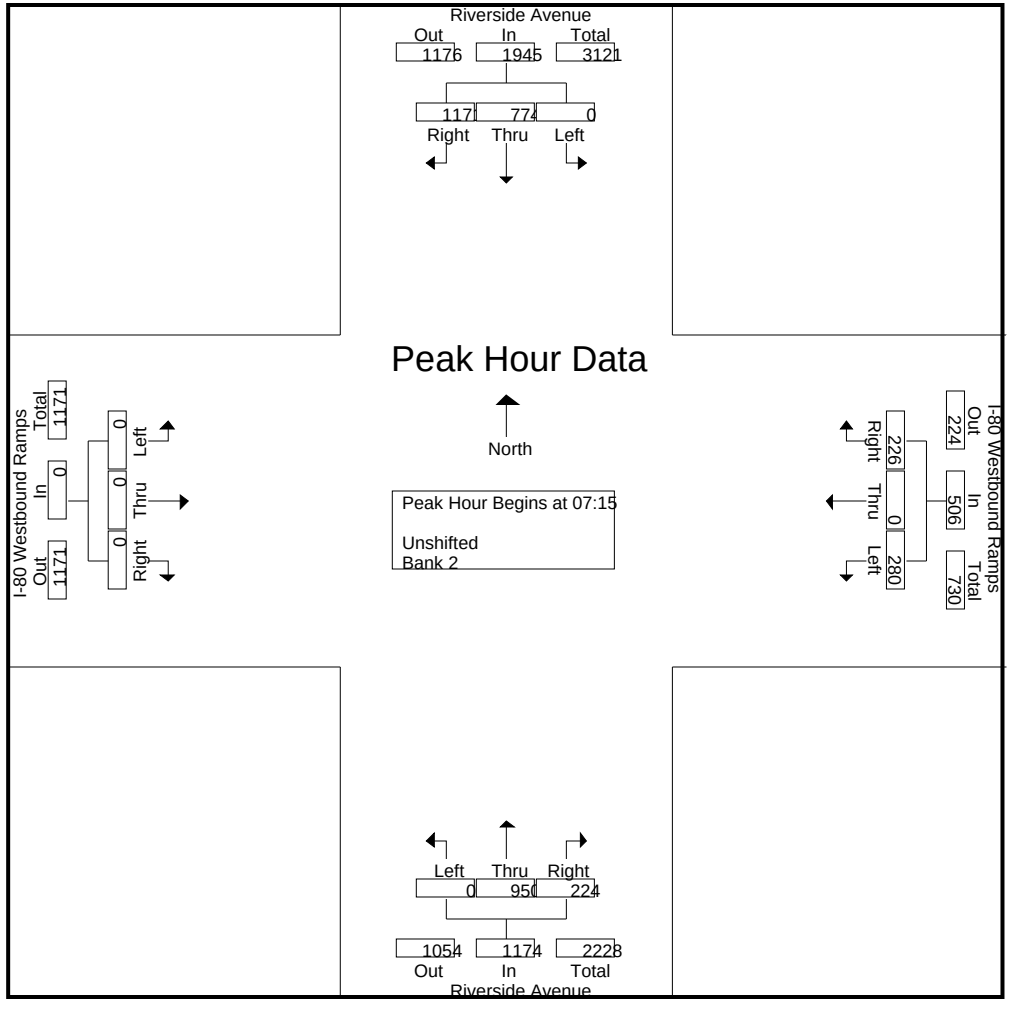
	Riverside Avenue Southbound				I-80 Westbound Ramps Westbound				Riverside Avenue Northbound				I-80 Westbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	0	200	**336**	**536**	79	0	37	116	0	212	**100**	312	0	0	0	0	**964**
07:30	0	**208**	320	528	54	0	43	97	0	199	64	263	0	0	0	0	888
07:45	0	189	262	451	64	0	63	127	0	**295**	37	**332**	0	0	0	0	910
08:00	0	177	253	430	**83**	0	**83**	**166**	0	244	23	267	0	0	0	0	863
Total Volume	0	774	1171	1945	280	0	226	506	0	950	224	1174	0	0	0	0	3625
% App. Total	0	39.8	60.2		55.3	0	44.7		0	80.9	19.1		0	0	0		
PHF	.000	.930	.871	.907	.843	.000	.681	.762	.000	.805	.560	.884	.000	.000	.000	.000	.940

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-029 Riverside-I80 WB
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-029 Riverside-I80 WB
Site Code : 00000000
Start Date : 1/31/2012

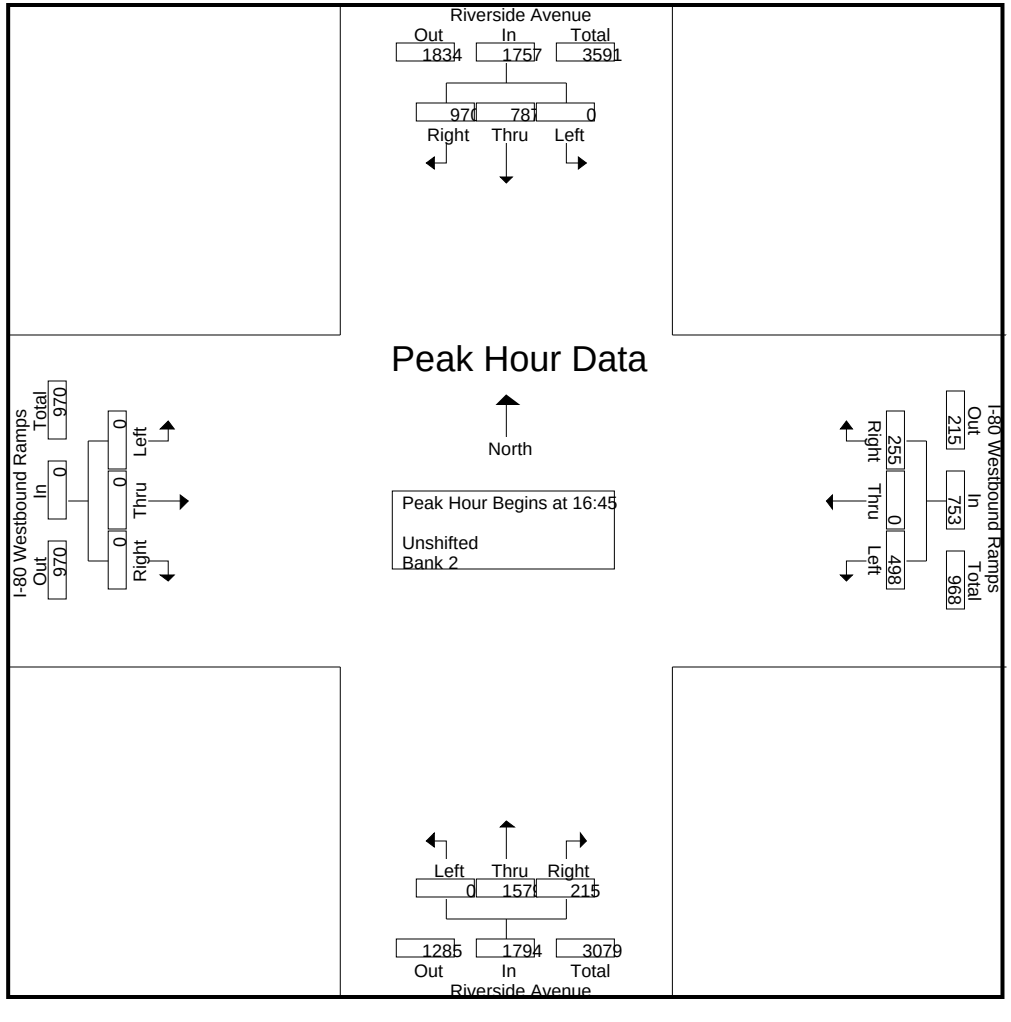
	Riverside Avenue Southbound				I-80 Westbound Ramps Westbound				Riverside Avenue Northbound				I-80 Westbound Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	0	192	231	423	130	0	62	192	0	391	53	444	0	0	0	0	1059
17:00	0	185	255	440	121	0	66	187	0	376	44	420	0	0	0	0	1047
17:15	0	**217**	**269**	**486**	**131**	0	**72**	**203**	0	378	**64**	442	0	0	0	0	**1131**
17:30	0	193	215	408	116	0	55	171	0	**434**	54	**488**	0	0	0	0	1067
Total Volume	0	787	970	1757	498	0	255	753	0	1579	215	1794	0	0	0	0	4304
% App. Total	0	44.8	55.2		66.1	0	33.9		0	88	12		0	0	0		
PHF	.000	.907	.901	.904	.950	.000	.885	.927	.000	.910	.840	.919	.000	.000	.000	.000	.951

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-029 Riverside-I80 WB
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-030 I80 WB-Antelope
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Westbound Ramps Southbound				Antelope Road Westbound				I-80 Westbound Ramps Northbound				Antelope Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	10	0	28	38	0	68	135	203	0	0	0	0	0	139	79	218	459
06:15	20	0	38	58	0	93	168	261	0	0	0	0	0	163	88	251	570
06:30	16	0	38	54	0	108	190	298	0	0	0	0	0	216	130	346	698
06:45	18	0	56	74	0	148	191	339	0	0	0	0	0	315	119	434	847
Total	64	0	160	224	0	417	684	1101	0	0	0	0	0	833	416	1249	2574
07:00	28	0	59	87	0	199	181	380	0	0	0	0	0	349	128	477	944
07:15	32	0	60	92	0	208	150	358	0	0	0	0	0	448	141	589	1039
07:30	39	0	69	108	0	261	134	395	0	0	0	0	0	499	96	595	1098
07:45	34	0	58	92	0	301	144	445	0	0	0	0	0	444	94	538	1075
Total	133	0	246	379	0	969	609	1578	0	0	0	0	0	1740	459	2199	4156
08:00	35	0	93	128	0	221	131	352	0	0	0	0	0	356	81	437	917
08:15	31	0	52	83	0	223	127	350	0	0	0	0	0	325	62	387	820
08:30	25	0	71	96	0	165	108	273	0	0	0	0	0	342	66	408	777
08:45	37	0	69	106	0	149	78	227	0	0	0	0	0	255	75	330	663
Total	128	0	285	413	0	758	444	1202	0	0	0	0	0	1278	284	1562	3177
09:00	33	0	65	98	0	171	94	265	0	0	0	0	0	296	67	363	726
09:15	28	0	72	100	0	157	84	241	0	0	0	0	0	245	63	308	649
09:30	29	0	74	103	0	174	72	246	0	0	0	0	0	278	95	373	722
09:45	32	0	54	86	0	169	101	270	0	0	0	0	0	309	64	373	729
Total	122	0	265	387	0	671	351	1022	0	0	0	0	0	1128	289	1417	2826
15:00	40	0	124	164	0	322	80	402	0	0	0	0	0	292	62	354	920
15:15	55	0	134	189	0	324	88	412	0	0	0	0	0	313	75	388	989
15:30	60	0	161	221	0	303	84	387	0	0	0	0	0	316	56	372	980
15:45	63	0	161	224	0	275	81	356	0	0	0	0	0	288	59	347	927
Total	218	0	580	798	0	1224	333	1557	0	0	0	0	0	1209	252	1461	3816
16:00	65	0	136	201	0	326	85	411	0	0	0	0	0	341	66	407	1019
16:15	73	0	153	226	0	347	93	440	0	0	0	0	0	308	71	379	1045
16:30	63	0	164	227	0	341	78	419	0	0	0	0	0	321	75	396	1042

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-030 I80 WB-Antelope
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Westbound Ramps Southbound				Antelope Road Westbound				I-80 Westbound Ramps Northbound				Antelope Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	73	0	177	250	0	301	74	375	0	0	0	0	0	356	83	439	1064
Total	274	0	630	904	0	1315	330	1645	0	0	0	0	0	1326	295	1621	4170
17:00	102	0	171	273	0	339	87	426	0	0	0	0	0	352	56	408	1107
17:15	95	0	187	282	0	323	86	409	0	0	0	0	0	285	49	334	1025
17:30	66	0	146	212	0	368	73	441	0	0	0	0	0	341	72	413	1066
17:45	59	0	140	199	0	358	79	437	0	0	0	0	0	355	51	406	1042
Total	322	0	644	966	0	1388	325	1713	0	0	0	0	0	1333	228	1561	4240
18:00	44	0	106	150	0	346	85	431	0	0	0	0	0	315	48	363	944
18:15	54	0	150	204	0	288	77	365	0	0	0	0	0	279	42	321	890
18:30	52	0	127	179	0	286	93	379	0	0	0	0	0	261	39	300	858
18:45	47	0	109	156	0	234	70	304	0	0	0	0	0	223	32	255	715
Total	197	0	492	689	0	1154	325	1479	0	0	0	0	0	1078	161	1239	3407
Grand Total	1458	0	3302	4760	0	7896	3401	11297	0	0	0	0	0	9925	2384	12309	28366
Apprch %	30.6	0	69.4		0	69.9	30.1		0	0	0		0	80.6	19.4		
Total %	5.1	0	11.6	16.8	0	27.8	12	39.8	0	0	0	0	0	35	8.4	43.4	
Unshifted	1432	0	3241	4673	0	7816	3365	11181	0	0	0	0	0	9827	2344	12171	28025
% Unshifted	98.2	0	98.2	98.2	0	99	98.9	99	0	0	0	0	0	99	98.3	98.9	98.8
Bank 2	26	0	61	87	0	80	36	116	0	0	0	0	0	98	40	138	341
% Bank 2	1.8	0	1.8	1.8	0	1	1.1	1	0	0	0	0	0	1	1.7	1.1	1.2

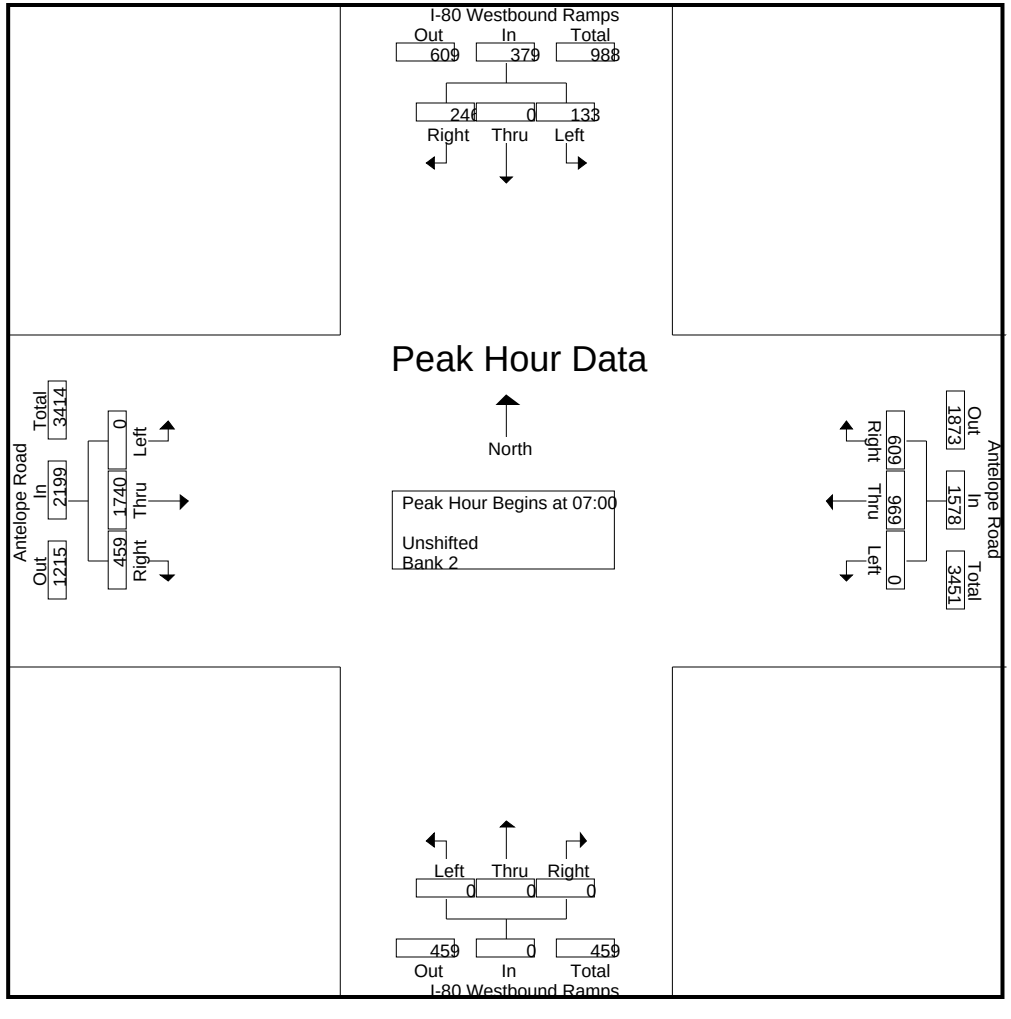
	I-80 Westbound Ramps Southbound				Antelope Road Westbound				I-80 Westbound Ramps Northbound				Antelope Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	28	0	59	87	0	199	**181**	380	0	0	0	0	0	349	128	477	944
07:15	32	0	60	92	0	208	150	358	0	0	0	0	0	448	**141**	589	1039
07:30	**39**	0	**69**	**108**	0	261	134	395	0	0	0	0	0	**499**	96	**595**	**1098**
07:45	34	0	58	92	0	**301**	144	**445**	0	0	0	0	0	444	94	538	1075
Total Volume	133	0	246	379	0	969	609	1578	0	0	0	0	0	1740	459	2199	4156
% App. Total	35.1	0	64.9		0	61.4	38.6		0	0	0		0	79.1	20.9		
PHF	.853	.000	.891	.877	.000	.805	.841	.887	.000	.000	.000	.000	.000	.872	.814	.924	.946

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-030 I80 WB-Antelope
Site Code : 00000000
Start Date : 1/31/2012
Page No : 3



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-030 I80 WB-Antelope
Site Code : 00000000
Start Date : 1/31/2012

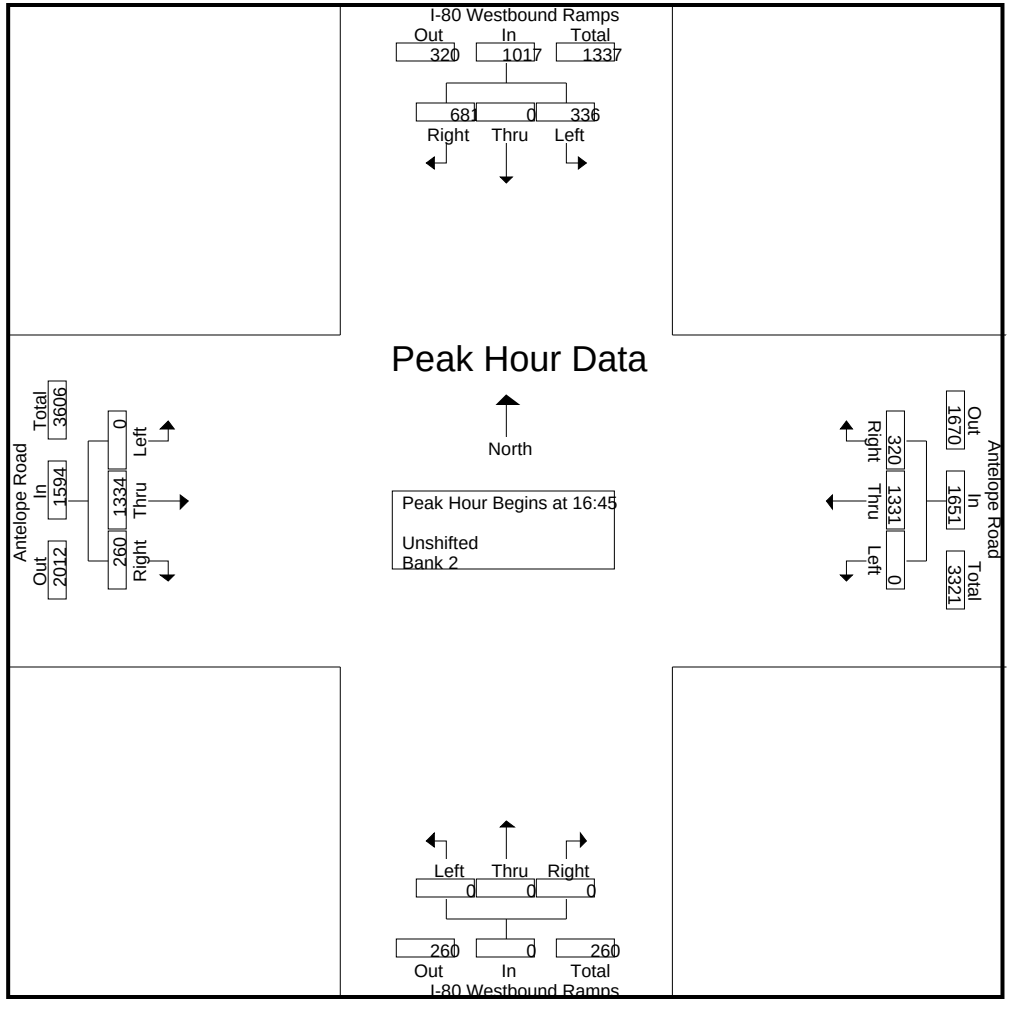
	I-80 Westbound Ramps Southbound				Antelope Road Westbound				I-80 Westbound Ramps Northbound				Antelope Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	73	0	177	250	0	301	74	375	0	0	0	0	0	**356**	**83**	**439**	1064
17:00	**102**	0	171	273	0	339	**87**	426	0	0	0	0	0	352	56	408	**1107**
17:15	95	0	**187**	**282**	0	323	86	409	0	0	0	0	0	285	49	334	1025
17:30	66	0	146	212	0	**368**	73	**441**	0	0	0	0	0	341	72	413	1066
Total Volume	336	0	681	1017	0	1331	320	1651	0	0	0	0	0	1334	260	1594	4262
% App. Total	33	0	67		0	80.6	19.4		0	0	0		0	83.7	16.3		
PHF	.824	.000	.910	.902	.000	.904	.920	.936	.000	.000	.000	.000	.000	.937	.783	.908	.963

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-030 I80 WB-Antelope
Site Code : 00000000
Start Date : 1/31/2012
Page No : 5



All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-031 I80 WB-Elkhorn
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Westbound Ramps Southbound				Elkhorn Boulevard Westbound				I-80 Westbound Ramps Northbound				Elkhorn Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00	42	0	25	67	0	90	136	226	0	0	0	0	0	191	190	381	674
06:15	50	0	25	75	0	116	182	298	0	0	0	0	0	299	209	508	881
06:30	89	0	43	132	0	132	233	365	0	0	0	0	0	316	257	573	1070
06:45	96	0	48	144	0	199	159	358	0	0	0	0	0	372	222	594	1096
Total	277	0	141	418	0	537	710	1247	0	0	0	0	0	1178	878	2056	3721
07:00	120	0	48	168	0	210	173	383	0	0	0	0	0	439	226	665	1216
07:15	121	0	33	154	0	318	113	431	0	0	0	0	0	543	276	819	1404
07:30	135	0	49	184	0	331	122	453	0	0	0	0	0	554	220	774	1411
07:45	165	0	50	215	0	318	173	491	0	0	0	0	0	522	180	702	1408
Total	541	0	180	721	0	1177	581	1758	0	0	0	0	0	2058	902	2960	5439
08:00	154	0	52	206	0	236	192	428	0	0	0	0	0	486	177	663	1297
08:15	128	0	50	178	0	302	175	477	0	0	0	0	0	435	182	617	1272
08:30	111	0	39	150	0	240	161	401	0	0	0	0	0	427	183	610	1161
08:45	103	0	38	141	0	280	153	433	0	0	0	0	0	425	174	599	1173
Total	496	0	179	675	0	1058	681	1739	0	0	0	0	0	1773	716	2489	4903
09:00	99	0	45	144	0	268	152	420	0	0	0	0	0	343	173	516	1080
09:15	100	0	47	147	0	286	153	439	0	0	0	0	0	357	184	541	1127
09:30	94	0	60	154	0	261	167	428	0	0	0	0	0	408	174	582	1164
09:45	104	0	39	143	0	266	153	419	0	0	0	0	0	335	157	492	1054
Total	397	0	191	588	0	1081	625	1706	0	0	0	0	0	1443	688	2131	4425
15:00	127	0	85	212	0	579	166	745	0	0	0	0	0	342	139	481	1438
15:15	114	0	97	211	0	612	162	774	0	0	0	0	0	349	130	479	1464
15:30	134	0	102	236	0	584	186	770	0	0	0	0	0	375	178	553	1559
15:45	147	0	102	249	0	672	164	836	0	0	0	0	0	381	156	537	1622
Total	522	0	386	908	0	2447	678	3125	0	0	0	0	0	1447	603	2050	6083
16:00	136	0	112	248	0	638	156	794	0	0	0	0	0	366	167	533	1575
16:15	146	0	86	232	0	629	165	794	0	0	0	0	0	356	116	472	1498
16:30	130	0	86	216	0	664	182	846	0	0	0	0	0	426	174	600	1662

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-031 I80 WB-Elkhorn
Site Code : 00000000
Start Date : 1/31/2012

Groups Printed- Unshifted - Bank 2

	I-80 Westbound Ramps Southbound				Elkhorn Boulevard Westbound				I-80 Westbound Ramps Northbound				Elkhorn Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
16:45	171	0	101	272	0	656	174	830	0	0	0	0	0	394	141	535	1637
Total	583	0	385	968	0	2587	677	3264	0	0	0	0	0	1542	598	2140	6372
17:00	121	0	104	225	0	675	162	837	0	0	0	0	0	409	151	560	1622
17:15	181	0	122	303	0	635	189	824	0	0	0	0	0	386	144	530	1657
17:30	145	0	124	269	0	630	177	807	0	0	0	0	0	416	152	568	1644
17:45	174	0	105	279	0	622	119	741	0	0	0	0	0	328	101	429	1449
Total	621	0	455	1076	0	2562	647	3209	0	0	0	0	0	1539	548	2087	6372
18:00	146	0	87	233	0	682	105	787	0	0	0	0	0	378	145	523	1543
18:15	141	0	84	225	0	592	147	739	0	0	0	0	0	365	138	503	1467
18:30	109	0	74	183	0	569	136	705	0	0	0	0	0	433	150	583	1471
18:45	98	0	59	157	0	506	139	645	0	0	0	0	0	357	112	469	1271
Total	494	0	304	798	0	2349	527	2876	0	0	0	0	0	1533	545	2078	5752
Grand Total	3931	0	2221	6152	0	13798	5126	18924	0	0	0	0	0	12513	5478	17991	43067
Apprch %	63.9	0	36.1		0	72.9	27.1		0	0	0		0	69.6	30.4		
Total %	9.1	0	5.2	14.3	0	32	11.9	43.9	0	0	0	0	0	29.1	12.7	41.8	
Unshifted	3888	0	2195	6083	0	13656	5033	18689	0	0	0	0	0	12424	5390	17814	42586
% Unshifted	98.9	0	98.8	98.9	0	99	98.2	98.8	0	0	0	0	0	99.3	98.4	99	98.9
Bank 2	43	0	26	69	0	142	93	235	0	0	0	0	0	89	88	177	481
% Bank 2	1.1	0	1.2	1.1	0	1	1.8	1.2	0	0	0	0	0	0.7	1.6	1	1.1

	I-80 Westbound Ramps Southbound				Elkhorn Boulevard Westbound				I-80 Westbound Ramps Northbound				Elkhorn Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 09:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15																	
07:15	121	0	33	154	0	318	113	431	0	0	0	0	0	543	**276**	**819**	1404
07:30	135	0	49	184	0	**331**	122	453	0	0	0	0	0	**554**	220	774	**1411**
07:45	**165**	0	50	**215**	0	318	173	**491**	0	0	0	0	0	522	180	702	1408
08:00	154	0	**52**	206	0	236	**192**	428	0	0	0	0	0	486	177	663	1297
Total Volume	575	0	184	759	0	1203	600	1803	0	0	0	0	0	2105	853	2958	5520
% App. Total	75.8	0	24.2		0	66.7	33.3		0	0	0		0	71.2	28.8		
PHF	.871	.000	.885	.883	.000	.909	.781	.918	.000	.000	.000	.000	.000	.950	.773	.903	.978

All Traffic Data

(916) 771-8700

Placer County
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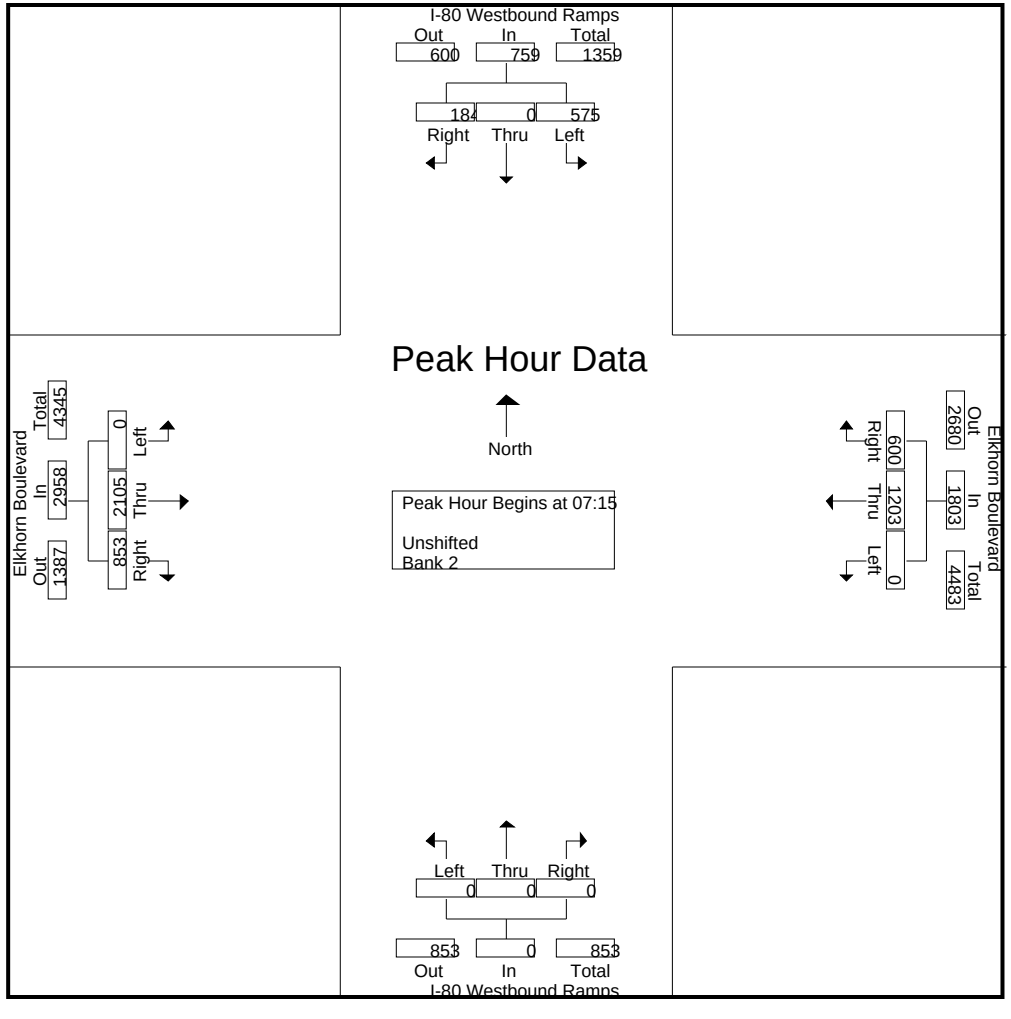

All Traffic Data

(916) 771-8700

Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
7-10am from 2-14-12

File Name : 12-7003-031 I80 WB-Elkhorn
Site Code : 00000000
Start Date : 1/31/2012

	I-80 Westbound Ramps Southbound				Elkhorn Boulevard Westbound				I-80 Westbound Ramps Northbound				Elkhorn Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 15:00 to 18:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	130	0	86	216	0	664	182	**846**	0	0	0	0	0	**426**	**174**	**600**	**1662**
16:45	171	0	101	272	0	656	174	830	0	0	0	0	0	394	141	535	1637
17:00	121	0	104	225	0	**675**	162	837	0	0	0	0	0	409	151	560	1622
17:15	**181**	0	**122**	**303**	0	635	**189**	824	0	0	0	0	0	386	144	530	1657
Total Volume	603	0	413	1016	0	2630	707	3337	0	0	0	0	0	1615	610	2225	6578
% App. Total	59.4	0	40.6		0	78.8	21.2		0	0	0		0	72.6	27.4		
PHF	.833	.000	.846	.838	.000	.974	.935	.986	.000	.000	.000	.000	.000	.948	.876	.927	.989

All Traffic Data

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Placer County
Pedestrians and Bicycles on Bank 1
Heavy Trucks on Bank 2
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File Name : 12-7003-031 I80 WB-Elkhorn
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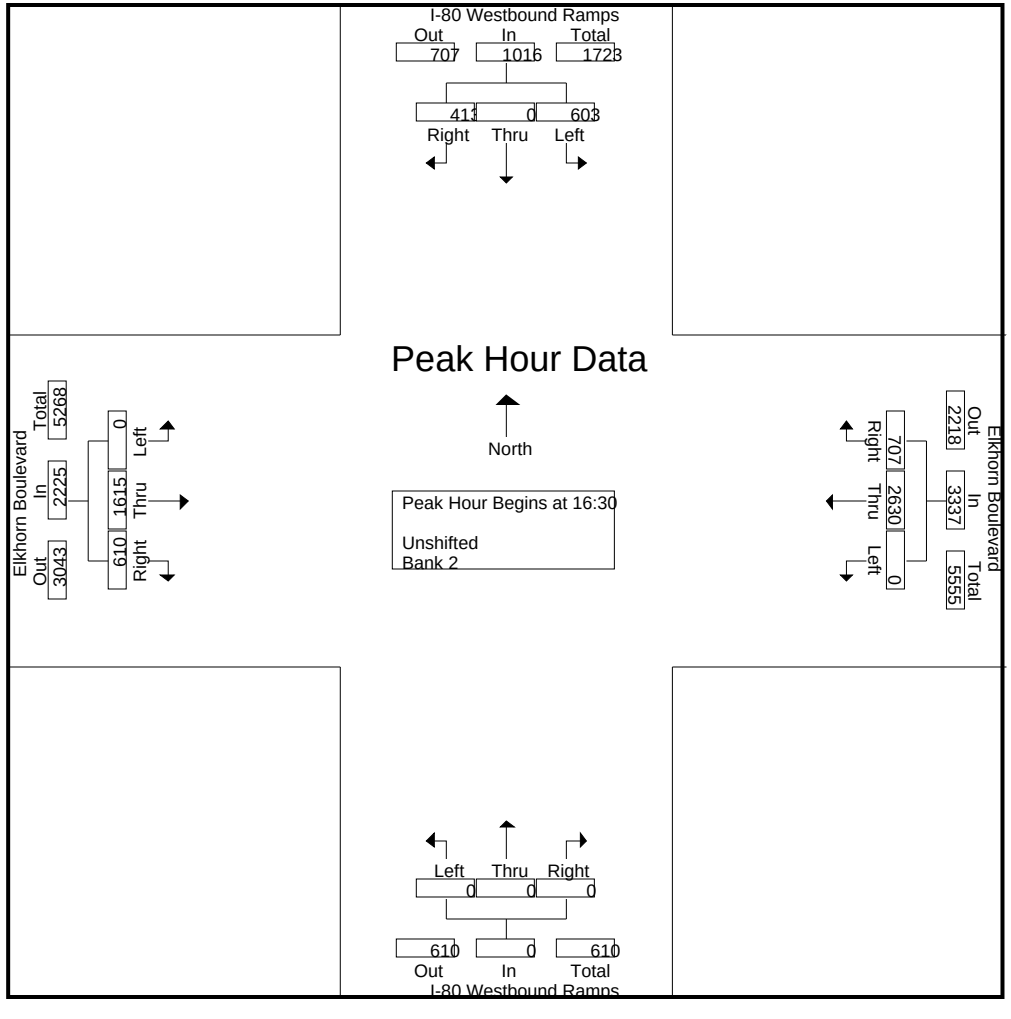


I-80/SR 65 Interchange Improvements

Travel Demand Forecasts Memorandum
June 2012

FEHR PEERS

MEMORANDUM

Date: June 29, 2012

To: I-80/SR-65 Interchange Project Development Team

From: David Stanek & Ronald T. Milam, Fehr & Peers

Subject: ***I-80/SR-65 Interchange – Travel Demand Forecasts***

RS11-2872

Fehr & Peers is preparing the traffic report for the Interstate 80 (I-80) / State Route 65 (SR-65) Interchange project in Placer County. This technical memorandum documents the travel demand forecasts for the project as an interim submittal for review and comment. Please review the memorandum and provide comments and/or suggestions for improvement.

BACKGROUND

The I-80/SR-65 project proposes to increase capacity and improve safety for freeway-to-freeway movements between I-80 to the west and SR-65. The study area for the traffic analysis is shown in Figure 1.

The transportation analysis for the I-80/SR-65 Interchange project uses an integrated modeling approach that has three different levels of detail: macro, meso, and micro. At the macro level, the regional travel forecasting model (SACMET) is used to forecast peak period origin-destination (OD) traffic volume flows between traffic analysis zones both internal and external to the study area. At the meso level, the peak period OD flows are divided into four one-hour trip tables and disaggregated into three modes – single occupant vehicle (SOV), high occupancy vehicle (HOV), and truck – and then assigned to the subarea roadway network using a VISUM model. The assignment process is based on congested travel times that reflect roadway link speeds and capacity. At the micro level, the traffic volumes are converted to individual vehicles that are assigned to the operational study area using a VISSIM model that contains detailed inputs governing traffic controls (signal timings), geometrics (lane configurations), and driver behavior.

The traffic forecasts are developed using the first two modeling platforms (macro and meso). The first platform is a modified version of the regional SACMET model developed by SACOG for the Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS). The second platform is VISUM sub-area trip assignment model, which was used to assign the trips generated from the SACMET model to a

detailed roadway network within the study area. Figure 1 displays the mesoscopic and microscopic analysis areas.

SOCIOECONOMIC FORECASTS

The traffic volume forecasts are derived from future socioeconomic projections. We started with regional socioeconomic projections developed by SACOG for the regional MTP/SCS. These were reviewed by the project development team (PDT) and modified to better reflect local plans. Figure 2 displays the final growth projections within the study area.

When reviewing the traffic volume forecasts, consider that the socioeconomic projections are the largest single influence. They will affect volume projections to a greater extent than the roadway network changes or any other modeling component. If these forecasts vary in reality, it will have a direct effect on future traffic volumes.

PLANNED TRANSPORTATION NETWORK

The traffic volume forecasts are also influenced by modifications to the existing transportation network according to improvement projects anticipated to be constructed by the design year (2040). These projects are based on the financially constrained project list contained in the MTP/SCS but also consider projects the PDT agreed would likely be constructed by the design year. The rationale for adding projects to the MTP/SCS list was that the design year is five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements.

Figure 3 shows the location of the separate projects that are planned to be constructed by 2040. Table 1 lists the projects and notes whether each will be constructed by the construction year (2020) or design year (2040).

FEHR PEERS

TABLE 1: PLANNED SEPARATE PROJECTS	
Category	**Project**
Complete by 2020 (Construction Year)	• Atkinson St: widen from 2 to 4 lanes from Foothills Blvd to south of Dry Creek • Baseline Rd: widen from 3 to 4 lanes from Brady Ln to Fiddyment Rd • Baseline Rd: widen from 2 to 4 lanes from Fiddyment Rd to Watt Ave • Baseline Rd: widen from 2 to 4 lanes from Watt Ave to (future) 16th St • Baseline Rd: widen from 2 to 4 lanes from (future) 16th St to county line • Blue Oaks Blvd: construct 4 lanes from Fiddyment Rd to Hayden Pkwy and 2 lanes from Hayden Pkwy to Westbrook Blvd • Blue Oaks Blvd: widen from 2 to 4 lanes from Hayden Pkwy to Westbrook Blvd and construct 4 lanes from Westbrook Blvd to Santucci Blvd • Cirby Way: widen from 4 to 5 lanes from Riverside Ave to Regency Ave • Cook Riolo Rd: widen from 1 to 2 lanes Dry Creek Bridge • Domiguez Rd: construct 2 lanes from Granite Dr to Sierra College Blvd • East Joiner Pkwy: widen from 2 to 4 lanes from Del Webb Pkwy to Twelve Bridges Dr • Eureka Rd: widen from 2 to 4 lanes from Sierra College Blvd to city limits • Ferrari Ranch Rd: construct 2 lanes from city limit to Moore Rd • Fiddyment Rd: widen to 4 lanes from Pleasant Grove Blvd to Baseline Rd • I-80/Eureka Rd On-ramp Improvements • Industrial Ave: widen from 2 to 4 lanes from SR-65 to Twelve Bridges Dr • Industrial Ave: replace 2 lane bridge at Pleasant Grove Creek • Market St: construct 2 lanes from Baseline Road to Pleasant Grove Blvd • Pacific St: widen to 4 lanes from Sierra Meadows Dr to Loomis town limits • PFE Rd: widen from 2 to 4 lanes from Watt Ave to Walerga Rd • Placer Pkwy: construct 4-lane expressway from SR-65 to Santucci Blvd • Pleasant Grove Blvd: widen from 4 to 6 lanes from Foothills Blvd to Woodcreek Oaks Blvd • Pleasant Grove Blvd: widen from 2 to 4 lanes from Fiddyment Road to Santucci Blvd • Rocklin Rd: widen from 4 to 6 lanes from Granite Dr to I-80 Westbound Ramps • Roseville Rd: widen from 2 to 4 lanes from city limits to Cirby Way • Santucci Blvd: construct 4 lanes from Baseline Road to Blue Oaks Blvd • Sierra College Blvd: widen to 6 lanes from county line to Olympus Dr • Sierra College Blvd: widen from 4 to 5 lanes from Nightwatch Dr to Aguilar Tributary • Sierra College Blvd: widen from 4 to 6 lanes from Aguilar Tributary to I-80 • Sierra College Blvd: widen from 4 to 6 lanes from Granite Dr to Bankhead Rd • Sierra College Blvd: widen from 2 to 4 lanes from Taylor Rd to north town limits • SR-65 Lincoln Bypass – Phase 1 & 2A • SR-65/Ferrari Ranch Rd Interchange • SR-65/Whitney Ranch Pkwy: construct interchange • Sunset Blvd: construct 2 lanes from Fiddyment Rd to Foothills Blvd • Sunset Blvd: widen from 2 to 4 lanes from Cincinnati Ave to SR-65 • Sunset Blvd: widen to 6 lanes from SR-65 to West Stanford Ranch Rd • Twelve Bridges Dr: widen from 2 to 4 lanes from Industrial Ave to SR-65 including interchange • University Ave: construct 4 lanes from Whitney Ranch Pkwy to Ranch View Dr • University Ave: construct 4 lanes from Sunset Blvd to Whitney Ranch Pkwy • Walerga Rd: widen from 2 to 4 lanes from Baseline Rd to county line • Washington Blvd: widen to 4 lanes from Sawtell Rd to Pleasant Grove Blvd • Whitney Ranch Pkwy: construct 6 lanes from SR-65 to east of Wildcat Blvd

TABLE 1: PLANNED SEPARATE PROJECTS

Category	Project
Complete by 2035	• Aviation Blvd: widen from 2 to 4 lanes from Venture Dr to 0.5 mi north of Venture Dr • Dyer Ln: construct 4 lanes from Watt Ave to Baseline Rd • Fiddyment Rd: widen from 2 to 4 lanes from Roseville city limits to Athens Rd • Foothills Blvd: construct 2 lanes from Roseville city limits to Sunset Blvd • I-80/Horseshoe Bar Rd Interchange: widen overcrossing from 2 to 4 lanes • I-80/Rocklin Rd Interchange improvements • Industrial Ave: widen from 2 to 4 lanes from Twelve Bridges Dr to Athens Ave • Nicolaus Rd: widen from 2 to 4 lanes from Airport Rd to Aviation Blvd • Midas Ave: construct grade separation at UPRR • Rocklin Rd: widen from 2 to 4 lanes from Sierra College Blvd to Loomis town limits • Rocklin Rd: widen from 2 to 4 lanes from west Loomis town limits to Barton Rd • North Antelope Rd: widen from 2 to 4 lanes from county line to PFE Rd • Sierra College Blvd: widen from 2 to 4 lanes from SR-193 to Loomis town limits • Sierra College Blvd: widen to 4 lanes from (future) Valley View Pkwy to Loomis town limits • SR-65/Galleria Blvd Interchange Improvements (Phase II) • Sunset Blvd: widen from 4 to 6 lanes from Stanford Ranch Rd to Topaz Ave • Sunset Blvd: widen from 4 to 6 lanes from Topaz Ave to Whitney Blvd • Sunset Blvd: widen from 4 to 6 lanes from Whitney Blvd to Pacific St • Taylor Rd: widen from 2 to 4 lanes from Horseshoe Bar Rd to King Rd • Valley View Pkwy: construct 2 lanes from Park Dr to Sierra College Blvd • West Oaks Blvd: construct 4 lanes from terminus to (future) Whitney Ranch Pkwy • Whitney Ranch Pkwy: construct 4 lanes from terminus to Whitney Oaks Dr • Watt Ave: widen from 2 to 4 lanes from Baseline Rd to county line
Assumed to be Complete by 2040 (Design Year)	• Baseline Rd: widen from 4 to 6 lanes from Fiddyment Rd to Watt Ave • Foothills Blvd: widen to 6 lanes from Cirby Way to Misty Wood Dr • Nelson Ln: widen from 2 to 4 lanes from SR-65 (Lincoln Bypass) to Nicolaus Rd • PFE Rd: widen from 2 to 4 lanes from North Antelope Rd to Roseville city limits • Santucci Blvd: construct 6 lanes from Baseline Road to Blue Oaks Blvd • SR-65 Capacity and Operational Improvements: I-80 to Blue Oaks Blvd • Taylor Rd: widen from 2 to 4 lanes from Roseville Pkwy to I-80 • Taylor Rd: widen from 2 to 4 lanes from I-80 to city limits • Westbrook Blvd: construct new road from Baseline Rd to Pleasant Grove Blvd • Westbrook Blvd: construct new road from Pleasant Grove Blvd to Blue Oaks Blvd • Westbrook Blvd: construct new road from Blue Oaks Blvd to city limits
Sources: SACOG and Fehr & Peers, 2012	

PROJECT ALTERNATIVES

The following project alternatives will be analyzed in the transportation analysis report.

- No Build Alternative – includes the planned projects, but no improvements to the I-80/SR-65 Interchange.
- Transportation System Management (TSM) Alternative – a set of alternate improvements in the study area including ramp metering strategies, signal coordination, park and ride lot and transit stop changes, driver information signs, and auxiliary lanes on westbound I-80 from Douglas

Boulevard to Riverside Avenue, on I-80 from SR-65 to Rocklin Road, and on SR-65 between Galleria Boulevard and I-80.

- No Taylor Alternative – reconstruction of the I-80/SR-65 interchange from a trumpet (Type F-6) to a directional (F-5) design, including removal of the I-80/Taylor Road interchange and auxiliary lanes on I-80 from Eureka Road to SR-65 and on SR-65 from I-80 to Galleria Boulevard.
- Half Taylor Alternative – same as the No Taylor Alternative with the existing I-80/Taylor Road ramps relocated to the inside of the I-80/SR-65 interchange
- Taylor Diamond Alternative – same as the Half Taylor Alternative with ramps to and from the east added as a tight diamond interchange (L-1)
- Taylor Trumpet Alternative – same as the Half Taylor Alternative with ramps to and from the east added as a trumpet interchange (L-12)

From a forecasting perspective, the last two alternatives are similar since the connection points for the proposed I-80/Taylor Road interchange occur at about the same location. Therefore, these two alternatives will share one set of forecasts, called the "Full Taylor Alternative" in this memorandum.

Traffic forecasts were developed for one additional alternative: Full Taylor Alternative with Antelope Creek Drive Connection. In this alternative, Antelope Creek Drive is extended east across the railroad tracks to Taylor Road. The traffic forecasts for this alternative will be used for a qualitative assessment, rather than the detailed traffic analysis that will be done for the other alternatives.

DESIGN YEAR FORECASTS

From a macro perspective, the proposed project alternatives would not change regional travel demand. The most significant effects on future traffic volumes will occur in terms of trip routing within the meso-scale study area due to travel time differences caused by the alternatives. Therefore, all project alternatives use the same set of trip tables, which means that volumes at the subarea boundaries are similar across alternatives.

The volume forecast process began with isolating the incremental peak period volume growth (2008 to 2035) between traffic analysis zones (TAZs) in the subarea using the modified SACMET model (macro level). This incremental growth was then added to the base year VISUM trip table (meso level) that was derived from the Airsage cell phone data. The incremental SACMET growth was inspected to verify that the changes in origin-destination trips were commensurate with the location of socioeconomic growth. Individual origin-destination pair volumes were not allowed to decrease between base and cumulative years.

In the next step, the four-hour peak period trip tables were divided into hourly trip tables by mode: SOV, HOV, and truck. The conversion from peak period to hourly trip tables used the existing ratio of hourly traffic volume to peak period volume. The mode share for HOVs and trucks was based on the relative peak period mode share in the 2035 SACMET model. For the entire meso study area, the overall forecast HOV shares are 18 and 19 percent during the AM and PM peak periods, respectively. The truck share is 14 percent during both peak periods.

Some adjustments were made to the HOV shares for select locations based on previous comments from Caltrans about HOV forecasts being lower than observed conditions on I-80. Table 2 shows the AM and PM peak hour HOV percentages for the I-80 western gateway from the 2035 SACMET model, the 2012 traffic counts, and the proposed 2040 forecast values. The 2008 and 2035 SACMET model forecasts show similar values of 11 to 13 percent at this gateway. These values are lower than the traffic counts that were collected early this year. The proposed 2040 HOV percentages use the 2012 traffic count percentages for the off-peak directions. In the peak direction, a five percentage point increase was assumed to compensate for the difference between model estimates and counts. Additionally, traffic congestion is expected to be more severe in the design year, which would encourage the formation of more carpools.

TABLE 2: PEAK PERIOD HOV PERCENTAGE FOR I-80 WESTERN GATEWAY

Direction	2035 SACMET		2012 Counts		2040 Forecast	
	AM	PM	AM	PM	AM	PM
Eastbound	11%	13%	15%	17%	15%	22%
Westbound[1]	13%	13%	14%	18%	19%	18%

Note: 1. The count location was at the Riverside Ave/Auburn Blvd overcrossing, but the westbound study area gateway is between Elkhorn Blvd and Madison Ave.

Source: Fehr & Peers, 2012

The five percentage point increase was also validated based on a June 2012 sampling of traffic volumes at the I-80/Douglas Boulevard, I-80/Eureka Road, and SR-65/Galleria Boulevard on-ramps, which found HOV percentages ranging from 9 to 25 percent for the AM peak hour and 14 to 36 percent for the PM peak hour. The AM and PM peak hour averages of 16 and 24 percent from these samples are generally similar to the 2035 SACMET forecasts of 18 and 19 percent, respectively. However, peak direction HOV percentages were some of the largest values observed. The adjustments noted in Table 2 result in HOV volume forecasts that are at or near the HOV lane operating capacity under design year conditions, so they were considered reasonable for purposes of this study.

The future year VISUM trip tables were then assigned to each project alternative network. These networks included all the planned transportation improvements identified above plus unique features of each alternative. The preliminary forecasts from this step were reviewed and adjusted for any anomalies such as unexpected decreases in traffic volumes when compared to existing conditions. A few decreases occur that are expected as noted below.

- Riverside Avenue slip on-ramp to westbound I-80 – This ramp shows a decrease over existing volumes. This decrease is allowed since the cumulative roadway network includes several projects that increase parallel capacity between west Roseville and Sacramento County (widening Baseline Road/Riego Road between SR-99 and Foothills Boulevard, widening Watt Avenue, etc.). These capacity enhancements redistribute some existing long-distance trips from Placer County to Sacramento County to alternative routes.

- Sunset Boulevard loop on-ramp to southbound SR-65 – The construction of the SR-65/Whitney Ranch Parkway interchange provides an alternate route so that the demand at SR-65/Sunset Boulevard is lower.
- Taylor Road off-ramp from eastbound I-80 for the Half and Full Taylor Alternatives – With the widening of the eastbound to northbound freeway connector, traffic destined to Rocklin can use SR-65 to Stanford Ranch Road rather than the more indirect route of Taylor Road to Sunset Boulevard.

The final trip tables and the travel paths associated with them from the VISUM assignment will be input to VISSIM for final assignment and analysis.

Figure 4 shows the existing conditions AM and PM peak hour volumes for comparison. Figures 5 through 10 display the AM and PM peak hour traffic volume forecasts for the project alternatives. These volumes represent traffic demand that may not be fully accommodated during the peak hour, which will be determined as part of the VISSIM analysis.

Exhibits 1 through 4 show comparison plots between project alternatives. The orange and red colors indicate a volume decrease for the AM and PM peak hours, respectively. The blue and green colors indicate a volume increase for the AM and PM peak hours, respectively.

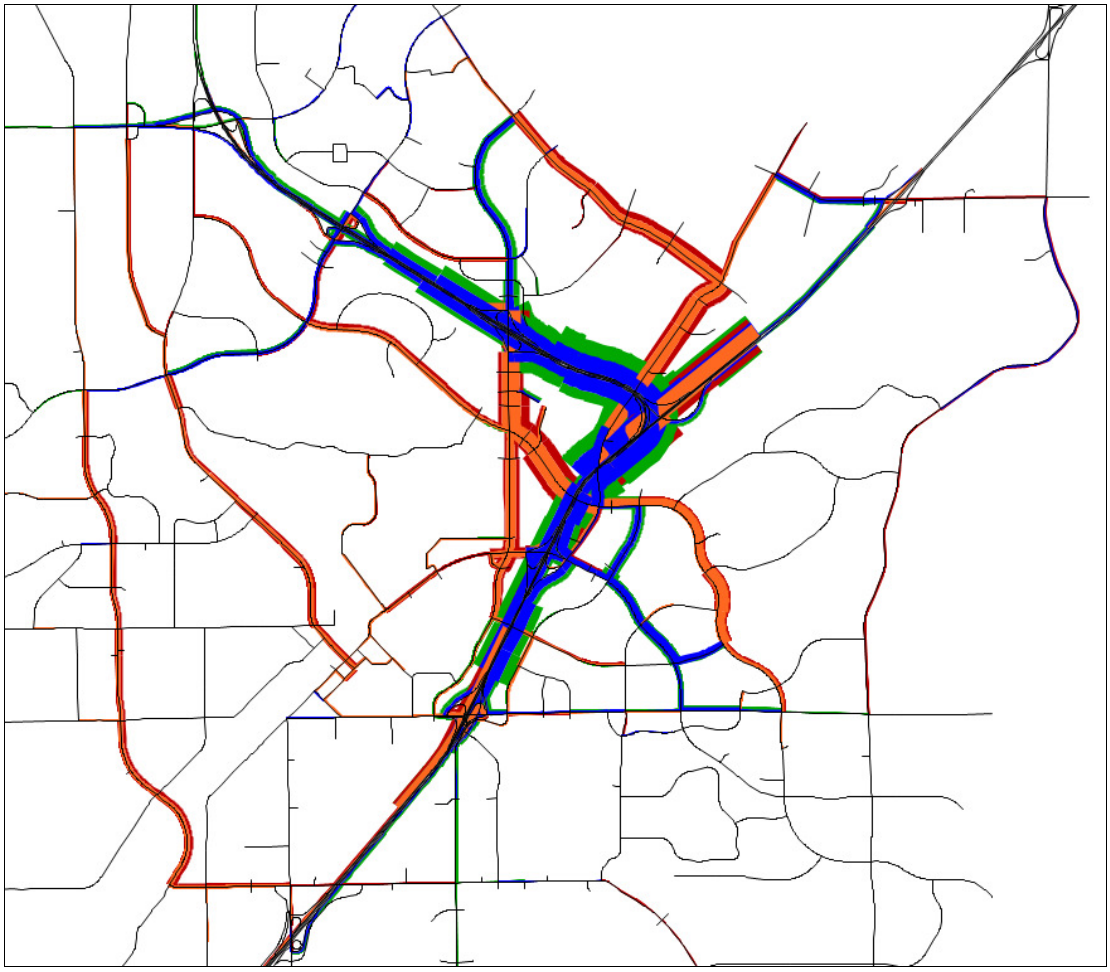


Exhibit 1. Volume Comparison of No Build and No Taylor Alternatives

Exhibit 1 shows a comparison of the No Taylor and No Build Alternatives. With the additional capacity at the I-80/SR-65 interchange, volumes are higher under the No Taylor Alternative from Douglas Boulevard on I-80 to Blue Oaks Boulevard on SR-65. Volume increases also occur on arterials that intersect this freeway segment: Eureka Road east of I-80, Stanford Ranch Road north of SR-65, and Pleasant Grove Boulevard and Blue Oaks Boulevard west of SR-65. Routes parallel to the freeway segment show decreases: Foothill Boulevard, Washington Boulevard, Roseville Parkway, and Galleria Boulevard/Harding Boulevard. Removing the I-80/Taylor Road interchange shifts traffic from Taylor Road and Sunset Boulevard to SR-65 and Stanford Ranch Road. The differences between the No Build Alternative and the other freeway reconstruction alternatives (Half and Full Taylor) are similar.

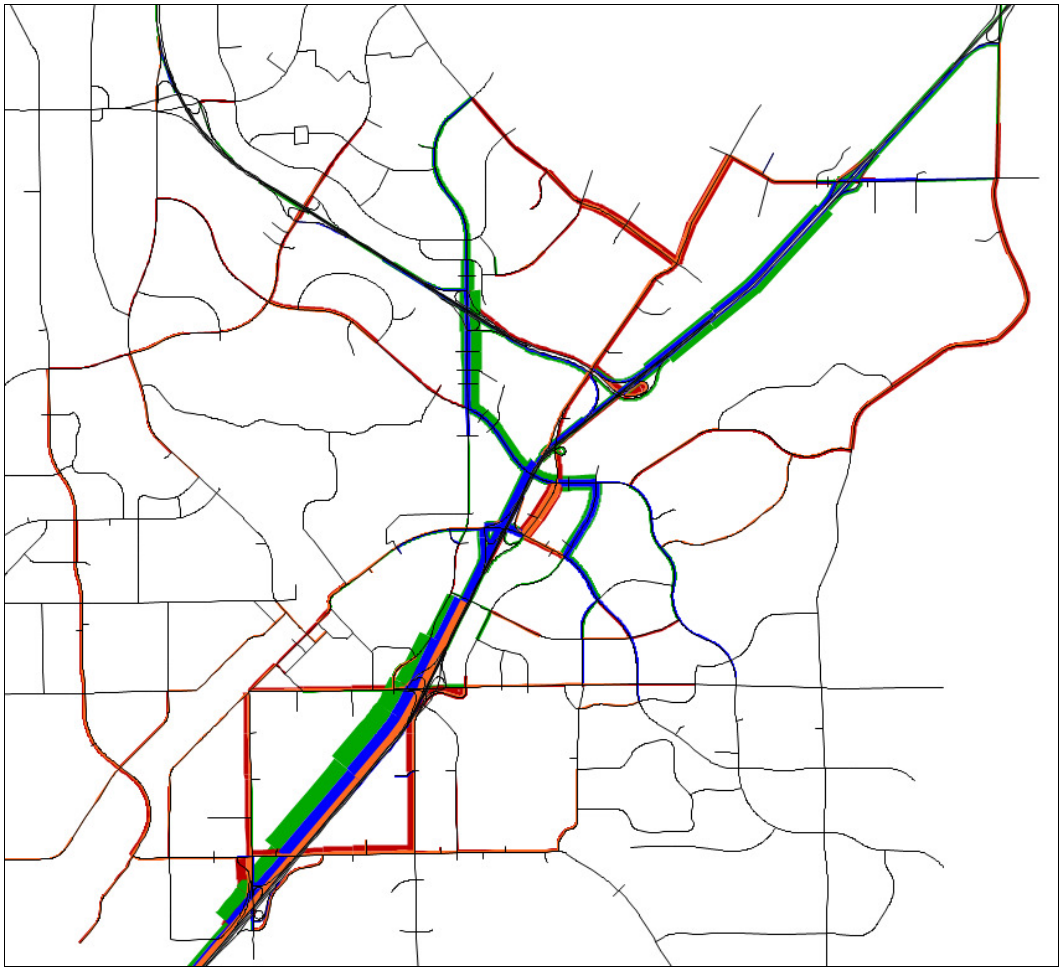


Exhibit 2. Volume Comparison of No Build and TSM Alternatives

Exhibit 2 compares the TSM and No Build Alternatives. Volume increases are shown for the locations with additional auxiliary lanes along I-80: westbound between Douglas Boulevard and between SR-65 and Rocklin Road. The signal coordination improvements along Galleria Boulevard and Roseville Parkway are expected to provide higher volumes, too. Volume decreases would occur on the parallel routes at the auxiliary lane locations: Douglas Blvd, Riverside Avenue, Sunrise Avenue, and Cirby Way to the south and Taylor Road and Sierra College Boulevard to the north. Despite the addition of auxiliary lanes, the traffic demand volume for SR-65 between I-80 and Galleria Boulevard is not forecasted to change much. While the auxiliary lanes would provide more capacity, the I-80 ramps to and from the west would remain over capacity, which would constrain the demand volume.

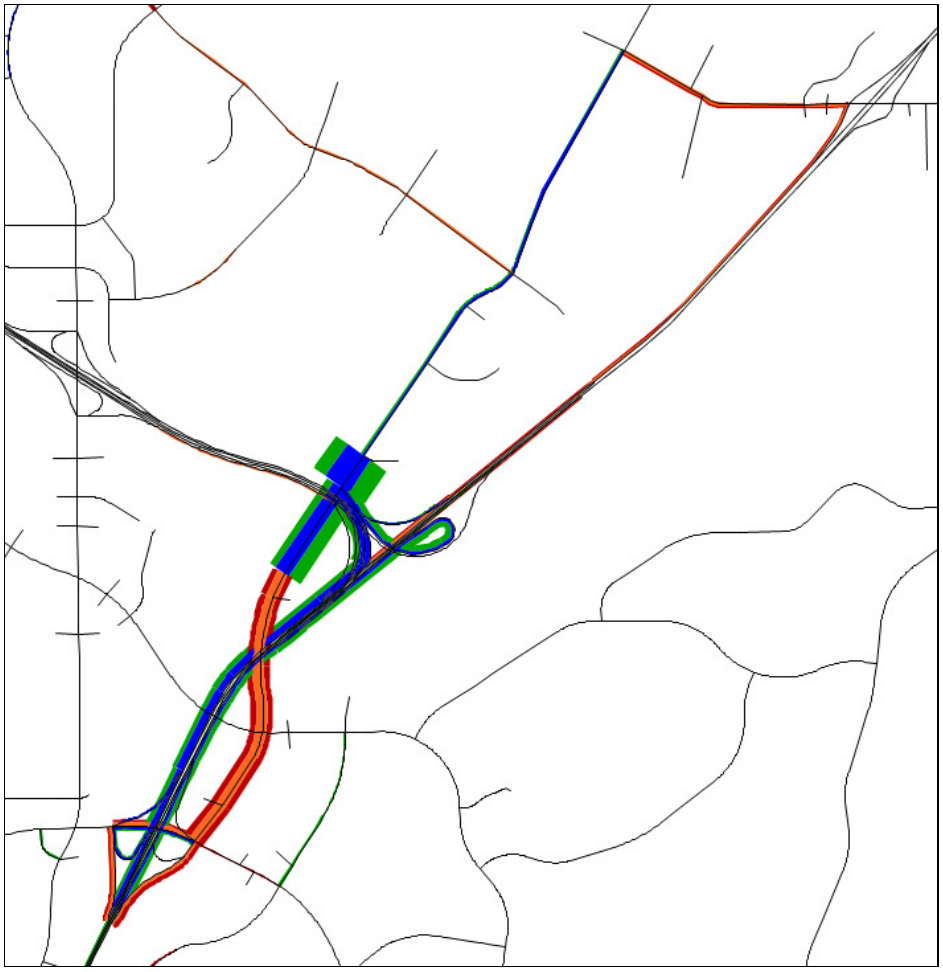


Exhibit 3. Volume Comparison of No Taylor and Half Taylor Alternatives

Exhibit 3 shows the volume differences between the No Taylor and Half Taylor Alternatives. Although both alternatives would expand the I-80/SR-65 interchange, the Half Taylor Alternative restores the existing Taylor Road connections. As a result, traffic volume would mostly shift from the Eureka Road interchange to the new Taylor Road interchange. The Rocklin Road interchange would see some diversion, but no change would occur at the SR-65/Galleria Boulevard interchange. As noted above, the increase in capacity at the freeway-to-freeway interchange would shift volume to the Galleria Boulevard interchange without regard to whether an interchange is provided at Taylor Road.

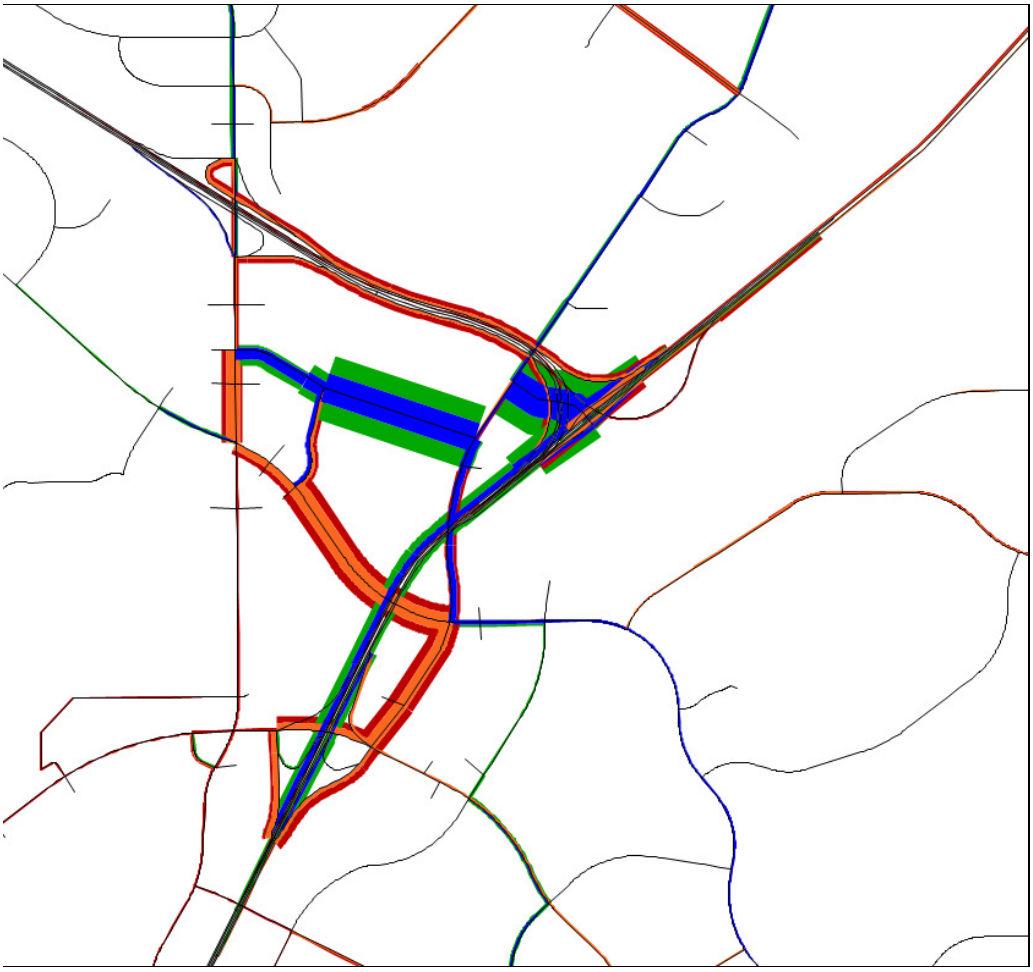


Exhibit 4. Volume Comparison showing the Antelope Creek Drive Connection

Exhibit 4 shows the effect of adding the Antelope Creek Drive connection to Taylor Road under the Full Taylor Alternative. The new connection to the retail areas along Galleria Boulevard would increase travel demand for the I-80/Taylor Road interchange, Taylor Road north of Roseville Parkway, and I-80 between Eureka Road and Taylor Road. Traffic would shift from the I-80/Eureka Road and SR-65/Galleria Boulevard interchanges. In particular, the demand volume would be lower for the SR-65 viaduct between I-80 and Galleria Boulevard, which parallels the proposed Antelope Creek Drive connection.

The VISUM software models HOV lanes as separate roadway links to account for the additional HOV-only capacity. Due to the close-spacing of the ramps, access to the HOV direct connectors at the I-80/SR-65 interchange is restricted in the model to traffic west of Eureka Road and north of Galleria Boulevard. The resulting HOV lane projections for the project alternatives are listed in Table 3.

TABLE 3: HOV LANE VOLUME FOR DESIGN YEAR CONDITIONS

Location	No Build		TSM		No Taylor		Half Taylor		Full Taylor	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Eastbound I-80: Eureka Rd to SR-65	850	1,380	850	1,370	880	1,520	900	1,590	900	1,680
Westbound I-80: SR-65 to Eureka Rd	1,100	910	1,140	930	1,310	1,070	1,330	1,020	1,300	1,010
Eastbound I-80 to Northbound SR-65	n/a	n/a	n/a	n/a	570	1,170	560	1,150	570	1.110
Southbound SR-65 to Westbound I-80	n/a	n/a	n/a	n/a	940	600	940	590	890	580
Northbound SR-65: I-80 to Galleria Blvd	100[1]	960	100[1]	950	620	1,530	630	1,520	640	1,490
Southbound SR-65: Galleria Blvd to I-80	280	430	300	470	940	680	940	670	890	680

Note: 1. An estimated minimum value.

Source: Fehr & Peers, 2012

Under the No Build Alternative, HOVs will use the regular direct connector ramps to travel between the HOV lanes on I-80 and SR-65. Because the ramps will be over capacity, the demand will be constrained. In particular, the AM peak hour HOV lane volume on northbound SR-65 would be particularly low. With demand constrained at the I-80 interchange, northbound SR-65 would be relatively free from congestion, so the HOV lane would not provide a travel time advantage.

With the addition of the HOV direct connector ramps, the mainline HOV lane volume would increase. The HOV direct connector peak-hour volume is projected to range from 560 to 1,170 vehicles per hour depending on the direction and peak hour. With the HOVs from the westbound to northbound connector added in, the HOV lane volume on northbound SR-65 would be similar to the eastbound I-80 volume. HOV lane volumes would be similar across the build alternatives.

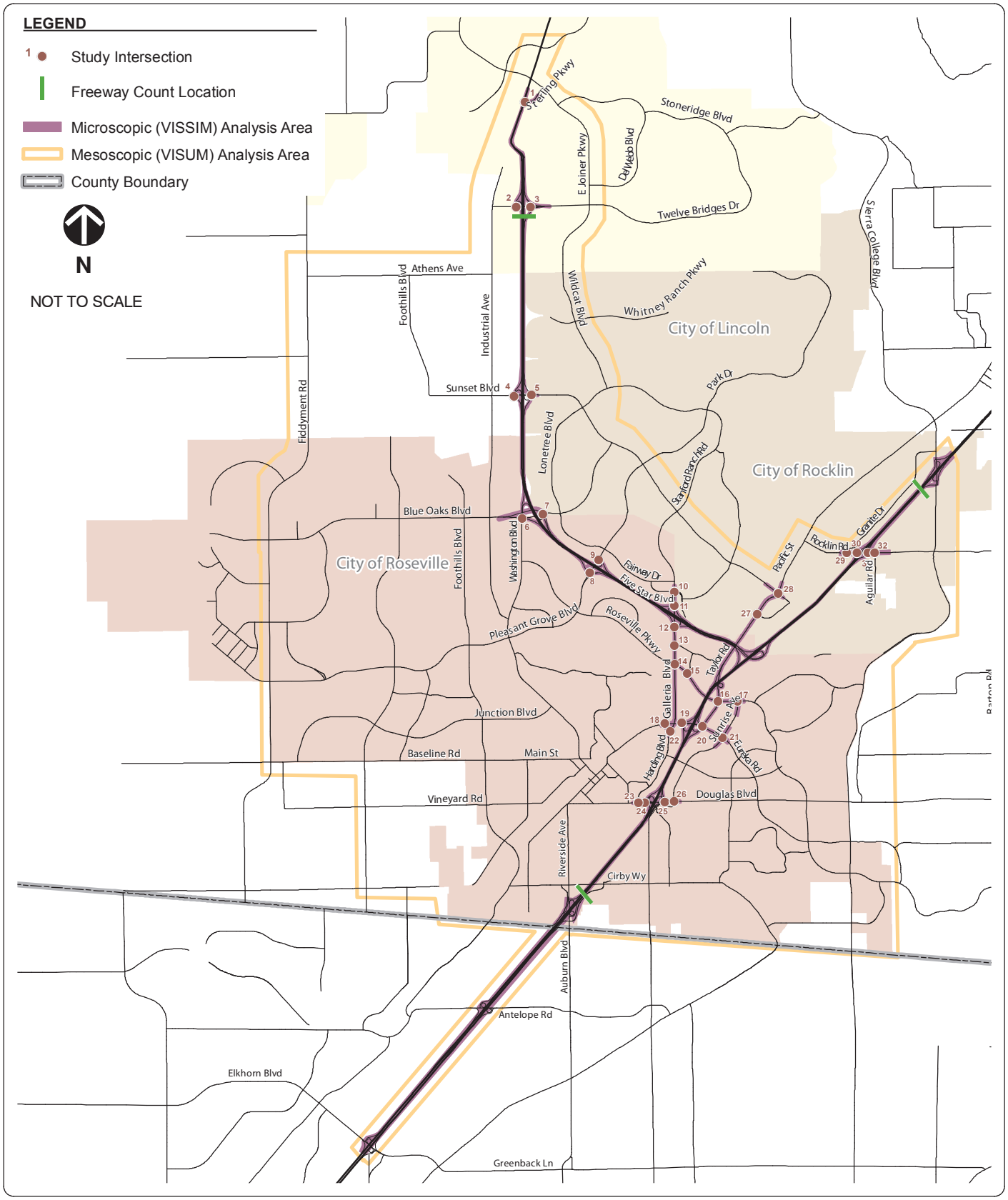
The traffic forecasts for the study intersections are still under development. They will be finalized after comments have been received on the preliminary design year forecasts for the freeway mainline and ramps.

CONSTRUCTION YEAR FORECASTS

The construction year (2020) forecasts will be developed by interpolating between the hourly matrices for the baseline (2012) traffic volume estimates and the design year (2040) forecasts. Using VISUM, the resulting matrices will be assigned to the roadway network that corresponds to the planned projects expected to be completed by 2020 (as shown in Table 1). Due to these changes, construction year

demand volumes at any particular location may not be the exact linearly interpolated value between the existing and design year volumes.

This process presumes a linear growth relationship and captures some of the influence of project alternatives on trip assignment. One of the potential limitations of this approach is that recent growth has not kept pace with the projected linear growth rate. The sluggish economic recovery from the 2008/09 recession may result in actual construction year volumes that are lower than the projections, but this outcome is acceptable for the purpose of designing and evaluating project alternatives.



FEHR PEERS

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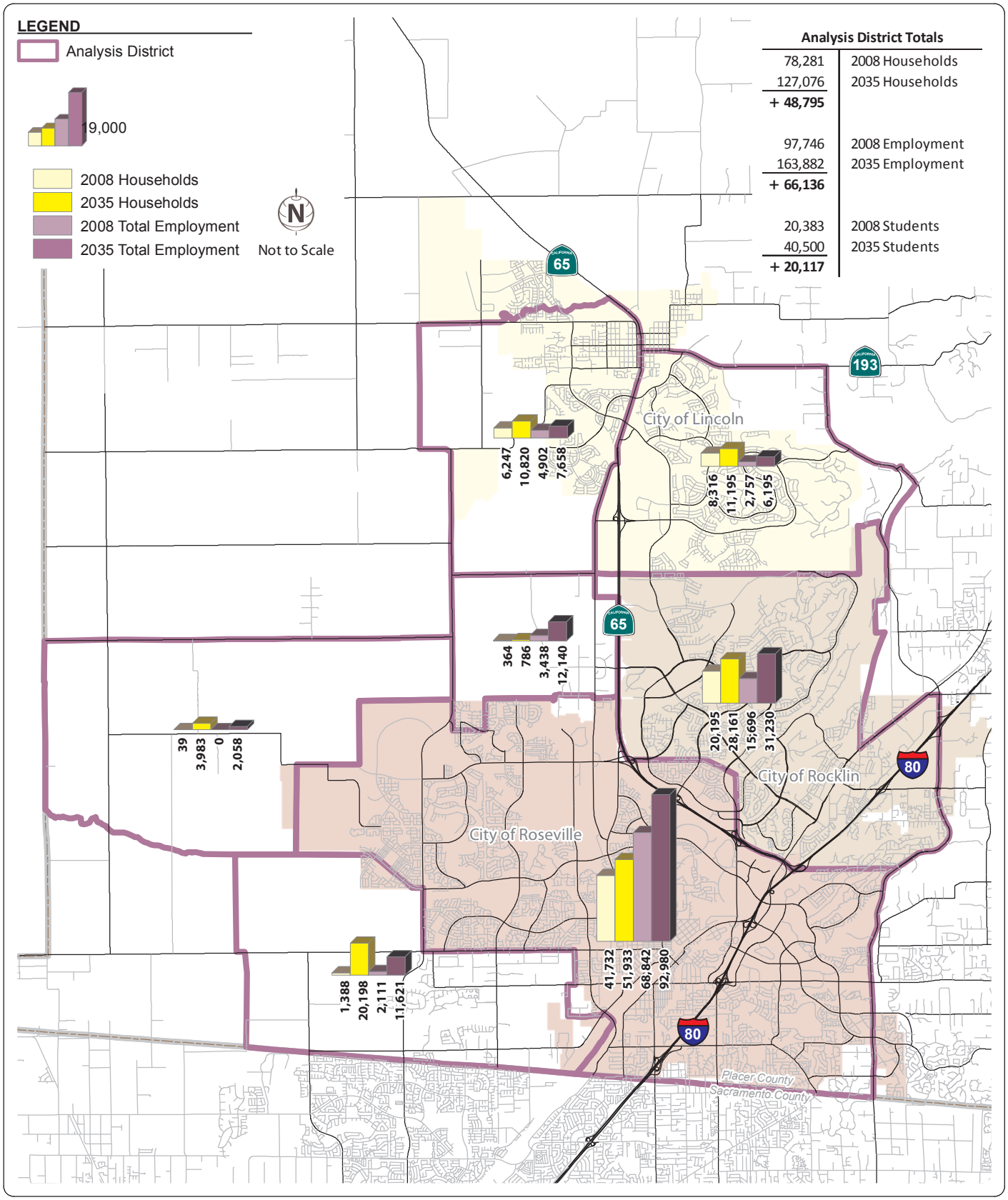
STUDY AREA

FIGURE 1



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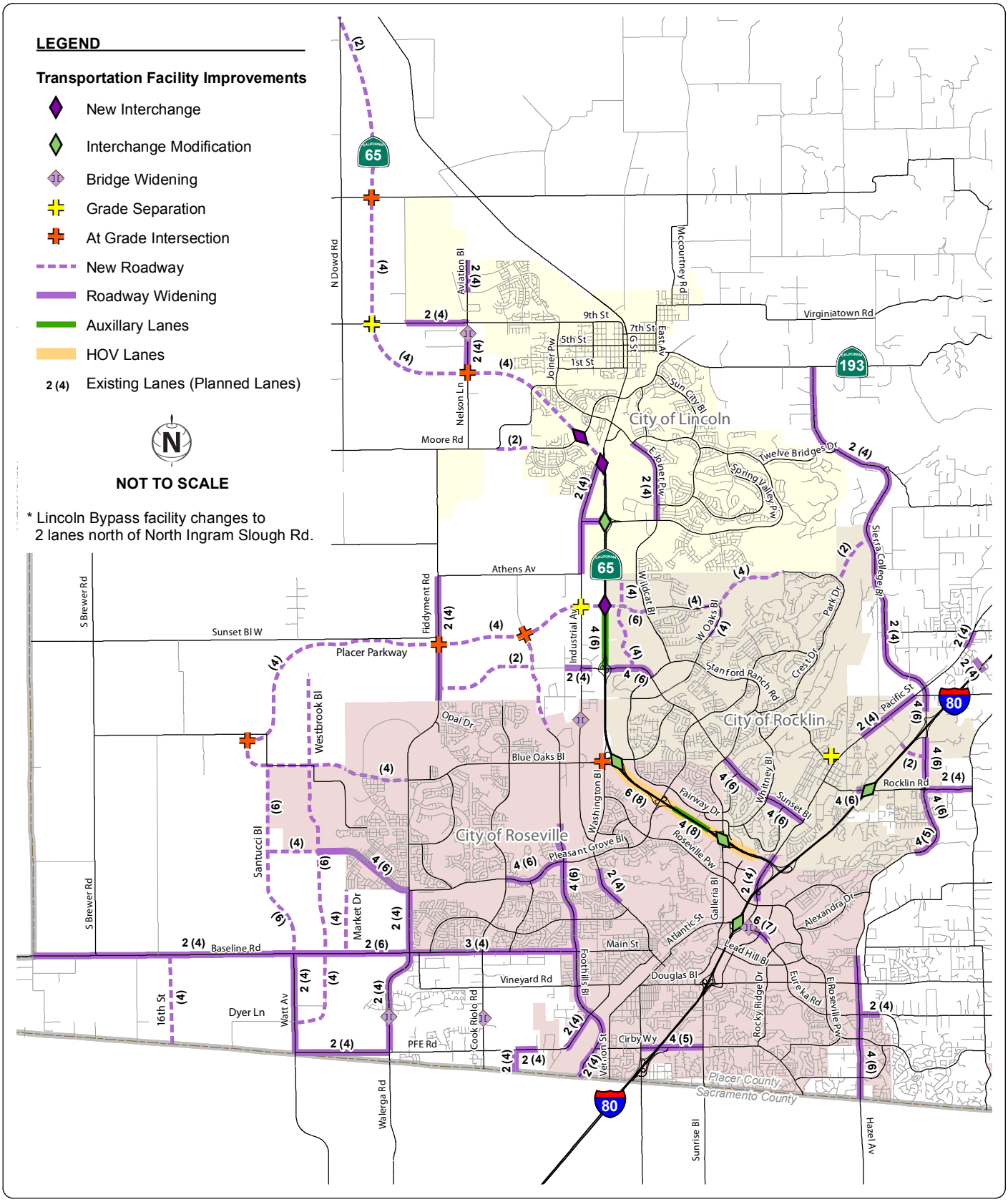
MODIFIED SACMET LAND USE SUMMARY BY ANALYSIS DISTRICT

FIGURE 2



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ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2040

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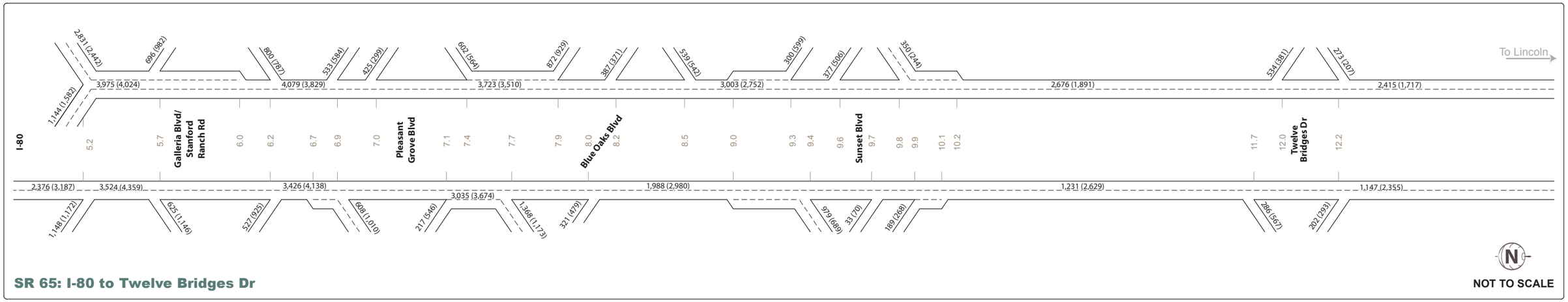
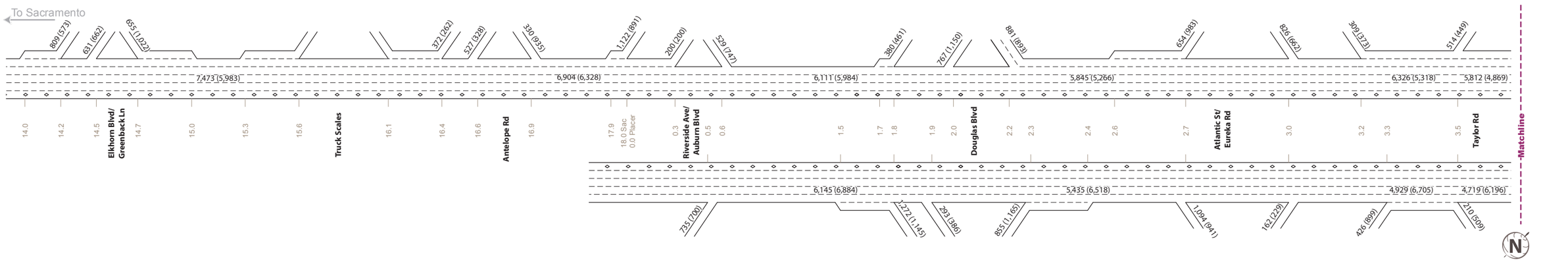
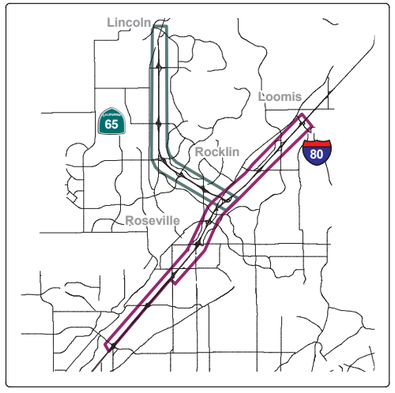


SR 65: I-80 to Twelve Bridges Dr



I-80: Elkhorn Blvd to Taylor Rd

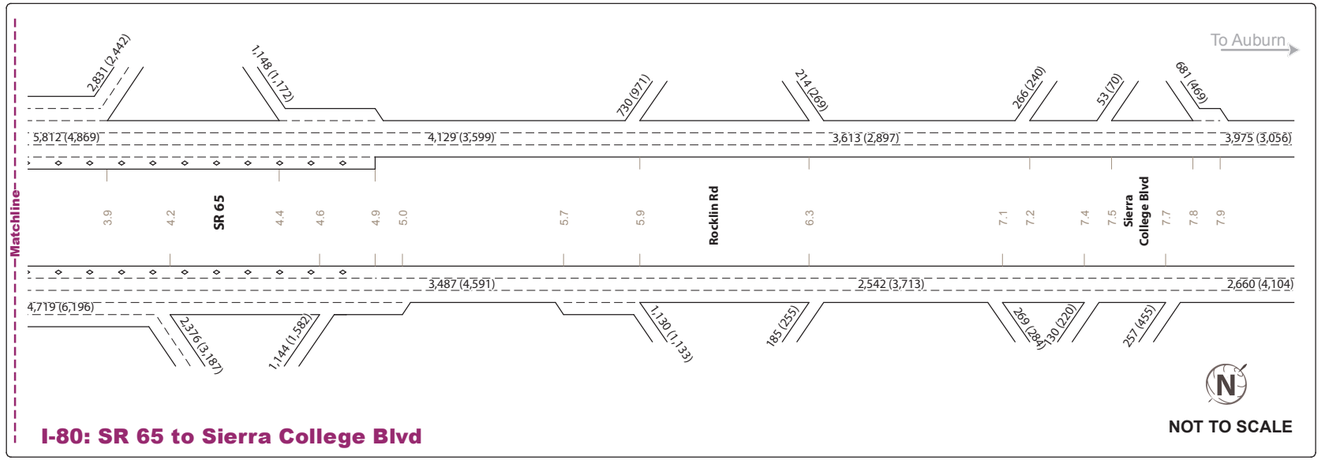


LEGEND

AM (PM) Peak Hour Traffic Volume

10.1 Postmile

NOTE: Traffic volumes collected in February 2012.



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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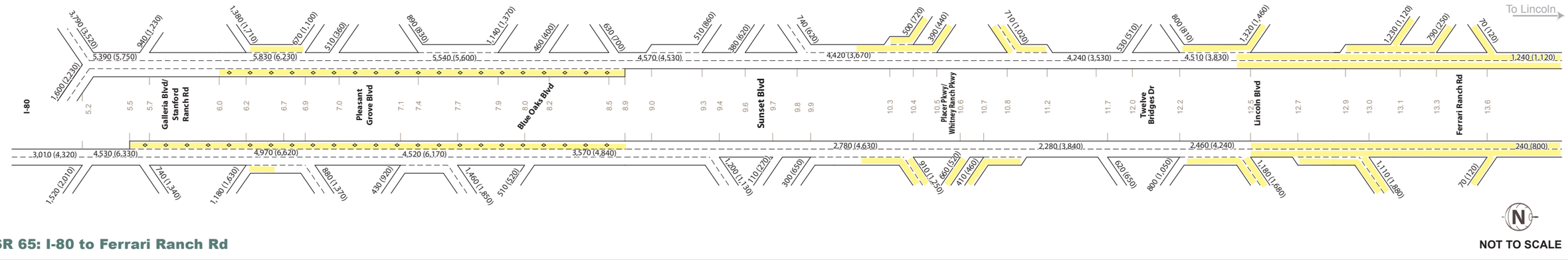
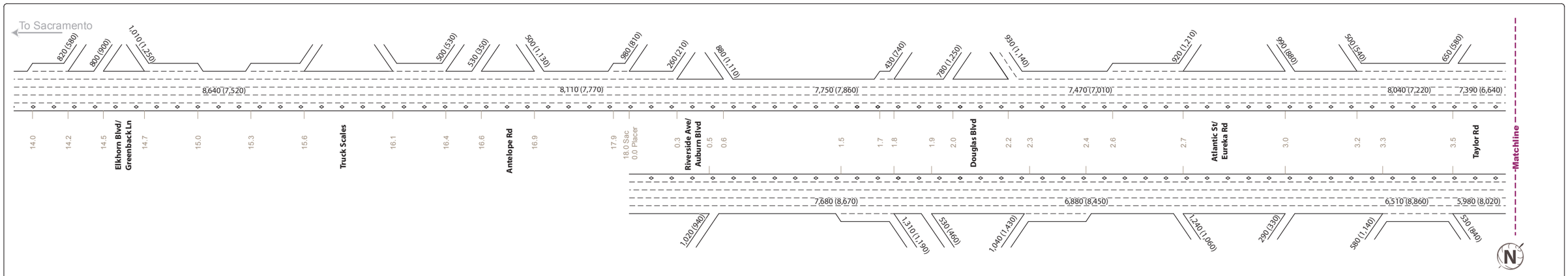
AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

FIGURE 2



NOT TO SCALE

SR 65: I-80 to Ferrari Ranch Rd



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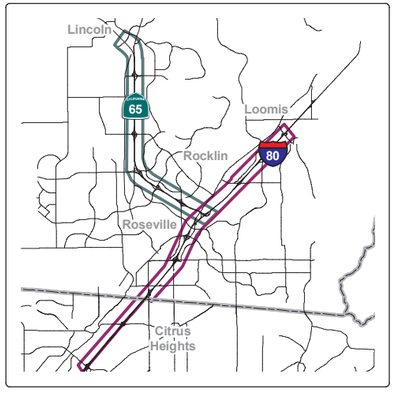
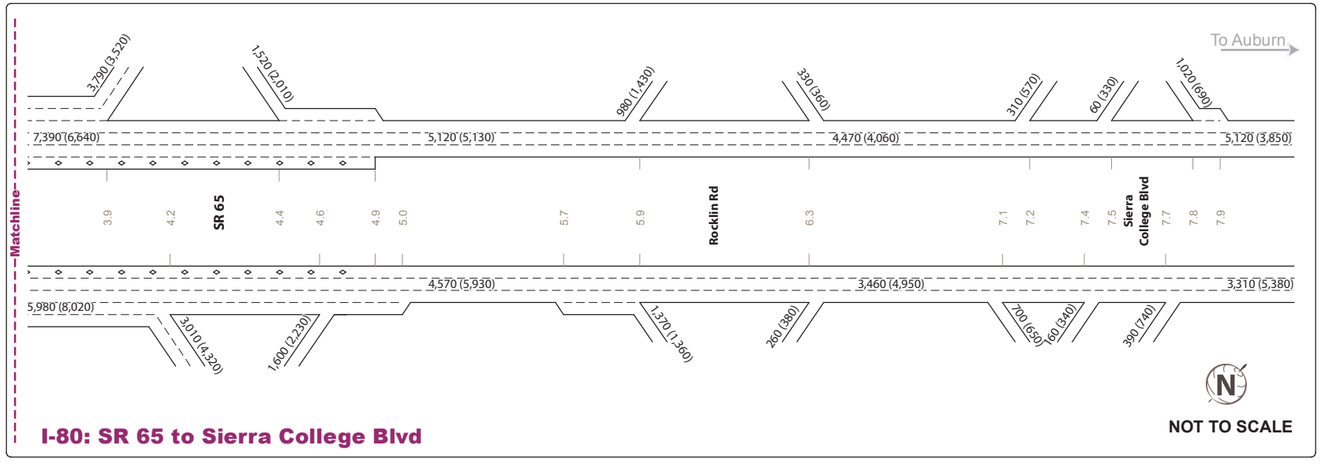
I-80: Elkhorn Blvd to Taylor Rd



LEGEND

- AM (PM) Peak Hour Traffic Volume for 2040 Conditions
- 10.1 Postmile
- Separate Planned Projects



NOT TO SCALE

I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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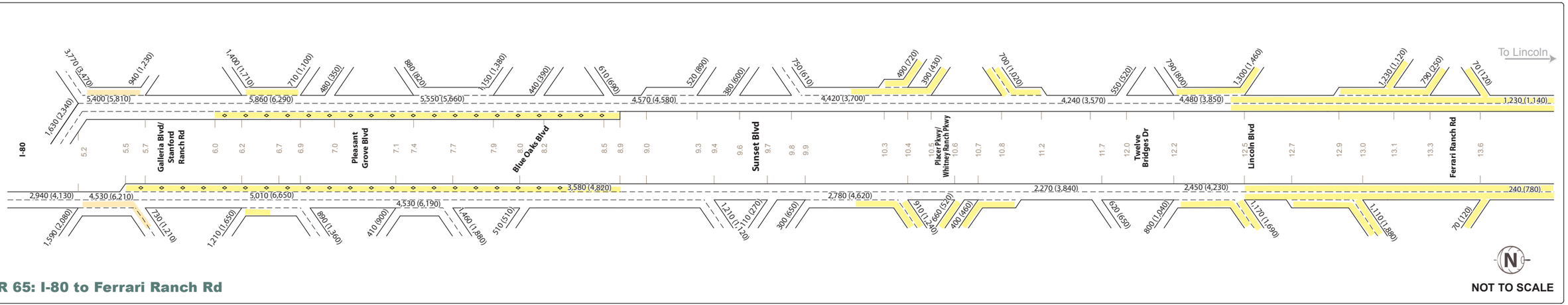
DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO BUILD ALTERNATIVE

FIGURE 5



SR 65: I-80 to Ferrari Ranch Rd

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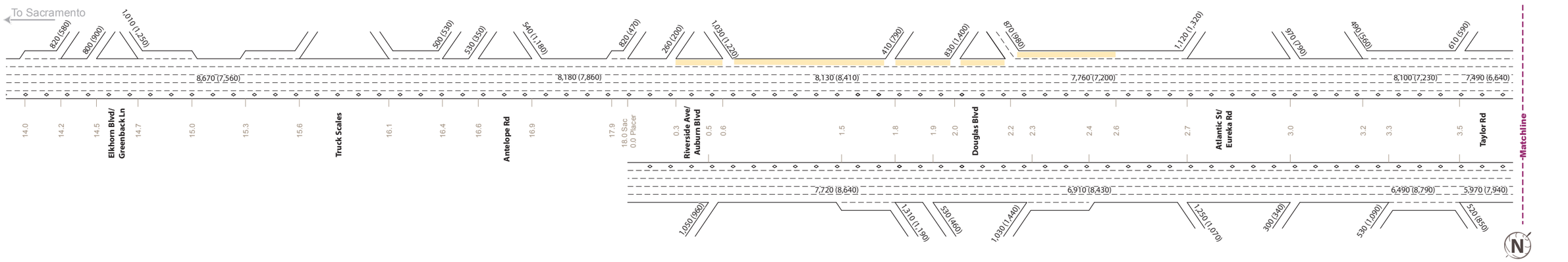

I-80: Elkhorn Blvd to Taylor Rd

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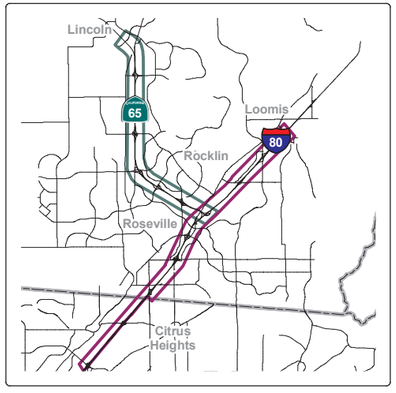
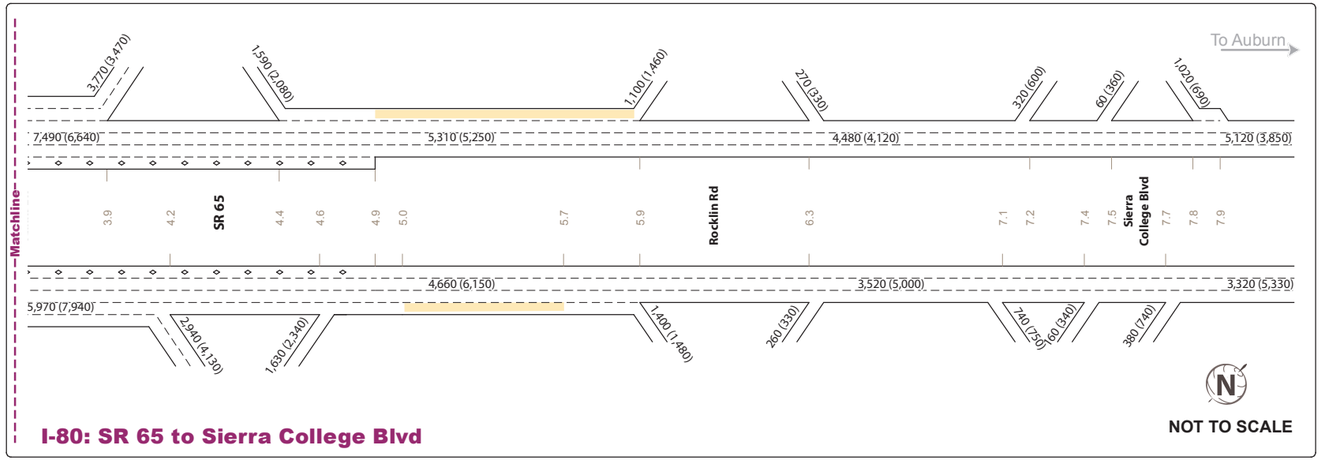


LEGEND

- AM (PM) Peak Hour Traffic Volume for 2040 Conditions
- 10.1 Postmile
- Separate Planned Projects
- TSM Alternative



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TSM ALTERNATIVE

FIGURE 6

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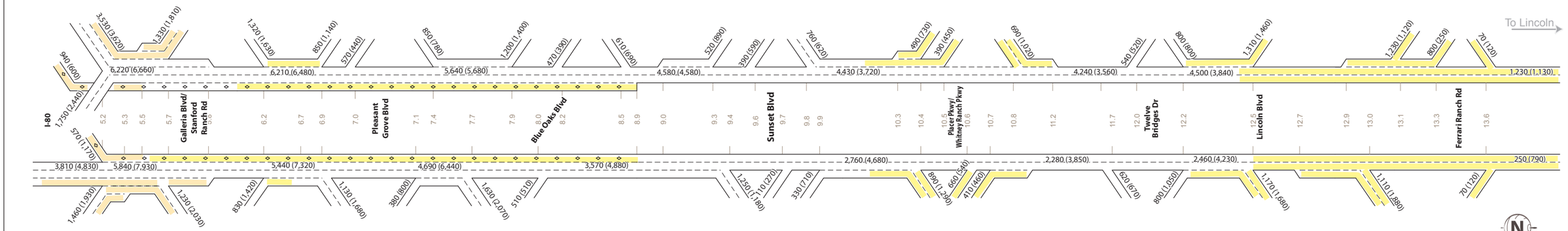

SR 65: I-80 to Ferrari Ranch Rd

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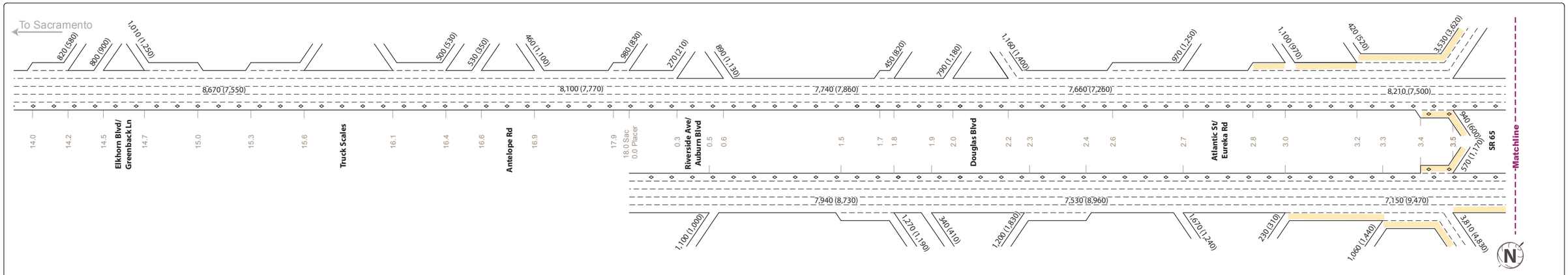

I-80: Elkhorn Blvd to SR 65

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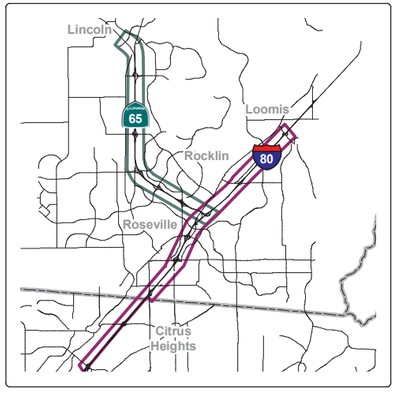
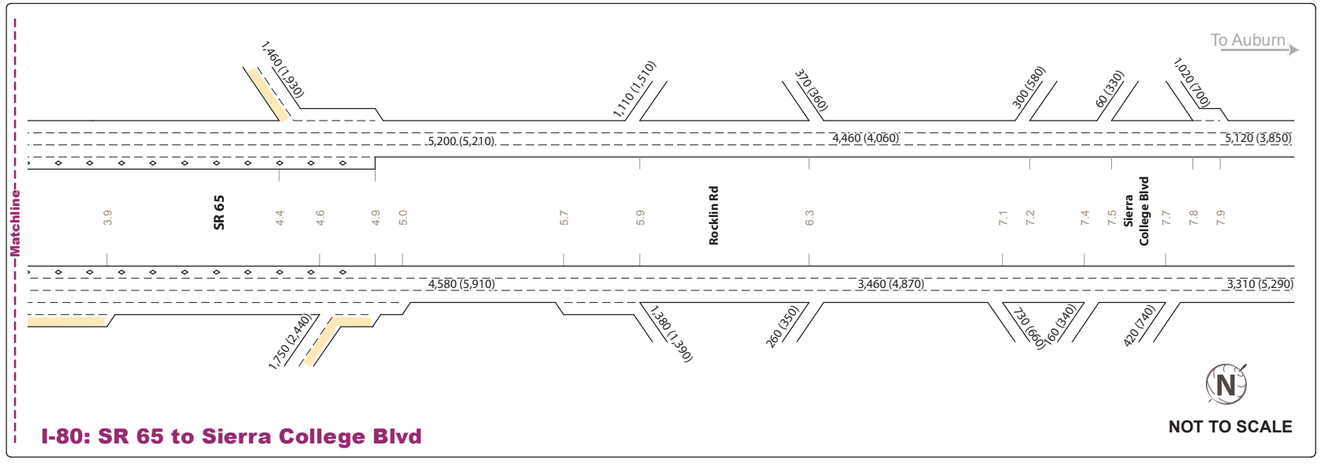


LEGEND

- AM (PM) Peak Hour Traffic Volume for 2040 Conditions
- 10.1 Postmile
- Separate Planned Projects
- No Taylor Alternative



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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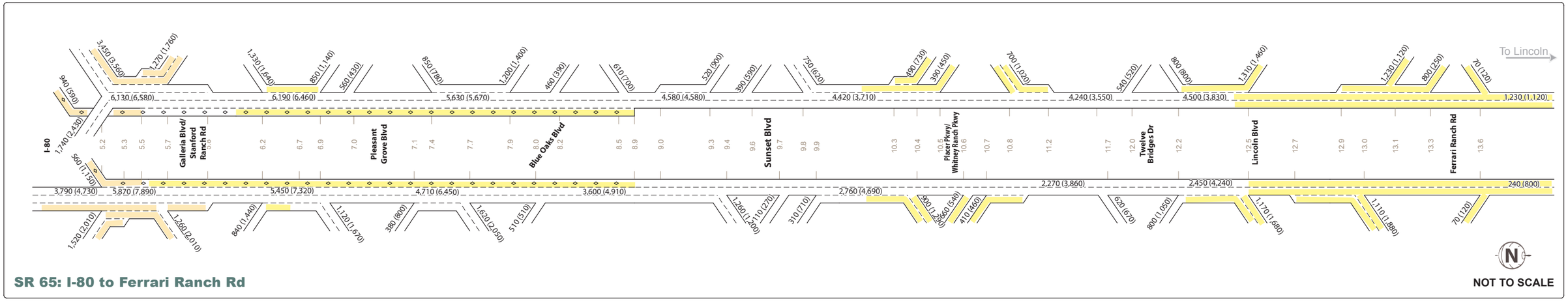
DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO TAYLOR ALTERNATIVE

FIGURE 7



SR 65: I-80 to Ferrari Ranch Rd

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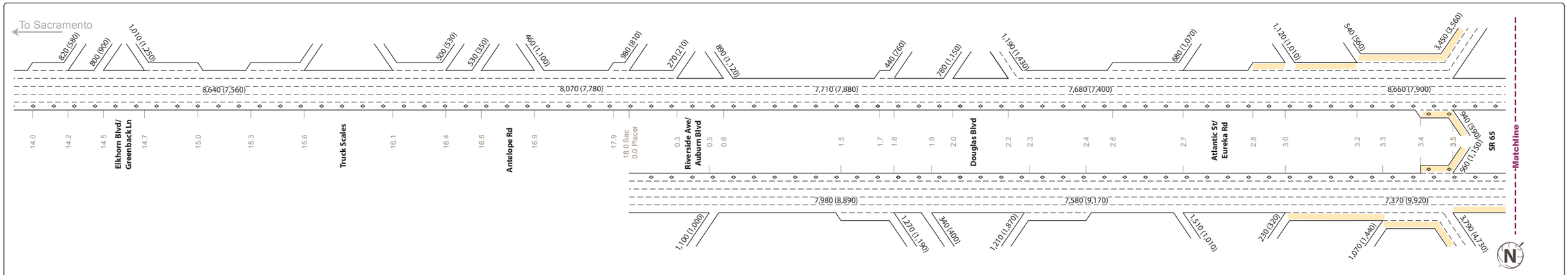

I-80: Elkhorn Blvd to SR 65

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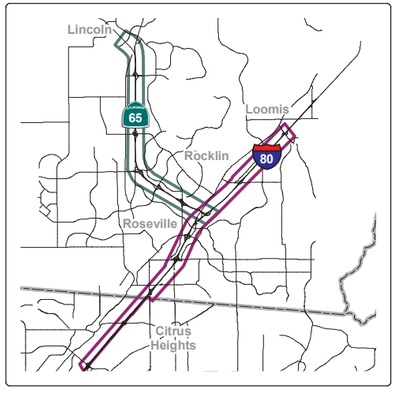
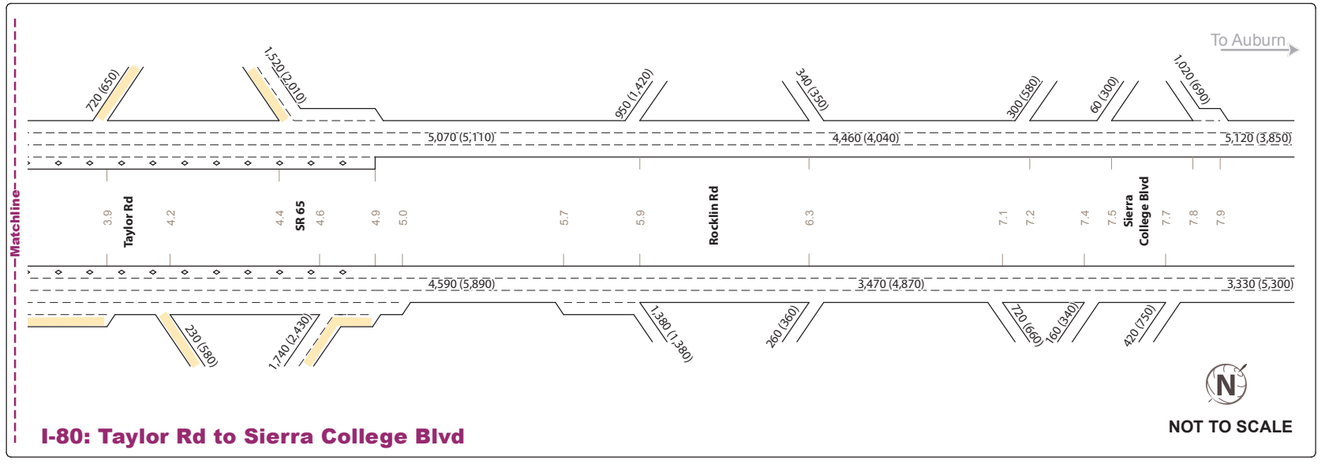


LEGEND

- AM (PM) Peak Hour Traffic Volume for 2040 Conditions
- 10.1 Postmile
- Separate Planned Projects
- Half Taylor Alternative



I-80: Taylor Rd to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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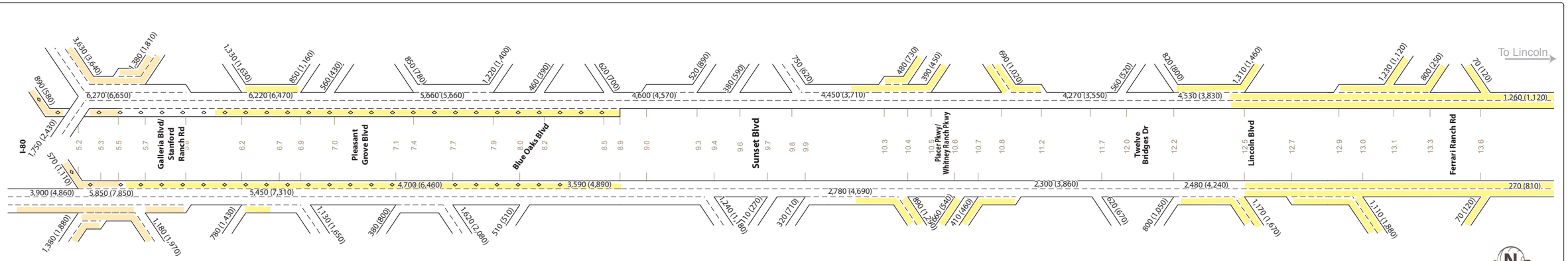
DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - HALF TAYLOR ALTERNATIVE

FIGURE 8



SR 65: I-80 to Ferrari Ranch Rd

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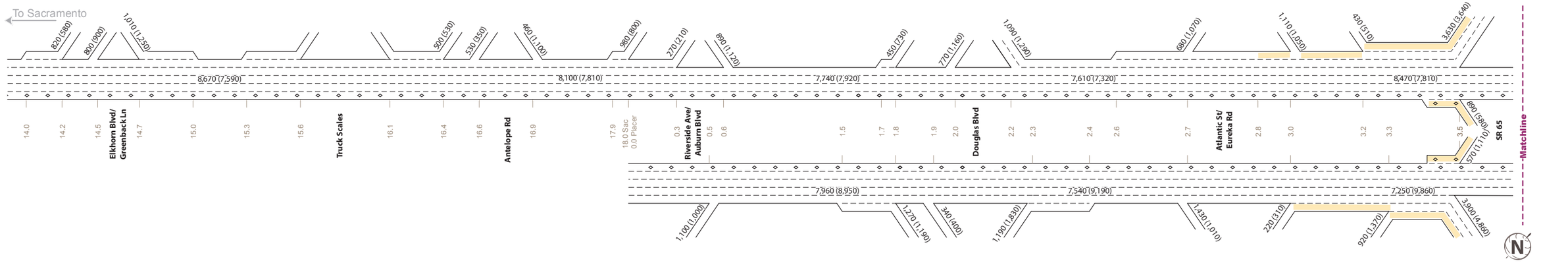

I-80: Elkhorn Blvd to SR 65

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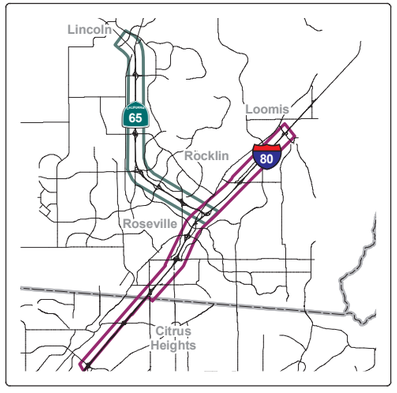
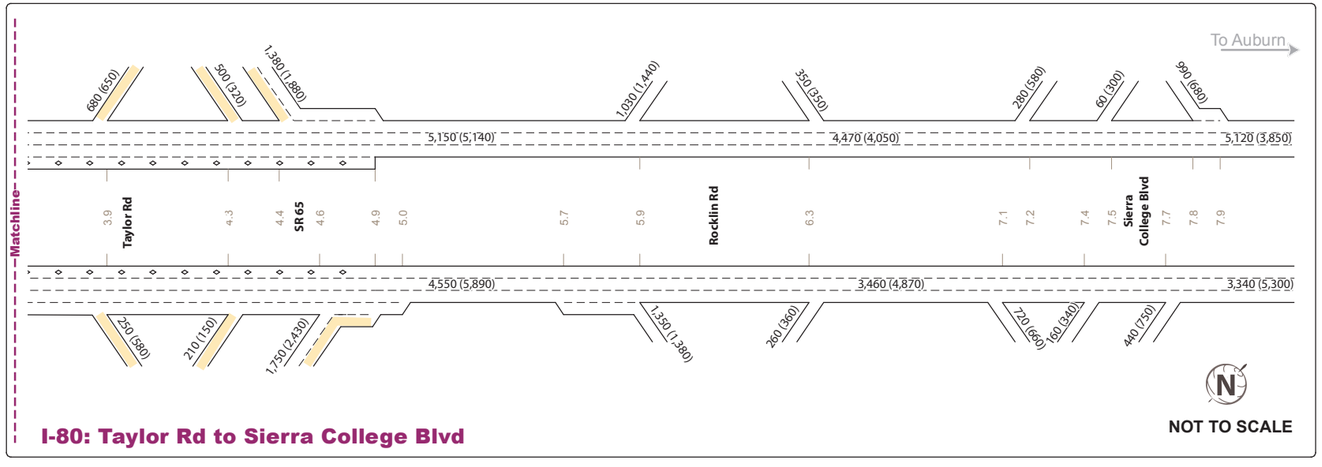


LEGEND

- AM (PM) Peak Hour Traffic Volume for 2040 Conditions
- 10.1 Postmile
- Separate Planned Projects
- Full Taylor Alternative



I-80: Taylor Rd to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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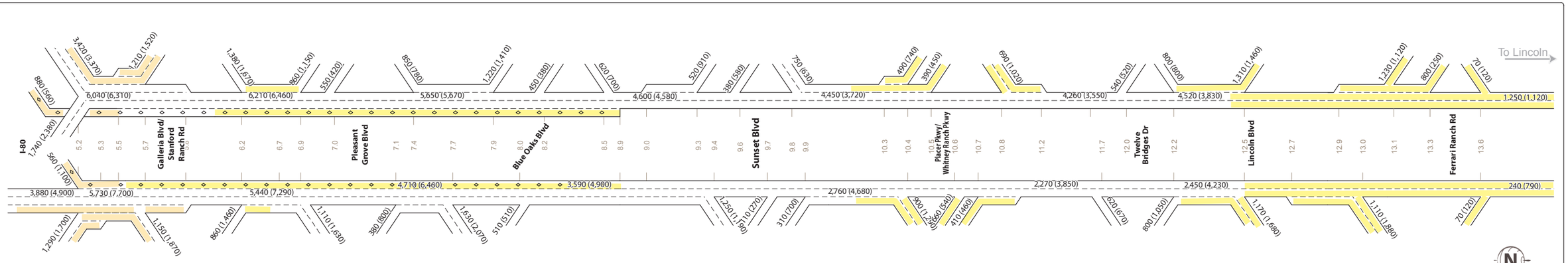
DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - FULL TAYLOR ALTERNATIVE

FIGURE 9



SR 65: I-80 to Ferrari Ranch Rd

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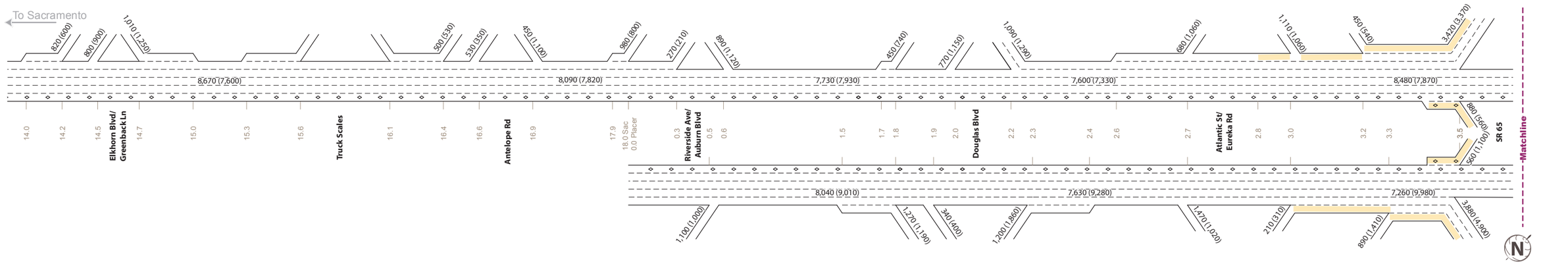

I-80: Elkhorn Blvd to SR 65

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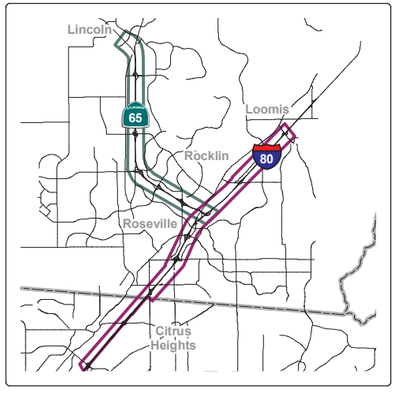
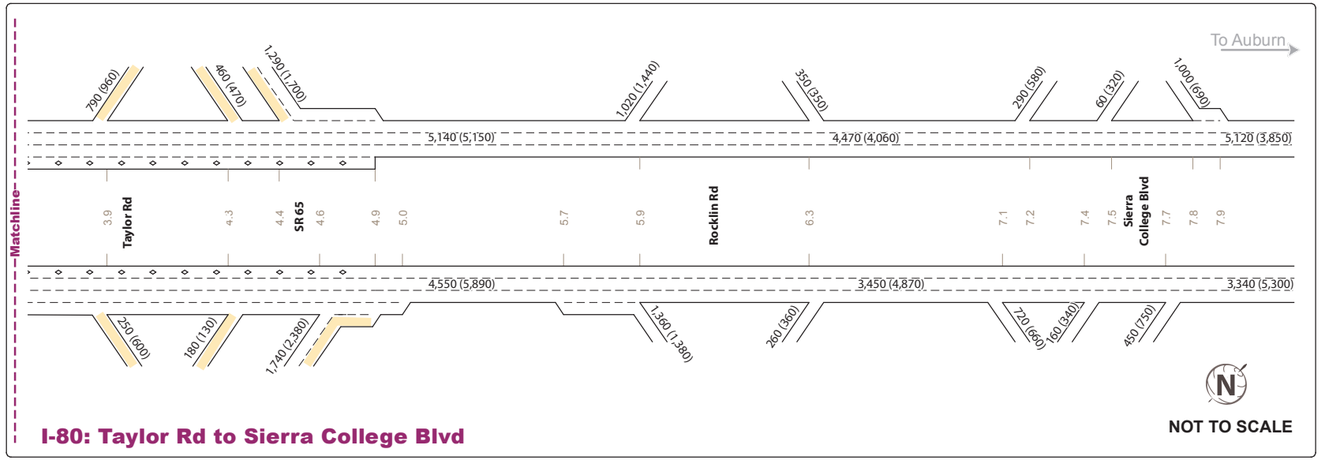


LEGEND

- AM (PM) Peak Hour Traffic Volume for 2040 Conditions
- 10.1 Postmile
- Separate Planned Projects
- Full Taylor Alternative



I-80: Taylor Rd to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - FULL TAYLOR ALTERNATIVE WITH ANTELOPE DRIVE CONNECTION

FIGURE 10

I-80/SR 65 Interchange Improvements

Existing Conditions Operations Model Calibration and Validation Memorandum, July 2012

FEHR PEERS

MEMORANDUM

Date: July 3, 2012

To: Jim Calkins, Caltrans District 3

From: David Stanek & Katie Jackson, Fehr & Peers

Subject: ***I-80/SR-65 Interchange –Existing Conditions Operations Model Calibration and Validation – REVISED***

RS11-2872

Fehr & Peers is preparing the traffic report for the Interstate 80 (I-80) / State Route 65 (SR-65) Interchange project in Placer County. This technical memorandum documents the existing (2012) conditions traffic operations analysis for the project as an interim submittal for review and comment. Input is desired at this time because the existing conditions model serves as the base for all future year and alternatives models. After reviewing this memorandum, we would like to opportunity to discuss finalizing the model calibration and validation.

The I-80/SR-65 project proposes to increase capacity for the freeway-to-freeway connectors and add median HOV-only connectors between I-80 to the west and SR-65. Due to the regional significance of the project location, the study area for the traffic analysis is extensive as shown in Figure 1).

Freeway and arterial traffic operations within the study area were analyzed using a VISSIM simulation model. This memorandum describes the development of the simulation model and calibration and validation process while also summarizing the existing conditions traffic operations analysis results.

MODEL DEVELOPMENT PROCESS

The development of the VISSIM model included three basic components: (1) setup, (2) calibration, and (3) validation. The analysis assumptions and methodology were previously described in a January 6, 2012 memorandum. The revised version of this memorandum that includes changes based on reviewer comments is attached to this memorandum.

The VISSIM model was constructed by drawing the roadway network using aerial photography as a background. The number of lanes, turning restrictions, and the location of lane additions and drops were confirmed by field observations. Intersection and ramp meter signal operation (i.e., cycle lengths and timing plans) were specified. Driver behavior parameters were adjusted based on field observations. The distribution of vehicle types was also calibrated to local conditions so that the percentage of trucks and high-occupancy vehicles (HOVs) match the traffic counts.

Since micro-simulation models like VISSIM rely on the random arrival of vehicles, multiple runs are needed to provide a reasonable level of statistical accuracy and validity. Therefore, the results of ten separate runs (each using a different random seed number) were averaged to determine the final results.

The VISSIM model was validated to existing conditions using the criteria suggested in *Guidelines for Applying Traffic Microsimulation Modeling Software* (California Department of Transportation, 2002) and additional criteria developed by Fehr & Peers. A number of iterations were required to successively adjust the default VISSIM parameters for geometrics and driver behavior until the model was validated to observed conditions.

The calibrated and validated model is used to generate performance measures that are consistent with the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2011). The validated VISSIM model will serve as the basis for future conditions models.

MODEL SET-UP

The model setup required the input of geometric, traffic control, and traffic flow data, each of which is described below.

Geometric Data

Roadway geometric data was gathered using aerial photographs, design plans (for the I-80 HOV lane project), and field observations. The lane configurations that were taken initially from aerial photographs were confirmed or revised based on field observations.

Traffic Control Data

The Caltrans Traffic Operations Sacramento Area office provided timing information for the ramp meters that were operating when the traffic counts were collected. The posted speed limits for the freeways and ramps were collected during field observations.

For signalized intersections, signal timing plans were provided by Caltrans, the City of Roseville, and the City of Rocklin. Traffic signals are modeled as either free operation or coordinated according to the control plans specified in the controller. Traffic control at unsignalized intersections were taken from aerial photographs and confirmed during field observations. Posted speed limits for the arterials were also collected.

Traffic Flow Data

Freeway and intersection traffic counts were collected in 15-minute intervals for the 6 to 10 AM and 3 to 7 PM peak periods. The traffic counts for the freeway mainline include vehicle classification by number of occupants for passenger cars and type of vehicle (see Attachment A). At intersections, cars, trucks, bicycles, and pedestrians were counted by turning movement. The 15-minute interval volume data was entered into the VISSIM model as gateway volumes. Table 1 shows the hourly HOV and truck percentages at the freeway gateway locations from the traffic counts.

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TABLE 1: HOURLY HOV AND TRUCK PERCENTAGE

Hour	Eastbound I-80 at Riverside Ave		Westbound I-80 at Sierra College Blvd		Southbound SR-65 at Twelve Bridges Dr	
	HOV	Truck	HOV	Truck	HOV	Truck
6 to 7 AM	12.4%	7.9%	11.6%	3.8%	13.1%	1.8%
7 to 8 AM	13.7%	3.7%	10.7%	3.8%	10.5%	1.4%
8 to 9 AM	15.6%	4.0%	13.9%	5.2%	14.8%	1.1%
9 to 10 AM	18.3%	5.3%	18.1%	5.9%	19.0%	2.2%
3 to 4 PM	20.0%	3.2%	24.3%	7.5%	31.1%	1.7%
4 to 5 PM	19.2%	2.6%	24.5%	5.1%	26.6%	0.9%
5 to 6 PM	13.9%	2.2%	18.8%	5.1%	31.0%	1.0%
6 to 7 PM	12.7%	2.8%	17.1%	5.2%	29.5%	1.5%

Source: Fehr & Peers, 2012

An origin-destination matrix was estimated for use in the traffic operations analysis model using a seed matrix derived from cell phone data collected in October 2010. In previous studies, the base year travel demand forecasting (TDF) model has been used to generate the seed matrix. The TDF model is based on a limited sample of household surveys that rely on self-reporting. Cell phone sighting data are actual records of travel patterns of (anonymous) cell phone owners. The cell phone data is both a larger sample size and provides hourly travel patterns (the TDF model is only peak hour or peak period data). Using VISUM's origin-destination estimator, a separate matrix was developed for each hour within the four-hour AM and PM peak periods. These matrices were divided into single-occupant vehicle (SOV), HOV, and truck modes based on the mode split in the travel demand forecasting (SACMET) base year model. The resulting matrices were used to route traffic through the study area network.

As noted above, HOV volumes were collected for the mainline freeway counts. For all other locations, the HOV percentage was assumed to be 18 percent based on the overall HOV percentage from the base year TDF model. Spot surveys of HOV percentage at freeway on-ramps were conducted in June 2012 at the I-80/Douglas Boulevard, I-80/Eureka Road, and SR-65/Galleria Boulevard interchanges. The measured HOV percentage ranged from 9 to 25 percent during the AM peak hour and 14 to 36 percent during the PM peak hour. The AM and PM peak hour averages of 16 and 24 percent from these samples were generally similar to the SACMET value of 18 percent.

Truck volumes were collected at all count locations. For modeled driveways that are used for volume balancing, the truck volumes were estimated using a typical value of 2 percent.

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MODEL CALIBRATION

VISSIM build version 5.40-02 was used for the analysis. Adjustments to the VISSIM model focus on the model components related to driver behavior, driver performance, vehicle fleet mix, and vehicle performance. The following VISSIM model parameters are subject to adjustment.

- Vehicle fleet composition (passenger cars, pickup trucks, sport-utility vehicles (SUVs), HOV-lane eligible vehicles, heavy trucks, etc.)
- Vehicle headways
- Distance between stopped vehicles (standstill distance)
- Driver behavior when changing lanes
- Driver behavior at ramp junctions (i.e., weaving sections, ramp merges, etc.)

The VISSIM model calibration process started by replacing the default values with the values as shown in Table 2.

The default VISSIM input parameter values did not represent study-area conditions. The calibrated values in Table 2 represent field observation and our experiences with similar projects elsewhere in California (such as the I-5 Bus/Carpool Lanes and I-5/I-80 Interchange projects). The default vehicle composition contains only standard sedans. However, a significant portion of vehicles in the Sacramento area (and most U.S. metropolitan areas) are SUVs (including light trucks). As a result, the traffic composition has been revised to reflect this condition. The distance at which vehicles become aware of off-ramps was increased to 1,500 feet since advanced signs are used on freeways to direct traffic. The changes to freeway and arterial driving behavior were found to better model the one-to-one merging that occurs at on-ramps and lane drops. The default driving behavior tended to have merging vehicles wait for a gap in through traffic before changing lanes.

Further calibration refinements were made during the validation process to specific locations. The parameters affecting the capacity were adjusted so that the observed traffic conditions (speed and queuing) were replicated in the VISSIM models. Table 3 lists the fine tuning adjustments made to VISSIM model parameters for specific locations.

For the AM peak period, the stand still distance and average headway was increased to replicate operating conditions on southbound SR-65 between Pleasant Grove Boulevard and Galleria Boulevard where congestion occurs at ramp merges and diverges. At merge junctions with short acceleration lanes (<400 feet), the safety distance reduction factor, advanced merging and cooperative lane change attributes were edited to allow for more aggressive driver behavior. The standstill distance and headway times were adjusted to create larger or smaller distances between vehicles based on field observations.

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TABLE 2: CALIBRATION ADJUSTMENTS			
Category	**Parameter**	**Default Value**	**Adjusted Value**
Vehicle Fleet Composition	SOV/HOV Vehicle Type – Sedans	100%	45%
	SOV/HOV Vehicle Type – SUVs	0%	45%
	SOV/HOV Vehicle Type – Sports Cars	0%	10%
	Truck Vehicle Type – 2 Axles	0%	67%
	Truck Vehicle Type – 3 or More Axles	100%	33%
Freeway Off-Ramp Connectors	Lane Change – Emergency Stop	16.4 ft	50 ft
	Lane Change – Lane Change	656.2 ft	1,500 ft
Arterial Driving Behavior	Following – Average Standstill Distance	6.56 ft	5.0 ft
Freeway Driving Behavior	Following – Max Look Ahead	820.21 ft	1,500 ft
	Following – Standstill Distance	4.92 ft	5.0 ft
	Following – Threshold for Entering	-8.0	-30.0
	Lane Change – Maximum Deceleration for Own Vehicle	-13.12 ft/s^2	-12.30 ft/s^2
	Lane Change – -1 ft/s2 Per Distance for Own / Trailing Vehicle	200 ft / 200 ft	100 ft / 66.7 ft
	Lane Change – Accepted Deceleration for Trailing	-1.64 ft/s^2	-0.82 ft/s^2
Arterial and Freeway Driving Behavior	Lane Change – Waiting Time Before Diffusion	60 sec	120 sec
	Lane Change – Safety Distance Reduction Factor	0.60	0.10
	Lane Change – Maximum Deceleration for Braking	-9.84 ft/s^2	-29.53 ft/s^2
Source: Fehr & Peers, 2012			

Adjustments were made to both peak period models (using partial routing decisions) to keep I-80 through freeway traffic in the left lanes, which replicates actual driving behavior. That is, drivers tend to stay in the left lanes to allow on-ramp traffic to merge in. The lane change distance for many off-ramps on I-80 and SR-65 was increased to values between 1,500 and 5,000 feet so that exiting vehicles changed lanes far enough upstream to reach an off-ramp and so that through vehicles would avoid using auxiliary lanes.

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TABLE 3: VALIDATION ADJUSTMENTS

Category	Parameter	Default Value	Adjusted Value
Freeway Driving Behavior for Southbound SR-65 (AM Peak Hour)	Following – Standstill Distance	4.92 ft	6.00 ft
	Following – Headway Time	0.90 s	1.10 s
Freeway Off-Ramp Connectors (Both Peak Hours)	Lane Change – Emergency Stop	16.4 ft	50 ft
	Lane Change – Lane Change	656.2 ft	1,500 – 5,000 ft
Freeway On-Ramp Merge Behavior at short merge junctions (Both Peak Hours)	Lane Change – Safety distance reduction factor	0.10	0.05
	Lane Change – Advanced Merging	Off	On
	Lane Change – Cooperative Lane Change	Off	On
Freeway Driving Behavior for Eastbound I-80 between Eureka Road and SR 65 (PM Peak Hour)	Following – Standstill Distance	4.92 ft	6.99 ft
	Following – Headway Time	0.90 s	1.30 s
Freeway Driving Behavior for connector ramp from Eastbound I-80 to Northbound SR 65 (PM Peak Hour)	Following – Standstill Distance	4.92 ft	4.00 ft
	Following – Headway Time	0.90 s	0.80 s
	Lane Change – Advanced Merging	Off	On
	Lane Change – Cooperative Lane Change	Off	On
	Lane Change – Safety distance reduction factor	0.10	0.05
Freeway On-Ramp Behavior on Northbound SR 65 at the on-ramp from Westbound I-80 (PM Peak Hour)	Following – Standstill Distance	4.92 ft	3.51 ft
	Following – Headway Time	0.90 s	0.80 s
	Lane Change – Maximum Deceleration for Own /Trailing Vehicle	-13.12 ft/s^2 / -9.84 ft/s^2	-13.12 ft/s^2 / -13.02 ft/s^2
	Lane Change – -1 ft/s2 Per Distance for Own / Trailing Vehicle	200 ft / 200 ft	200 ft / 75 ft
	Lane Change – Advanced Merging	Off	On
	Lane Change – Cooperative Lane Change	Off	On

Source: Fehr & Peers, 2012

MODEL VALIDATION

During validation, the VISSIM model estimates are compared against observed data to measure the model's accuracy. FHWA suggests the following validation criteria (*Traffic Analysis Toolbox Volume III - Guidelines for Applying Traffic Microsimulation Modeling Software*, Federal Highway Administration, 2003).

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- Link volumes for more than 85 percent of cases meet the following criteria:
  - For volumes less than 700 vph, within 100 vph
  - For volumes between 700 and 2,700 vph, within 15 percent
  - For volumes greater than 2,700, within 400 vph
- Link volumes for more than 85 percent of cases have a GEH statistic (a measure of goodness of fit) less than 5
- Sum of link volumes within 5 percent
- Sum of link volumes have a GEH statistic less than 4
- Average travel times within 15 percent (or one minute, if higher) for more than 85 percent of cases
- Individual link speeds have a visually acceptable speed-flow relationship
- Bottlenecks create visually acceptable queuing

Based on our previous experience, Fehr & Peers has developed the following additional validation criterion, which has a narrower tolerance for intersection and interchange volumes (which are aggregated link volumes) than the criteria suggested by FHWA.

- Peak-hour volumes at intersections and interchanges within 5 percent of traffic counts

Table 4 shows how the results for the existing conditions VISSIM models compared to the validation criteria thresholds recommended in the FHWA guidelines.

The volumes for all freeway mainline and ramp links meet the criteria threshold for both peak periods. Aggregations of link volumes for the total network and for the study interchanges meet the 5 percent tolerance. The overall GEH statistic threshold was not met for the AM peak period. The PM model does not meet the criteria for travel time validation; this is discussed in more detail below. Despite this, the total modeled volume is within 0.6 percent of the total demand volume for both peak periods. The peak period travel times met the validation criteria. The speed-flow relationship at bottlenecks were visually inspected and found to be acceptable.

The both peak period models meet the link volume GEH statistic and visual inspection of queuing. As a result, both the AM and PM peak period models are found to be validated.

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TABLE 4: VALIDATION CRITERIA THRESHOLDS COMPARISON

Criteria	Threshold	% Met Target	AM Peak Period		PM Peak Period	
			% Met	Pass/Fail	% Met	Pass/Fail
Link Volumes						
< 700 vph	100 vph	> 85%	95%	Pass	96%	Pass
Between 700 & 2,700 vph	15%	> 85%	96%	Pass	96%	Pass
> 2,700 vph	400 vph	> 85%	90%	Pass	100%	Pass
GEH Statistic	5	> 85%	90%	Pass	86%	Pass
Sum of Link Volumes						
Sum of All Links	5%	-	99%	Pass	99%	Pass
GEH Statistic	4	-	7	**Fail**	1	Pass
Aggregated Volumes						
Intersections	5%	> 85%	86%	Pass	93%	Pass
Interchanges	5%	> 85%	100%	Pass	100%	Pass
Travel Time						
Travel Paths	15%	> 85%	87%	Pass	84%	**Fail**
Visual Inspection						
Travel Speeds	Match observations		Yes	Pass	Yes	Pass
Queuing	Match observations		Yes	Pass	Yes	Pass

Source: Fehr & Peers, 2012

Table 5 shows the differences between the existing counted volume and the model volume at the freeway interchanges. The modeled volume at all interchanges for both peak periods varies by no more than 3 percent from the counted volume.

Tables 6 and 7 compares the measured travel time and the modeled travel time for selected network paths during the AM and PM peak periods, respectively.

Thirteen out of the fifteen travel time measurements for the AM peak period are within the 15 percent validation threshold. One of the modeled travel time measurements is 19 percent less than the measured value for the same time period; the other is 17 percent higher than the measured travel time. For the PM peak period, 16 out of the 19 travel time measurements are within the 15 percent validation threshold. The modeled travel time is based on an average of all vehicles within the time interval, while the measured travel time is from one or two probe vehicles. However, the modeled travel time does show the increase and decrease in travel time over the peak period that was observed in the measured travel times. Matching the observed travel times is not a definitive endorsement of the model's accuracy, but instead should be used as a basis for reasonableness checking the model. Overall, the model matches the travel

time amounts and patterns reasonably well and any limitations of the model with respect to travel time forecasting will be noted in subsequent reports.

TABLE 5: INTERCHANGE VOLUME VALIDATION RESULTS

Freeway	Interchange	AM Peak Period			PM Peak Period		
		Count Volume	Model Volume	Percent Served	Count Volume	Model Volume	Percent Served
I-80 Eastbound	Riverside Ave	20,764	20,926	101%	26,898	26,877	100%
	Douglas Blvd	23,745	23,807	100%	31,339	31,287	100%
	Eureka Rd	20,721	20,668	100%	29,482	29,560	100%
	Taylor Rd	17,149	16,887	98%	25,695	25,870	101%
	SR-65	20,006	19,653	98%	29,693	29,872	101%
	Rocklin Rd	12,294	12,516	102%	17,974	18,399	102%
	Sierra College Blvd	9,872	9,941	101%	15,992	16,147	101%
I-80 Westbound	Sierra College Blvd	15,003	15,098	101%	12,683	12,743	100%
	Rocklin Rd	15,416	15,581	101%	14,677	14,889	101%
	SR-65	25,983	26,072	100%	23,176	23,396	101%
	Taylor Rd	23,955	23,495	98%	20,131	19,849	99%
	Eureka Rd	26,337	26,139	99%	23,487	23,758	101%
	Douglas Blvd	26,432	26,140	99%	25,364	25,216	99%
	Riverside Ave	28,161	28,111	100%	25,763	25,906	101%
	Antelope Rd	29,837	29,949	100%	25,304	25,580	101%
	Elkhorn Blvd	34,348	34,547	101%	26,770	27,086	101%
SR-65 Northbound	Galleria Blvd	13,901	13,425	97%	20,949	20,762	99%
	Pleasant Grove Blvd	12,400	11,972	97%	18,351	17,960	98%
	Blue Oaks Blvd	11,403	11,095	97%	16,114	15,652	97%
	Sunset Blvd	7,323	7,162	98%	11,660	11,708	100%
	Twelve Bridges Dr	5,192	5,063	98%	10,982	10,880	99%
SR-65 Southbound	Twelve Bridges Dr	10,237	10,202	100%	8,085	8,234	102%
	Sunset Blvd	11,671	11,578	99%	11,311	11,444	101%
	Blue Oaks Blvd	15,023	14,650	98%	15,198	14,773	97%
	Pleasant Grove Blvd	16,750	16,234	97%	16,734	16,469	97%
	Galleria Blvd	17,598	17,213	98%	18,430	18,144	98%

Notes: Bold and underline font indicate a modeled volume more than 5% different from the counted volume.

1. Volumes reported for these interchanges are westbound only.

Source: Fehr & Peers, 2012

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TABLE 6: AM PEAK PERIOD TRAVEL TIME VALIDATION RESULTS

Path	Interval	Travel Time (minutes)		Percent Difference
		Measured	Modeled	
SB SR-65 at Blue Oaks Blvd to WB I-80 at Antelope Rd	7:15 – 7:30 AM	10.27	8.40	**-18.2%**
	7:45 – 8:00 AM	10.80	10.38	-3.9%
	8:15 – 8:30 AM	8.05	8.50	5.6%
EB I-80 at Auburn Blvd to NB SR-65 at Blue Oaks Blvd	7:00 – 7:15 AM	6.69	6.79	1.5%
	7:45 – 8:00 AM	7.28	7.46	2.5%
	8:15 – 8:30 AM	6.99	6.89	-1.5%
	8:45 – 9:00 AM	6.93	6.89	-0.6%
WB I-80 at Sierra College Blvd to WB I-80 at Antelope Rd	7:00 – 7:15 AM	7.98	9.34	**17.0%**
	7:30 – 7:45 AM	8.25	8.46	2.5%
	8:00 – 8:15 AM	7.83	8.48	8.2%
	8:30 – 8:45 AM	7.73	8.33	7.7%
EB I-80 at Auburn Blvd to EB I-80 at Sierra College Blvd	7:15 – 7:30 AM	5.93	6.58	10.9%
	7:45 – 8:00 AM	6.13	6.71	9.5%
	8:30 – 8:45 AM	5.91	6.55	10.9%
	8:45 – 9:00 AM	6.16	6.55	6.4%

Note: Bold and underline font indicates a modeled travel time that is more the 15% difference from the measured travel time.

Source: Fehr & Peers, 2012

The modeled queues were compared to observed conditions for the AM and PM peak periods. For the AM peak period, the travel time runs showed congestion on southbound SR-65 between Blue Oaks Boulevard and Galleria Boulevard, and the model shows similar congested conditions. The model also shows slowing on westbound I-80 near Douglas Boulevard, similar to observed congestion. For eastbound I-80 and northbound SR-65, the model is consistent with observed conditions – no congestion occurs.

For the PM peak period, slowing occurs on northbound SR-65 at the on-ramp from westbound I-80. This congestion was observed to cause slowing on I-80 in both directions. Although this congestion was replicated in the VISSIM model, the modeled travel time is 25 percent lower than the observed travel time for the peak 15-minute interval. The modeled queue extends to Eureka Road on eastbound I-80.

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TABLE 7: PM PEAK PERIOD TRAVEL TIME VALIDATION RESULTS

Path	Interval	Travel Time (minutes)		Percent Difference
		Measured	Modeled	
SB SR-65 at Blue Oaks Blvd to WB I-80 at Antelope Rd	4:00 – 4:15 PM	8.17	8.29	1.5%
	4:30 – 4:45 PM	8.03	8.38	4.4%
	5:00 – 5:15 PM	8.27	8.44	2.2%
	5:45 – 6:00 PM	9.03	8.21	-9.2%
	6:15 – 6.:30 PM	8.05	8.05	0.0%
EB I-80 at Auburn Blvd to NB SR-65 at Blue Oaks Blvd	3:45 – 4:00 PM	7.39	9.51	**28.6%**
	4:15 – 4:30 PM	8.06	9.00	11.7%
	4:45 – 5:00 PM	8.61	9.74	13.1%
	5:15 – 5:30 PM	12.21	9.12	**-25.3%**
	6:00 – 6:15 PM	9.04	8.11	-10.4%
WB I-80 at Sierra College Blvd to WB I-80 at Antelope Rd	4:00 – 4:15 PM	8.75	8.08	-7.7%
	5:00 – 5:15 PM	8.50	8.22	-3.3%
	5:30 – 5:45 PM	7.30	8.08	10.7%
	6:00 – 6:15 PM	7.77	7.99	2.8%
	6:30 – 6:45 PM	7.68	7.94	3.4%
EB I-80 at Auburn Blvd to EB I-80 at Sierra College Blvd	4:15 – 4:30 PM	5.84	6.80	**16.3%**
	4:45 – 5:00 PM	6.08	6.92	13.8%
	5:15 – 5:30 PM	6.26	6.54	4.4%
	5:45 – 6:00 PM	7.06	6.41	-9.3%

Note: Bold and underline font indicates a modeled travel time that is more the 15% difference from the measured travel time.

Source: Fehr & Peers, 2012

EXISTING CONDITIONS ANALYSIS

Using the validated VISSIM models for the AM and PM peak periods, the peak hour traffic operations were analyzed. The analysis results include a descriptive term known as level of service (LOS). LOS is a measure of traffic operating conditions, which varies from LOS A (the best) to LOS F (the worst). Tables 8 and 9 describe the LOS thresholds from the HCM for freeway sections and signalized intersections, respectively.

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TABLE 8: FREEWAY LOS THRESHOLDS			
LOS	Average Density (vplpm)		Description
	Basic Sections	Ramp Junction & Weave Sections	
A	< 11	< 10	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver.
B	> 11 to 18	> 10 to 20	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.
C	> 18 to 26	> 20 to 28	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.
D	> 26 to 35	> 28 to 35	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.
E	> 35 to 45	> 35 to 43	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.
F	> 45	> 43	Represents a breakdown in flow.
Source: Fehr & Peers, 2012			

TABLE 9: SIGNALIZED INTERSECTION LOS THRESHOLDS		
LOS	Average Delay (sec/veh)	Description
A	< 10	Very low delay occurs with favorable progression and/or short cycle length.
B	> 10 to 20	Low delay occurs with good progression and/or short cycle lengths.
C	> 20 to 35	Average delays result from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.
D	> 35 to 55	Longer delays occur due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop and individual cycle failures are noticeable.
E	> 55 to 80	High delay values indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.
F	> 80	Delays are unacceptable to most drivers due to over-saturation, poor progression, or very long cycle lengths.
Source: Fehr & Peers, 2012		

Table 10 shows the LOS and average density at key freeway ramp junctions and mainline sections under existing conditions. See Attachment A for detailed results for all study locations.

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TABLE 10: SELECTED FREEWAY OPERATIONS RESULTS

Freeway	Location	Type	AM Peak Hour	PM Peak Hour
Eastbound I-80	Eureka Rd Off-ramp	Diverge	C / 26	C / 26
	Eureka Rd Off to On-ramp	Basic	C / 21	C / 23
	Eureka Rd EB On-ramp	Merge	B / 19	C / 25
	Eureka Rd to Taylor Rd	Weave	C / 23	E / 37
	Taylor Rd to SR-65	Basic	D / 27	E / 37
	SR-65 Off-ramp	Diverge	C / 28	**F / 43**
Westbound I-80	Douglas Blvd Off-ramp	Diverge	B / 19	B / 17
	Douglas Blvd Off to On-ramp	Basic	D / 30	C / 25
	Douglas Blvd WB On-ramp	Merge	E / 36	D / 32
	Douglas Blvd EB On-ramp	Merge	E / 42	D / 36
	Douglas Blvd to Riverside Ave	Basic	D / 33	D / 32
	Riverside Ave Off-ramp	Diverge	E / 40	E / 40
Northbound SR-65	I-80 WB On-ramp	Merge	**F / 53**	**F / 93**
	I-80 to Stanford Ranch Rd	Basic	D / 32	**F / 75**
	Stanford Ranch Rd Off-ramp	Diverge	D / 33	**F / 63**
Southbound SR-65	Blue Oaks Blvd WB On-ramp	Merge	**F / 60**	B / 20
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	**F / 75**	C / 21
	Pleasant Grove Blvd Off to On-ramp	Basic	**F / 89**	C / 25
	Pleasant Grove Blvd WB On-ramp	Merge	**F / 72**	D / 30
	Pleasant Grove Blvd EB On-ramp	Merge	**F / 53**	E / 39
	Pleasant Grove Blvd to Galleria Blvd	Basic	E / 35	D / 32
	Galleria Blvd Off-ramp	Diverge	E / 35	D / 32

Note: Bold and underline font indicate LOS F conditions. The level of service and average density for the study segment are reported.

Source: Fehr & Peers, 2012

During the AM peak hour, congested LOS F conditions occur on northbound SR-65 at the westbound I-80 on-ramp and southbound SR-65 between Blue Oaks Boulevard and Pleasant Grove Boulevard. On northbound SR-65, the merging of the I-80 on-ramps causes congestion. For southbound SR-65, the constraint is the high demand from the mainline combined with the Pleasant Grove Boulevard on-ramp volume.

Multiple other locations have LOS D and E conditions during the AM peak hour, which may indicate future potential bottlenecks. LOS D conditions occur on eastbound I-80 between Auburn Boulevard and Douglas Boulevard due to the high volume of exiting traffic. LOS E conditions occur on westbound I-80 at

the Eureka Road loop off-ramp due to high exiting traffic. On westbound I-80 at Douglas Boulevard, the lane drop to the off-ramp combined with the on-ramp volume creates LOS E conditions. Most of the facilities on westbound I-80 between Antelope Road and Elkhorn Boulevard operate at LOS E or F. On southbound SR-65 between Sunset Boulevard and Blue Oaks Boulevard, LOS D conditions also occur due to the high on-ramp volume from Sunset Boulevard.

During the PM peak hour, the primary bottleneck is northbound SR-65 at the on-ramp from westbound I-80. This bottleneck results in LOS F conditions on eastbound I-80 at the SR-65 off-ramp. LOS E conditions exist from Taylor Road to Eureka Road (drivers typically allow more space between vehicles in this area, which results in lower density). The eastbound I-80 off-ramp to Eureka Road has LOS D conditions during the PM peak hour but experiences recurrent queues from the ramp terminal intersection that can extend back to the mainline. Westbound I-80 has LOS F conditions at the SR-65 off-ramp due to the same bottleneck. LOS D conditions also occur further north between Stanford Ranch Road and Pleasant Grove Boulevard. This suggests that if the bottleneck at I-80 were relieved, this section may become congested.

Westbound I-80 has LOS D/E conditions between Douglas Boulevard and Riverside Avenue and at the Antelope Road off-ramp. While the recent addition of the HOV lane has reduced congestion during the PM peak hour, these results indicate that congestion could return when volumes increase. Also on westbound I-80, exiting traffic causes LOS D conditions between Riverside Avenue and Antelope Road. Eastbound I-80 has LOS D/E conditions between Auburn Boulevard and Douglas Boulevard, which is another potential bottleneck. Finally, the section between SR-65 and Rocklin Road has LOS D conditions. If the upstream congestion at the SR-65 interchange were improved, the peak hour volume at this location would increase and may lead to a worsening of operations.

Table 11 shows the LOS and average delay at key study intersections under existing conditions. See Attachment A for detailed results for all study intersections.

The AM peak hour intersection LOS results indicate all intersections operate at LOS C or better, except for the Roseville Parkway / Sunrise Avenue and Blue Oaks Boulevard / Washington Boulevard intersections which operate at LOS D. The first LOS D intersection operates with split phasing to accommodate the hospital driveway, which leads to less efficient operations. The Blue Oaks Boulevard intersection serves both inbound (employees) and outbound (residents) commuters for west Roseville.

During the PM peak hour, six intersections operate at LOS D:

- Galleria Boulevard / Roseville Parkway
- Sunrise Avenue / Roseville Parkway
- Eureka Road / Taylor Road / I-80 Eastbound Ramps
- Eureka Road / Sunrise Avenue
- Sunrise Avenue / Douglas Boulevard
- Rocklin Road / Granite Drive

Like the Blue Oaks Boulevard intersection in the AM peak hour, the Roseville Parkway, Eureka Road, Douglas Boulevard and Rocklin Road corridors serve both inbound (residents and shoppers) and outbound (employees) commuters. Additionally, congestion occurs on eastbound Eureka Road approaching the I-80 on-ramp. A project to widen eastbound Eureka Road is under construction. All other intersections operate at LOS C or better during the PM peak hour.

TABLE 11: SELECTED INTERSECTION OPERATIONS RESULTS

Intersection	AM Peak Hour	PM Peak Hour
10. Stanford Ranch Rd / Five Star Blvd	B / 19	C / 31
11. Stanford Ranch Rd / SR-65 NB Ramps	A / 9	B / 13
12. Galleria Blvd / SR-65 SB Ramps	B / 13	B / 19
13. Galleria Blvd / Antelope Creek Dr	B / 10	C / 24
14. Galleria Blvd / Roseville Pkwy	C / 30	D / 36
15. Roseville Pkwy / Creekside Ridge Dr	A / 6	B / 18
16. Roseville Pkwy / Taylor Rd	C / 30	C / 29
17. Roseville Pkwy / Sunrise Ave	D / 37	D / 37
18. Atlantic St / Wills Rd	B / 10	B / 13
19. Atlantic St / I-80 WB Ramps	A / 7	A / 9
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 26	D / 48
21. Eureka Rd / Sunrise Ave	C / 24	D / 36
28. Pacific St / Sunset Blvd	B / 18	C / 29
29. Rocklin Rd / Granite Dr	B / 15	D / 36
30. Rocklin Rd / I-80 WB Ramps	C / 21	B / 17
31. Rocklin Rd / I-80 EB Ramps	B / 17	B / 20
32. Rocklin Rd / Aguilar Rd	A / 8	B / 13

Note: The LOS and average delay in seconds per vehicle are reported.
Source: Fehr & Peers, 2012

I-80/SR 65 Interchange Improvements

Draft Transportation Analysis Report, February 2013

I-80/SR-65 Interchange Improvements Project

Transportation Analysis Report

Placer County, CA

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

February 2013

Caltrans

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Transportation Analysis Report

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February 2013

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Phone Number _____
Office Name _____
District/Region _____

Traffic Operations
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Name, Title

Phone Number _____
Office Name _____
District/Region _____

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Chapter 1. Introduction

This transportation analysis report was prepared for the Interstate 80 (I-80)/State Route 65 (SR-65) interchange improvements project. The summary report contains an overview of the results and findings of the traffic forecasts and traffic operation analysis, while the detailed analysis calculations are compiled in the separately bound Technical Appendix.

1.1. Purpose of the Transportation Analysis Report

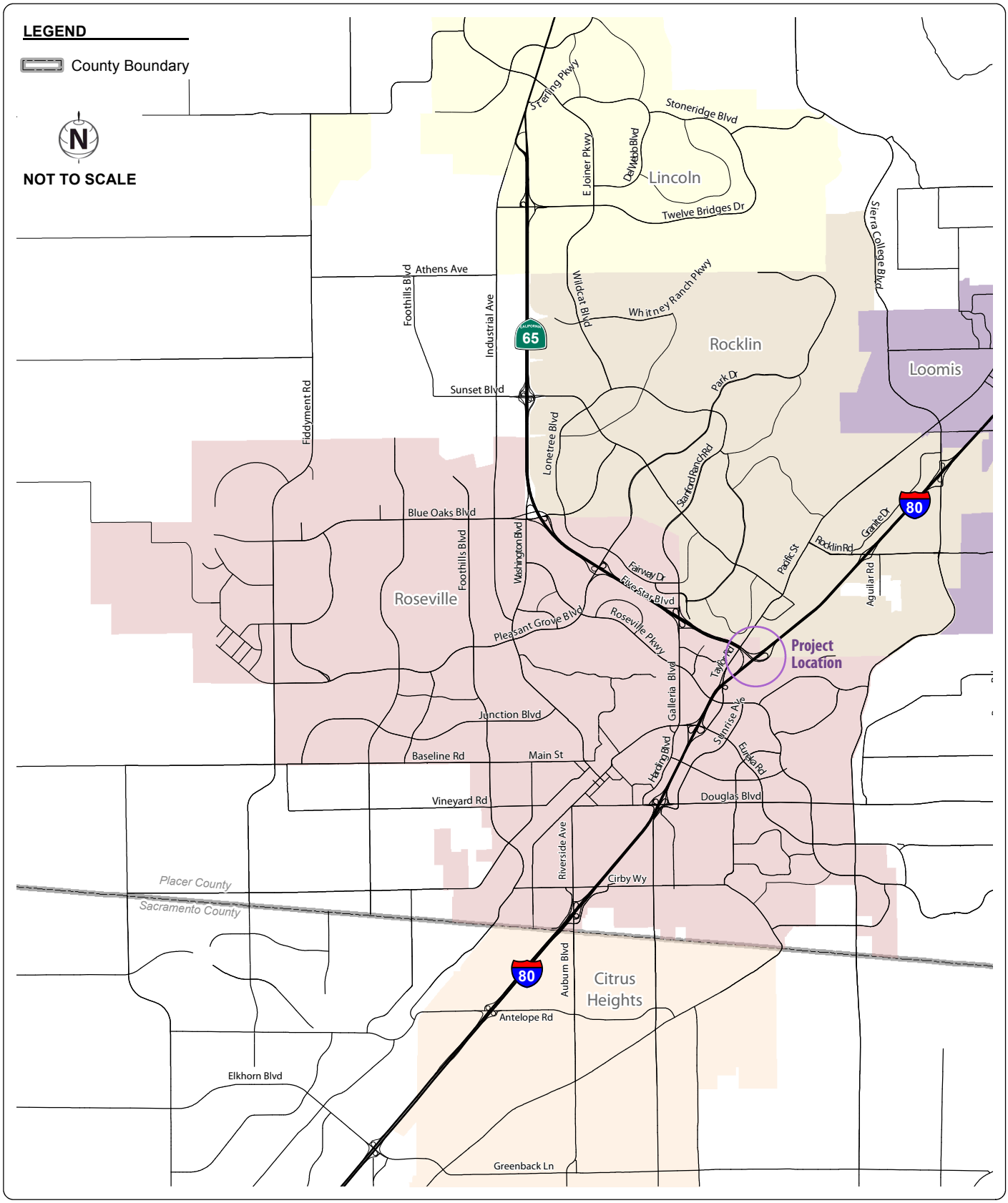
The purpose of this report is to analyze project design alternatives and their effects on the highway and arterial transportation network. The report focuses on a comparison of alternatives that are each designed to improve future traffic operations and safety at the I-80/SR-65 interchange consistent with the purpose and need statement. Portions of the analysis results will also be used to comply with environmental impact analysis requirements for the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

1.2. Project Description

The proposed project is located at the I-80/SR-65 freeway-to-freeway interchange in Placer County. Figure 1 shows the project vicinity and location map. The project would increase capacity at the interchange with the following actions.

- Replace the eastbound (EB) I-80 to northbound (NB) SR-65 two-lane loop off-ramp with a three-lane direct flyover ramp.
- Construct new median direct connectors from EB I-80 to NB SR-65 and from southbound (SB) SR-65 to westbound (WB) I-80. The median connectors would be restricted to high occupancy vehicles (HOVs) – vehicles with two or more occupants, motorcycles, or registered "Clean Air Vehicles" – during the AM and PM peak periods (weekdays 6:00 to 10:00 AM and 3:00 to 7:00 PM) to conform to HOV lane operation elsewhere in the Sacramento region. During off-peak times, the HOV lane would be available to all vehicles (except commercial trucks, which are restricted to the outside lanes).
- Widen the SB SR-65 connector to WB I-80 to three lanes, widen the SB SR-65 connector to EB I-80 to two lanes, and widen the WB I-80 connector to NB SR-65 to two lanes.
- Eliminate the Taylor Road partial interchange or replace it with a full interchange.

Widening or expansion of the adjacent freeway mainline segments and interchanges would be needed to facilitate some of these changes.



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PROJECT VICINITY

FIGURE 1

1.3. Project Purpose and Need

According to the Code of Federal Regulations (40 CFR 1502.13), all federally-funded Environmental Impact Statements (EISs) must contain a statement briefly specifying the underlying purpose and need (P&N) to which the agency is responding in proposing the alternatives including the proposed action. The current P&N statement for the I-80/SR-65 interchange improvements project is provided below.

The project is needed for the following reasons:

- Recurring morning and evening peak period demand exceeds the current design capacity of the I-80/SR-65 interchange and adjacent transportation facilities, which creates traffic operations and safety issues. These issues result in high delays, wasted fuel, and excessive air pollution and greenhouse gas emissions, which will be exacerbated by traffic from future population and employment growth.

- Interchange design features do not comply with current Caltrans design standards for safe and efficient traffic operations and limit existing community access to nearby uses.

- Travel choices are limited in the project because the transportation network does not include facilities for all modes and users consistent with the complete streets policies of Caltrans and local agencies.

The project objectives are listed as follows:

- Upgrade the I-80/SR-65 interchange and adjacent transportation facilities to reduce no build traffic congestion.

- Upgrade the I-80/SR-65 interchange and adjacent transportation facilities to comply with current Caltrans and local agency design standards for safer and more efficient traffic operations while maintaining and, if feasible, improving the current level of community access, at a minimum.

- Consider all travel modes and users in developing project alternatives.

1.3.1. Logical Termini and Independent Utility

According to 23 CFR 711.111(f)(1), actions evaluated in an EIS or Finding of No Significant Impact (FONSI) shall connect logical termini and be of sufficient length to address environmental matters on a broad scope. Project limits for proposed improvements were developed through an iterative process involving engineering design and traffic operations analysis. Preliminary design concepts

were tested with the traffic operations analysis model to evaluate how lane transitions and weaving influenced peak hour conditions. Refinements were made to ensure that mainline lane balance was logical and that transitions did not cause unacceptable traffic operations such as extensive queuing or slow speeds.

1.4. Project Alternatives

The initial concept presented in the PSR replaced the eastbound to northbound loop ramp with a flyover ramp and added median HOV ramps from eastbound to northbound and southbound to westbound. Through an alternative generation and screening process, the PDT developed the seven alternatives listed below and shown in Figure 2.

- Concept 1 – Taylor Road Access Shifted
- Concept 2 – Taylor Road Full Access (Diamond Shape Interchange)
- Concept 3 – Taylor Road Full Access (Trumpet Shape Interchange)
- Concept 4 – Antelope Creek Connection
- Concept 5 – Taylor Road Interchange Eliminated
- Concept 6 – Transportation System Management (TSM)
- Concept 7 – No Build

The transportation analysis focused on four of these concepts for detailed traffic operations analysis as described below.

- **Concept 7 – No Build** – Under the No Build alternative, no improvements would be made at the I-80/SR-65 interchange. However, numerous transportation capacity expansion projects are planned to be constructed within the study area under construction year (2020) and design year (2040) conditions as displayed in Figures 3 and 4, respectively. All of these projects are assumed to be in place under the No Build alternative as well as the build alternatives listed below.

- **Concept 6 – TSM** – The TSM alternative would add operational enhancements to the planned transportation network. A detailed drawing of this alternative is shown in Figure 5. These enhancements include auxiliary lanes, increased ramp meter storage, signal coordination, and greater access control.

CONCEPT 1

Initial Concept with Taylor Road Access Shifted

Benefits include:

- Improves interchange spacing
- Improves I-80 weaving
- Maintains local access to Taylor Road

Concerns:

- Taylor Road is a partial interchange (undesirable)
- Limited access to local traffic

CONCEPT 2

Initial Concept with Full Access for Taylor Road with a Diamond Shape Interchange

Benefits:

- Improves interchange spacing
- Improves I-80 weaving
- Provides full I-80 access at Taylor Road

Concerns:

- Requires Caltrans/FHWA approval
- Addresses driver expectation
- Involves combined local-system interchange ramps

CONCEPT 3

Initial Concept with Full Access for Taylor Road with a Trumpet Shape Interchange

Benefits:

- Improves interchange spacing
- Improves I-80 weaving
- Provides full I-80 access at Taylor Road

Concerns:

- Requires Caltrans/FHWA approval
- Addresses driver expectation
- Involves combined local-system interchange ramps

CONCEPT 4

Concept 3 with Antelope Creek Connection

Benefits:

- Adds parallel capacity on local street

Concerns:

- May change local traffic circulation patterns
- May impact local landfill and UPRR properties

CONCEPT 5

Initial Concept with Taylor Road Interchange Eliminated

Benefits:

- Improves interchange spacing
- Improves I-80 weaving
- Minimizes freeway access points

Concerns:

- Shifts traffic volumes to Eureka Road interchange and surrounding interchanges
- Less direct access to businesses on Taylor Road
- Requires a westbound I-80 auxiliary lane to Douglas Blvd.

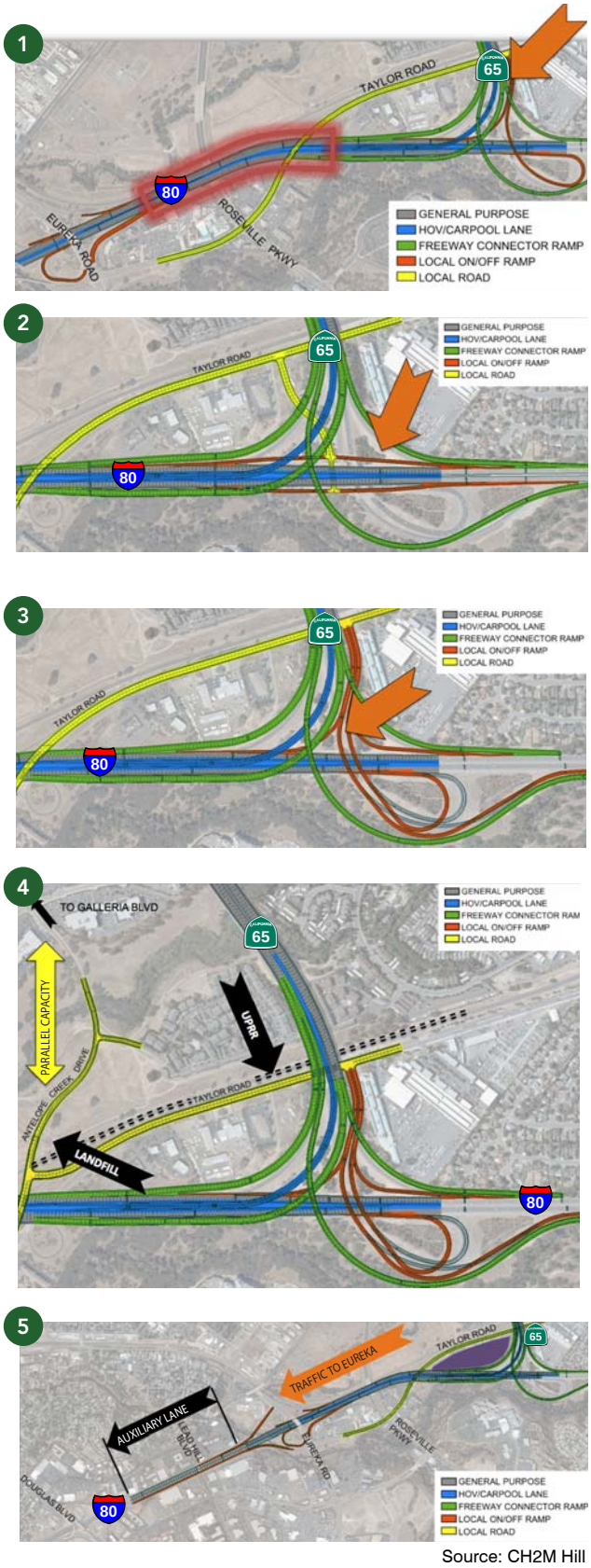
OTHERS:

CONCEPT 6

Transportation System Management

- Add Southbound SR-65 Connector Ramp Metering
- Add Local Interchange Ramps

CONCEPT 7 – No Build



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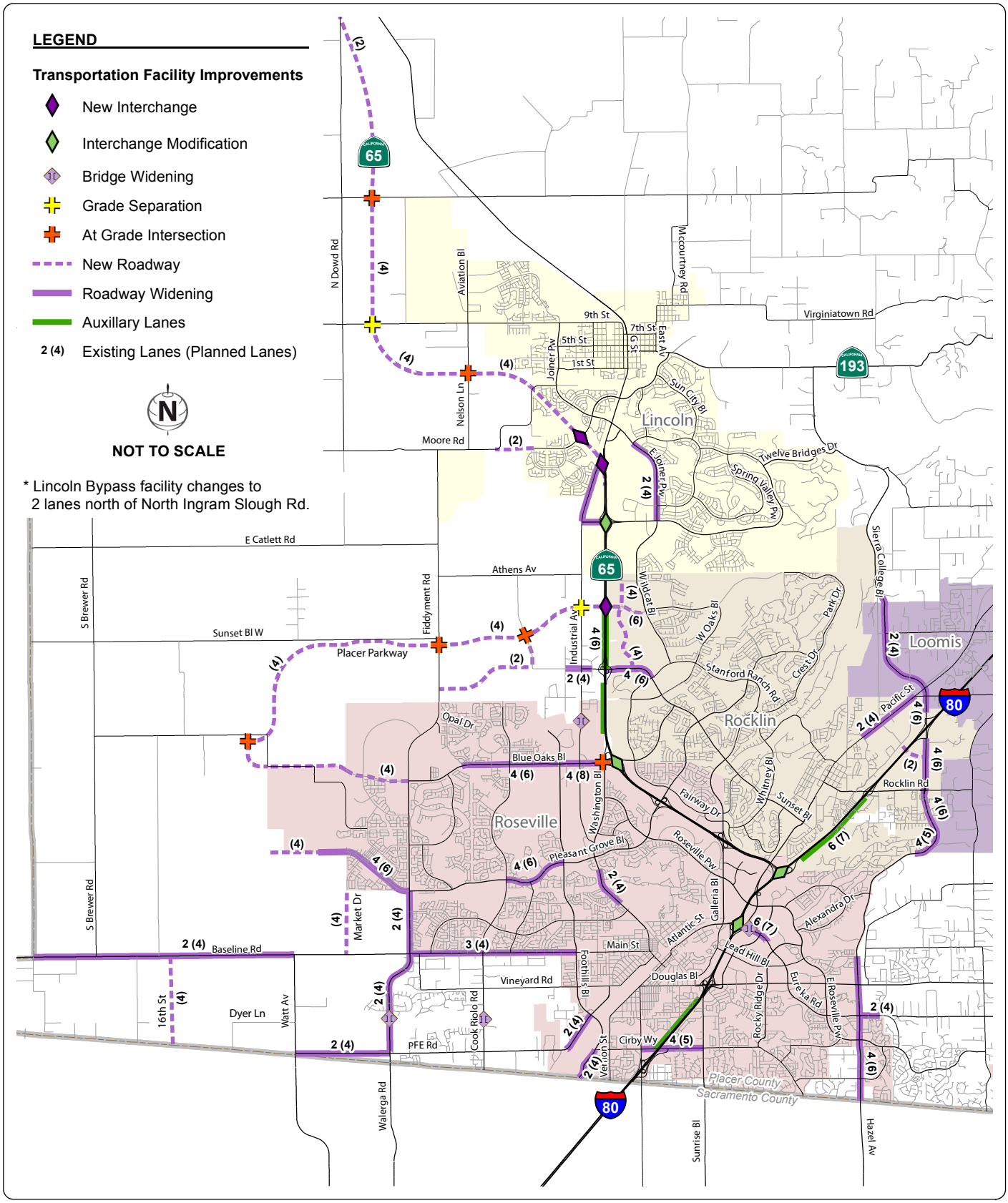
PROJECT ALTERNATIVES

FIGURE 2



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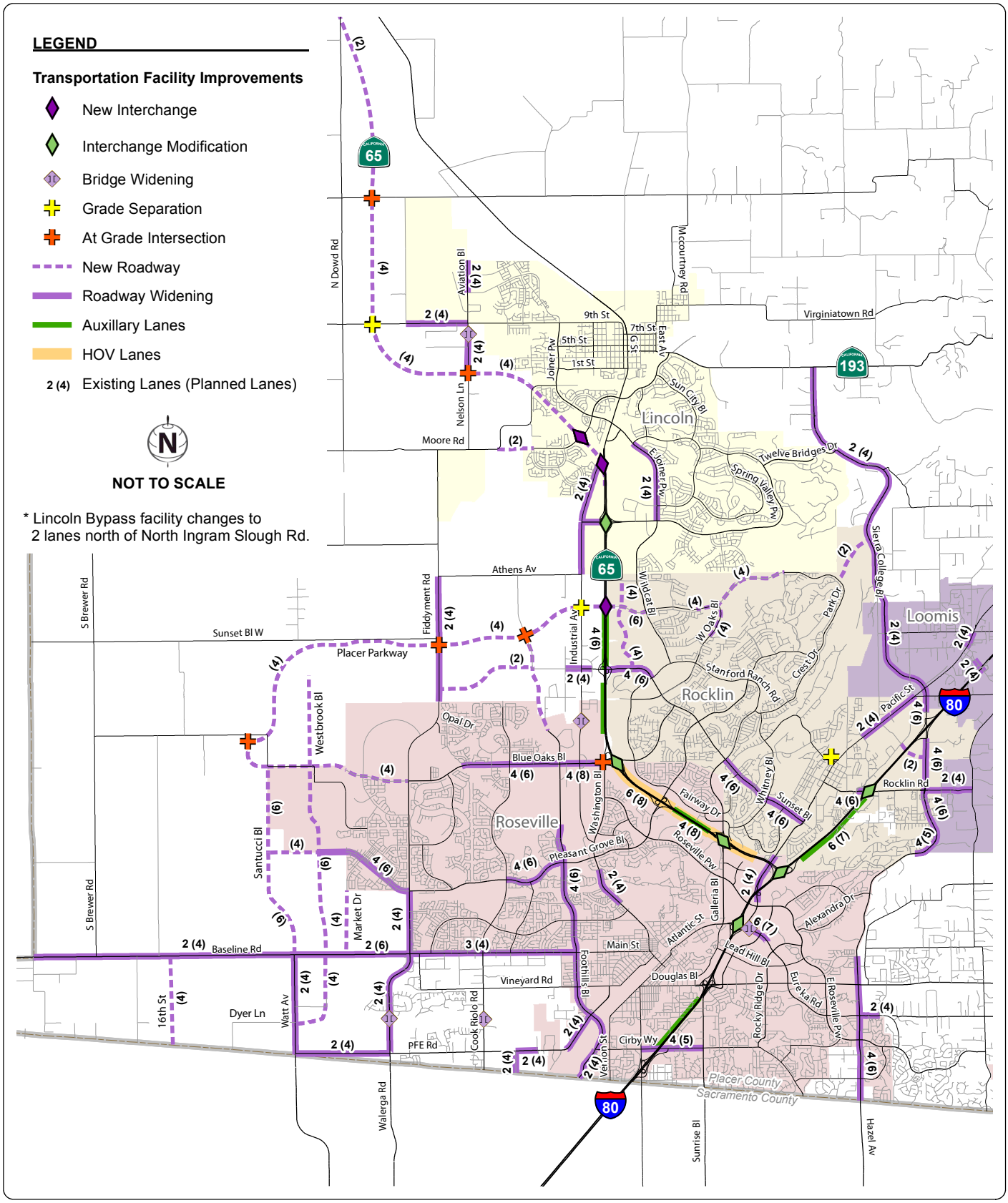
ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2020

FIGURE 3



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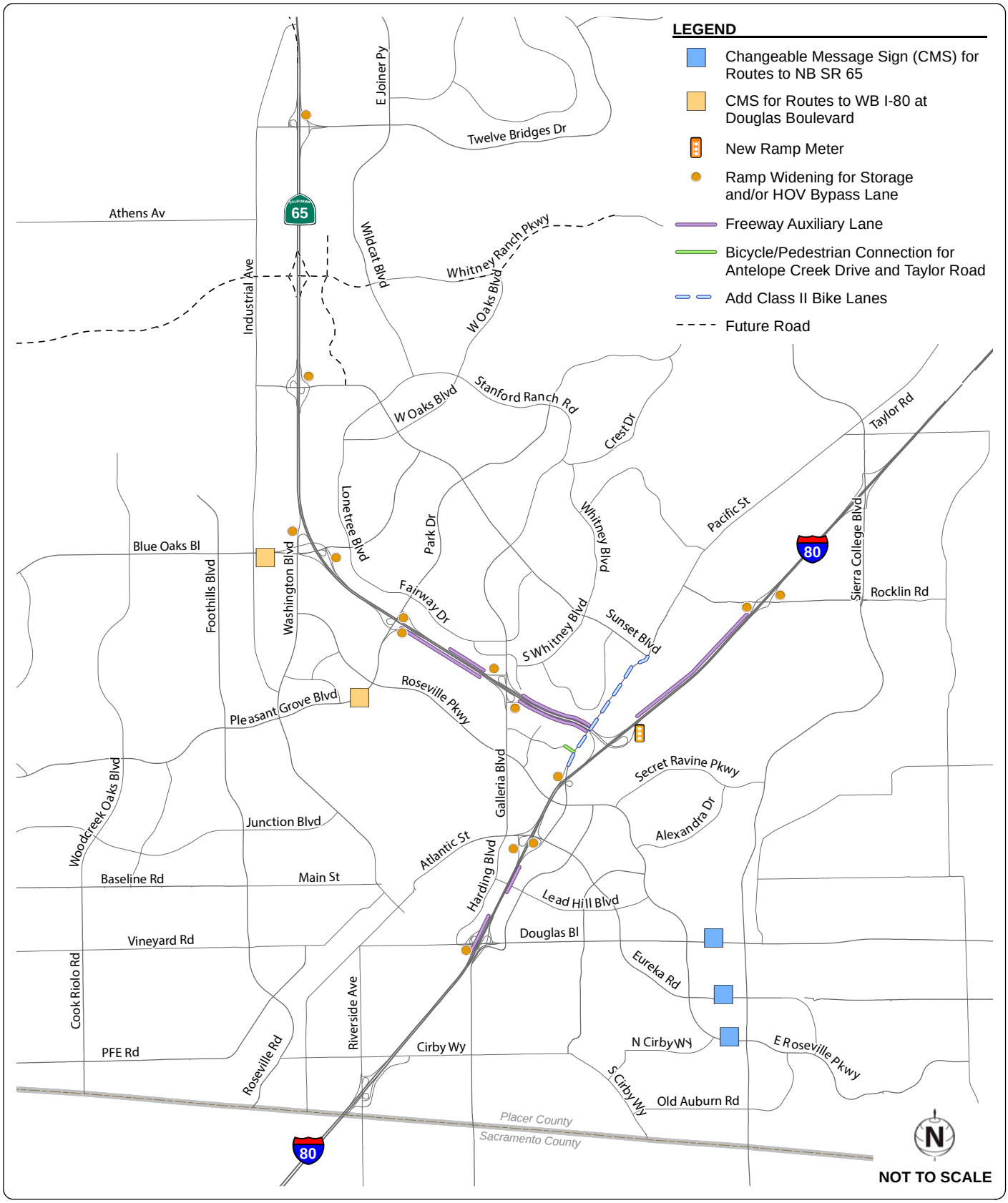
ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2040

FIGURE 4



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TSM ALTERNATIVE

FIGURE 5

- **Concept 5 – Taylor Road Interchange Eliminated** – The 'No Taylor' alternative includes the I-80/SR-65 interchange expansion described above while eliminating the existing Taylor Road ramps. A detailed drawing of this alternative is shown in Figure 6. This alternative reduces weaving movements on I-80 between Eureka Road and SR-65 through access reduction.

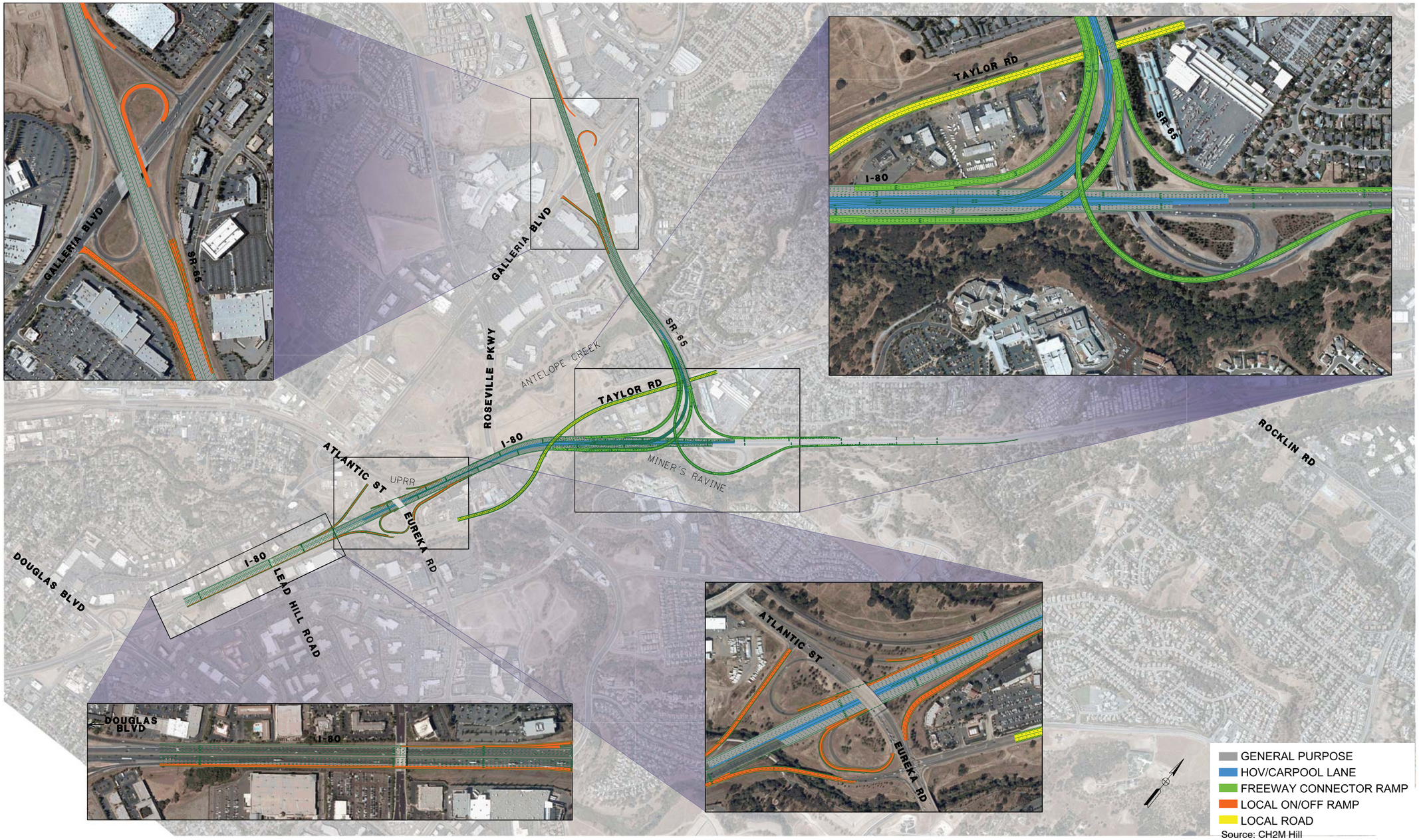
- **Concept 2 – Taylor Road Full Access (Diamond Shape Interchange)** – The 'Full Taylor' alternative includes the I-80/SR-65 interchange expansion with a new Taylor Road interchange that has all four movements to and from I-80. A detailed drawing of this alternative is shown in Figure 7. The Taylor Road interchange would be co-located with the I-80/SR-65 interchange and have a Tight Diamond configuration. Preliminary traffic operations analysis revealed that the Trumpet Shape Interchange (Concept 3) resulted in almost identical traffic conditions, so only the Tight Diamond results are presented in this report.

The remaining two alternatives (Concepts 1 and 4) were partially evaluated. A preliminary assessment of Concept 4 found that the Antelope Creek Drive connection to Taylor Road would improve the efficiency of local circulation and access (e.g., reduce VMT), but would not provide substantial congestion relief to the I-80 and SR-65 freeway mainline beyond that of the build alternatives. This concept would also be more costly and its alignment was shown to conflict with a recently approved development. For these reasons, this alternative was not justified for detailed analysis, but it can be pursued as a separate local project. The Antelope Creek Drive extension is feasible to construct in addition to any of the build alternatives.

Concept 1, which shifted the existing Taylor Road partial interchange further east and co-located with the I-80/SR-65 interchange, failed to meet a number of Federal Highway Administration (FHWA) and Caltrans design requirements as required by the purpose and need statement. In addition, this alternative did not perform as well as the other build alternatives.

A ramp meter on the SB SR-65 connector to WB I-80 was evaluated for all alternatives. A three-lane ramp meter would serve about 900 vehicles per hour per lane assuming the typical operation of two cars per green for high volume on-ramps. The demand volumes of the build alternatives range up to 3,720 vehicles per hour during the peak hour. With a metered flow rate of 2,700 vehicles per hour, this would result in a queue of approximately 1,020 vehicles, or 1.6 miles long during the peak hour. The ramp meter would cause severe queuing that would block all movements on SB SR-65. The queuing would have substantial impacts to the interchange operations at Galleria Boulevard, Pleasant Grove Boulevard, and Blue Oaks Boulevard.

Operations with three cars per green may provide up to 1,500 vehicles per hour per lane. Although not currently used in the Sacramento area, "three cars per green" operation is used on freeway connector ramp meters in Los Angeles (for example, I-105 to northbound I-405). With a higher throughput, the queues for SB SR-65 could be managed such that upstream interchanges were not significantly affected.



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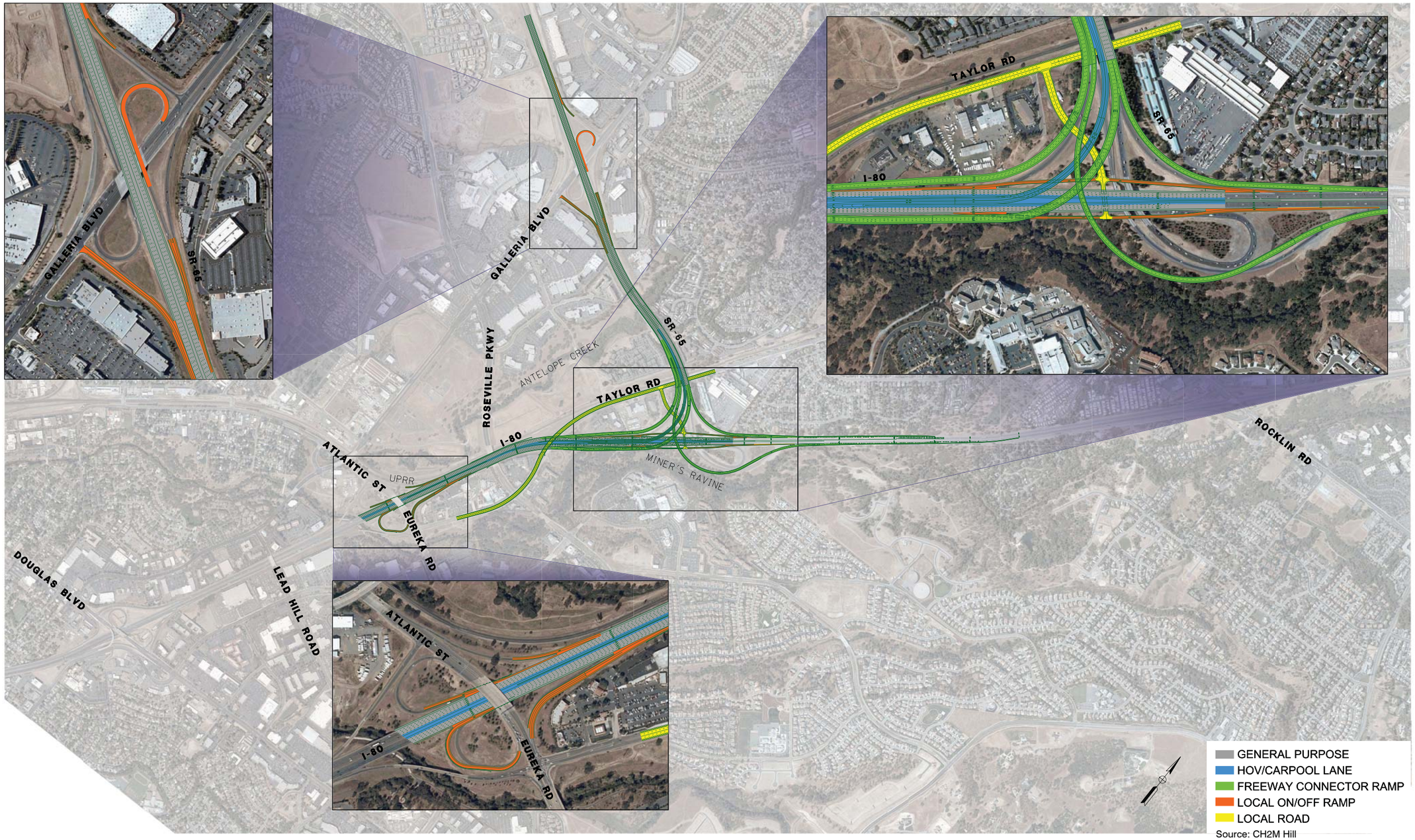
NO TAYLOR ALTERNATIVE

FIGURE 6



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FULL TAYLOR ALTERNATIVE

FIGURE 7

Chapter 2. Analysis Methodology

2.1. Study Area

The project study area for transportation analysis extends beyond the immediate vicinity of the I-80/SR-65 interchange as shown in Figure 8. The larger study area for transportation analysis purposes was based on two key factors.

1. The area needed to be large enough to capture the influence of potential changes at the I-80/SR-65 interchange. This was determined through field observations and travel forecasting analysis that assessed traffic volume changes associated with the project's mixed-flow and HOV lane changes. This information revealed peak period traffic operations at the I-80/SR-65 interchange influence upstream and downstream conditions through multiple local interchanges.

2. The Placer County Transportation Planning Agency (PCTPA) wanted to develop travel forecasting and traffic operations model that would cover an area large enough for anticipated future projects such as Placer Parkway and the SR-65 mainline widening project between Lincoln and I-80.

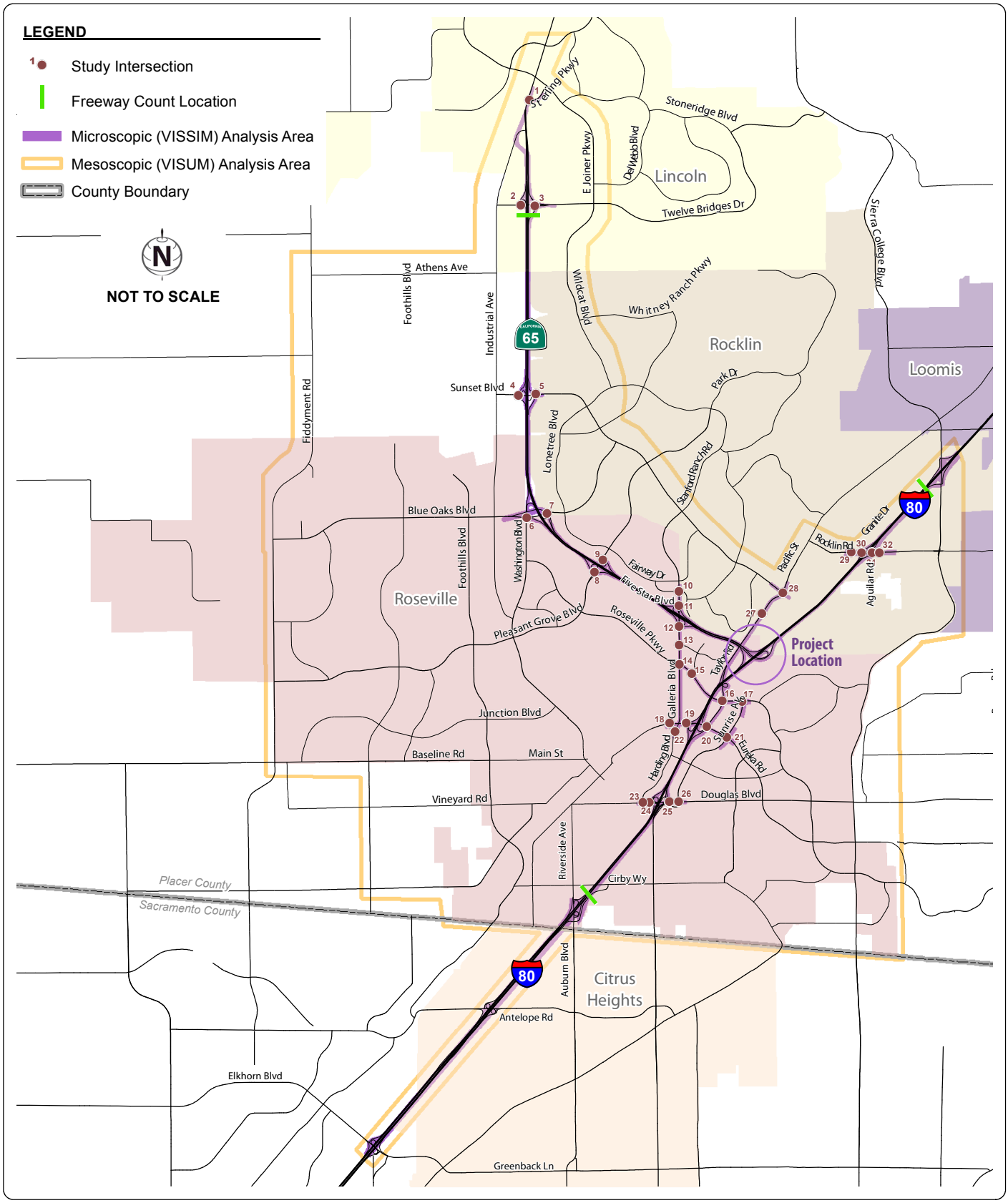
Depending on the analysis scenario, up to 155 individual analysis locations are included in the study area. These locations consist of freeway mainline segments, freeway ramp junctions, freeway weaving areas, ramp meters, and signalized intersections. For a complete listing of all analysis locations refer to the Technical Appendix.

2.2. Data Collection Methods

This section describes the data that were collected for use in the traffic analysis.

2.2.1. Geometric Data

Roadway geometric data were gathered using aerial photographs, design plans (for the I-80 HOV lane project), and field observations. The lane configurations that were taken initially from aerial photographs were confirmed or revised based on field observations.



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STUDY AREA
FIGURE 8

2.2.2. Traffic Control Data

Traffic control data (i.e., signal phasing/timings) were provided by the responsible operating agencies including Caltrans, the City of Roseville, the City of Rocklin, and Placer County. The Caltrans Traffic Operations Sacramento Area office provided timing information for the ramp meters that were operating when the traffic counts were collected. The posted speed limits for the network were collected during field observations.

Traffic signals are modeled as either free operation or coordinated according to the control plans specified in the controller. Traffic control at unsignalized intersections were taken from aerial photographs and confirmed during field observations.

2.2.3. Traffic Flow Data

Freeway and intersection traffic counts were collected in 15-minute intervals for the 6 to 10 AM and 3 to 7 PM peak periods during January and February of 2012. At intersections, cars, trucks, bicycles, and pedestrians were counted by turning movement. For freeways, traffic counts include vehicle classification by number of occupants for passenger cars and type of vehicle. Table 1 contains the hourly HOV and truck percentages at the freeway gateway locations from the traffic counts (complete traffic count data are contained in the Technical Appendix).

TABLE 1: HOURLY HOV AND TRUCK PERCENTAGE

Hour	EB I-80 at Riverside Ave		WB I-80 at Sierra College Blvd		SB SR-65 at Twelve Bridges Dr	
	HOV	Truck	HOV	Truck	HOV	Truck
6 to 7 AM	12.4%	7.9%	11.6%	3.8%	13.1%	1.8%
7 to 8 AM	13.7%	3.7%	10.7%	3.8%	10.5%	1.4%
8 to 9 AM	15.6%	4.0%	13.9%	5.2%	14.8%	1.1%
9 to 10 AM	18.3%	5.3%	18.1%	5.9%	19.0%	2.2%
3 to 4 PM	20.0%	3.2%	24.3%	7.5%	31.1%	1.7%
4 to 5 PM	19.2%	2.6%	24.5%	5.1%	26.6%	0.9%
5 to 6 PM	13.9%	2.2%	18.8%	5.1%	31.0%	1.0%
6 to 7 PM	12.7%	2.8%	17.1%	5.2%	29.5%	1.5%

Source: Fehr & Peers, 2013

2.2.4. Travel Time Data

Travel time surveys were conducted during the same day of the mainline counts using GPS (global positioning system) units. The following routes were traveled for a minimum of every 15 minutes during the morning and evening peak periods.

- SB SR-65 at Blue Oaks Boulevard to WB I-80 at Elkhorn Boulevard
- EB I-80 at Elkhorn Boulevard to NB SR-65 at Blue Oaks Boulevard
- WB I-80 from Sierra College Boulevard to Elkhorn Boulevard
- EB I-80 from Elkhorn Boulevard to Sierra College Boulevard

2.3. Travel Forecasting Methodology

The transportation analysis for the I-80/SR-65 Interchange project used an integrated modeling approach that has three different levels of detail: macro, meso, and micro. At the macro level, the regional travel forecasting model (SACMET) is used to forecast peak period origin-destination (OD) traffic volume flows between traffic analysis zones both internal and external to the study area. At the meso level, the peak period OD flows are divided into four one-hour trip tables and disaggregated into three modes – single occupant vehicle (SOV), HOV, and truck – and then assigned to the sub-area roadway network using the VISUM software. The assignment process is based on congested travel times that reflect roadway link speeds and capacity. At the micro level, the traffic volumes are converted to individual vehicles that are assigned to the operational study area using the VISSIM software that contains detailed inputs governing traffic controls (signal timings), geometrics (lane configurations), and driver behavior.

The traffic forecasts were developed using the first two modeling platforms (macro and meso). The first platform is a modified version of the regional SACMET model developed by the Sacramento Area Council of Governments (SACOG) for the Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS). The second platform is the VISUM sub-area trip assignment model, which was used to assign the trips generated from the SACMET model to a detailed roadway network within the study area. Figure 8 above displays the mesoscopic and microscopic analysis areas.

The SACMET and VISUM models were calibrated and validated according to the *2010 California Regional Transportation Guidelines (*California Transportation Commission, 2010) and criteria approved by the project development team (PDT). Both models passed applicable static and dynamic validation tests. The detailed validation results are contained in Chapter 4.

Traffic volume forecasts were developed for construction year (2020) and design year (2040) conditions. The forecasts relied on modified inputs to the MTP/SCS SACMET model based on PDT refinements to land use projections and the planned roadway network as explained below.

2.3.1. Socioeconomic Forecasts

The traffic volume forecasts are derived from future socioeconomic projections that started with regional socioeconomic projections developed by SACOG for the regional MTP/SCS. These were reviewed by the PDT and modified to better reflect local plans. Figure 9 displays the final growth projections within the study area. Socioeconomic projections are the largest single influence on traffic volume forecasts, so they will affect volume projections to a greater extent than the roadway network changes or any other modeling component. If these forecasts vary in reality, it will have a direct effect on future traffic volumes.

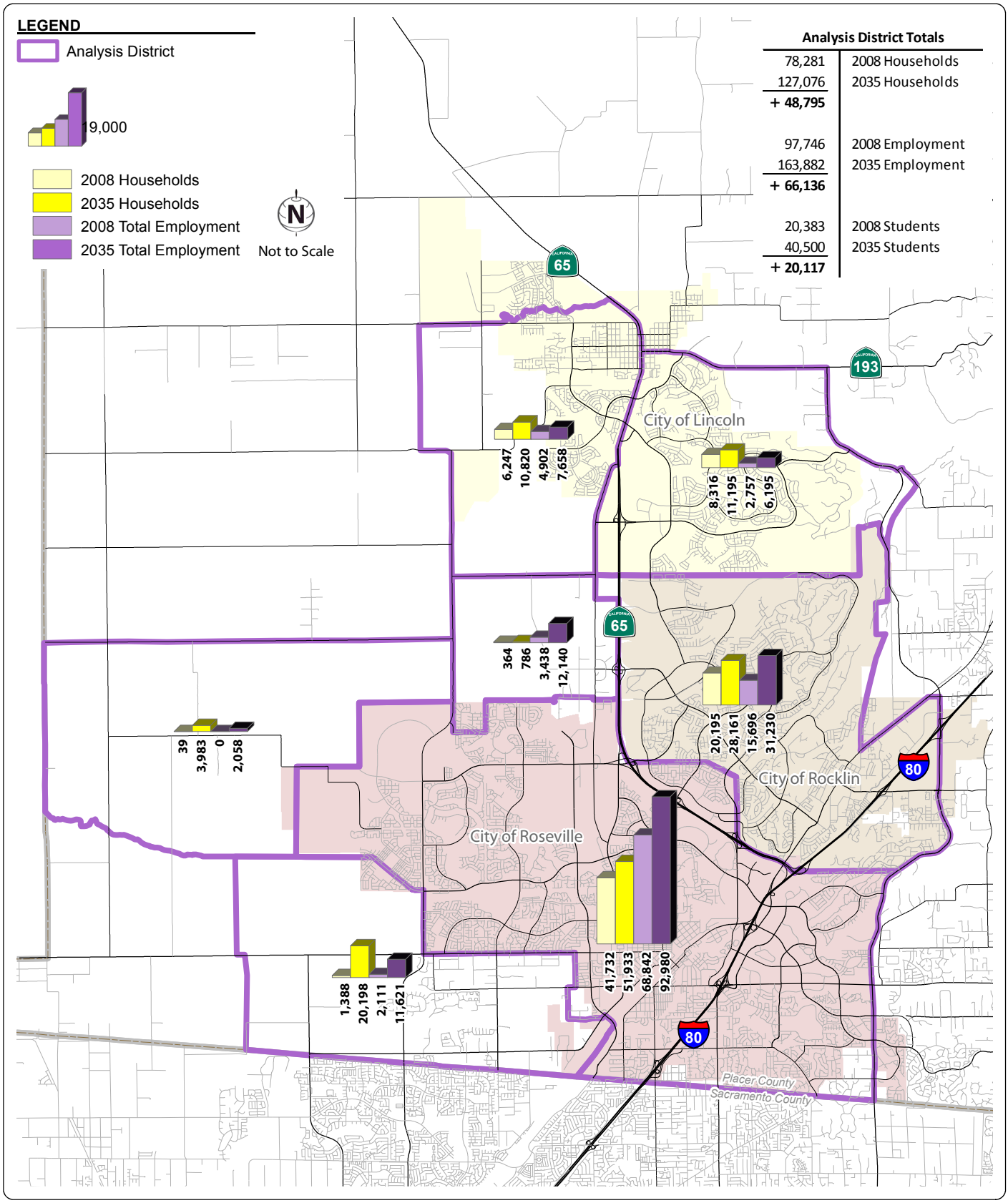
2.3.2. Planned Transportation Network

The traffic volume forecasts are also influenced by modifications to the existing transportation network according to improvement projects anticipated to be constructed by the construction and design years (refer to Figures 3 and 4). These projects are based on the financially constrained project list contained in the MTP/SCS, but also consider projects the PDT agreed would likely be constructed by the design year. The rationale for adding projects to the MTP/SCS list was that the design year is five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements. A list of the planned projects is provided in Table 2.

TABLE 2: PLANNED SEPARATE PROJECTS	
Category	**Project**
Complete by 2020 (Construction Year)	• Atkinson St: widen from 2 to 4 lanes from Foothills Blvd to south of Dry Creek • Baseline Rd: widen from 3 to 4 lanes from Brady Ln to Fiddyment Rd • Baseline Rd: widen from 2 to 4 lanes from Fiddyment Rd to Watt Ave • Baseline Rd: widen from 2 to 4 lanes from Watt Ave to (future) 16th St • Baseline Rd: widen from 2 to 4 lanes from (future) 16th St to county line • Blue Oaks Blvd: construct 4 lanes from Fiddyment Rd to Hayden Pkwy and 2 lanes from Hayden Pkwy to Westbrook Blvd • Blue Oaks Blvd: widen from 2 to 4 lanes from Hayden Pkwy to Westbrook Blvd and construct 4 lanes from Westbrook Blvd to Santucci Blvd • Cirby Way: widen from 4 to 5 lanes from Riverside Ave to Regency Ave • Cook Riolo Rd: widen from 1 to 2 lanes Dry Creek Bridge • Domiguez Rd: construct 2 lanes from Granite Dr to Sierra College Blvd • East Joiner Pkwy: widen from 2 to 4 lanes from Del Webb Pkwy to Twelve Bridges Dr • Eureka Rd: widen from 2 to 4 lanes from Sierra College Blvd to city limits • Ferrari Ranch Rd: construct 2 lanes from city limit to Moore Rd • Fiddyment Rd: widen to 4 lanes from Pleasant Grove Blvd to Baseline Rd • I-80 from SR-65 to Rocklin Rd: add an eastbound auxiliary lane • I-80/Eureka Rd On-ramp Improvements • Industrial Ave: widen from 2 to 4 lanes from SR-65 to Twelve Bridges Dr • Industrial Ave: replace 2 lane bridge at Pleasant Grove Creek • Market St: construct 2 lanes from Baseline Road to Pleasant Grove Blvd • Pacific St: widen to 4 lanes from Sierra Meadows Dr to Loomis town limits • PFE Rd: widen from 2 to 4 lanes from Watt Ave to Walerga Rd • Placer Pkwy: construct 4-lane expressway from SR-65 to Santucci Blvd • Pleasant Grove Blvd: widen from 4 to 6 lanes from Foothills Blvd to Woodcreek Oaks Blvd • Pleasant Grove Blvd: widen from 2 to 4 lanes from Fiddyment Road to Santucci Blvd • Rocklin Rd: widen from 4 to 6 lanes from Granite Dr to I-80 Westbound Ramps • Roseville Rd: widen from 2 to 4 lanes from city limits to Cirby Way • Santucci Blvd: construct 4 lanes from Baseline Road to Blue Oaks Blvd • Sierra College Blvd: widen to 6 lanes from county line to Olympus Dr • Sierra College Blvd: widen from 4 to 5 lanes from Nightwatch Dr to Aguilar Tributary • Sierra College Blvd: widen from 4 to 6 lanes from Aguilar Tributary to I-80 • Sierra College Blvd: widen from 4 to 6 lanes from Granite Dr to Bankhead Rd • Sierra College Blvd: widen from 2 to 4 lanes from Taylor Rd to north town limits • SR-65 Lincoln Bypass – Phase 1 & 2A • SR-65/Ferrari Ranch Rd Interchange • SR-65/Whitney Ranch Pkwy: construct interchange • Sunset Blvd: construct 2 lanes from Fiddyment Rd to Foothills Blvd • Sunset Blvd: widen from 2 to 4 lanes from Cincinnati Ave to SR-65 • Sunset Blvd: widen to 6 lanes from SR-65 to West Stanford Ranch Rd • Twelve Bridges Dr: widen from 2 to 4 lanes from Industrial Ave to SR-65 including interchange • University Ave: construct 4 lanes from Whitney Ranch Pkwy to Ranch View Dr • University Ave: construct 4 lanes from Sunset Blvd to Whitney Ranch Pkwy • Walerga Rd: widen from 2 to 4 lanes from Baseline Rd to county line • Washington Blvd: widen to 4 lanes from Sawtell Rd to Pleasant Grove Blvd • Whitney Ranch Pkwy: construct 6 lanes from SR-65 to east of Wildcat Blvd

TABLE 2: PLANNED SEPARATE PROJECTS

Category	Project
Complete by 2035	• Aviation Blvd: widen from 2 to 4 lanes from Venture Dr to 0.5 mi north of Venture Dr • Dyer Ln: construct 4 lanes from Watt Ave to Baseline Rd • Fiddyment Rd: widen from 2 to 4 lanes from Roseville city limits to Athens Rd • Foothills Blvd: construct 2 lanes from Roseville city limits to Sunset Blvd • I-80/Horseshoe Bar Rd Interchange: widen overcrossing from 2 to 4 lanes • I-80/Rocklin Rd Interchange improvements • Industrial Ave: widen from 2 to 4 lanes from Twelve Bridges Dr to Athens Ave • Nicolaus Rd: widen from 2 to 4 lanes from Airport Rd to Aviation Blvd • Midas Ave: construct grade separation at UPRR • Rocklin Rd: widen from 2 to 4 lanes from Sierra College Blvd to Loomis town limits • Rocklin Rd: widen from 2 to 4 lanes from west Loomis town limits to Barton Rd • North Antelope Rd: widen from 2 to 4 lanes from county line to PFE Rd • Sierra College Blvd: widen from 2 to 4 lanes from SR-193 to Loomis town limits • Sierra College Blvd: widen to 4 lanes from (future) Valley View Pkwy to Loomis town limits • SR-65/Galleria Blvd Interchange Improvements (Phase II) • Sunset Blvd: widen from 4 to 6 lanes from Stanford Ranch Rd to Topaz Ave • Sunset Blvd: widen from 4 to 6 lanes from Topaz Ave to Whitney Blvd • Sunset Blvd: widen from 4 to 6 lanes from Whitney Blvd to Pacific St • Taylor Rd: widen from 2 to 4 lanes from Horseshoe Bar Rd to King Rd • Valley View Pkwy: construct 2 lanes from Park Dr to Sierra College Blvd • West Oaks Blvd: construct 4 lanes from terminus to (future) Whitney Ranch Pkwy • Whitney Ranch Pkwy: construct 4 lanes from terminus to Whitney Oaks Dr • Watt Ave: widen from 2 to 4 lanes from Baseline Rd to county line
Assumed to be Complete by 2040 (Design Year)	• Baseline Rd: widen from 4 to 6 lanes from Fiddyment Rd to Watt Ave • Blue Oaks Blvd: widen to 6 lanes from Crocker Ranch Rd to Foothills Blvd • Blue Oaks Blvd: widen to 8 lanes from Foothills Blvd to Washington Blvd • Foothills Blvd: widen to 6 lanes from Cirby Way to Misty Wood Dr • I-80 from Douglas Blvd to Riverside Ave: add a westbound auxiliary lane • Nelson Ln: widen from 2 to 4 lanes from SR-65 (Lincoln Bypass) to Nicolaus Rd • PFE Rd: widen from 2 to 4 lanes from North Antelope Rd to Roseville city limits • Santucci Blvd: construct 6 lanes from Baseline Road to Blue Oaks Blvd • SR-65 Capacity and Operational Improvements: I-80 to Blue Oaks Blvd • Taylor Rd: widen from 2 to 4 lanes from Roseville Pkwy to I-80 • Taylor Rd: widen from 2 to 4 lanes from I-80 to city limits • Westbrook Blvd: construct new road from Baseline Rd to Pleasant Grove Blvd • Westbrook Blvd: construct new road from Pleasant Grove Blvd to Blue Oaks Blvd • Westbrook Blvd: construct new road from Blue Oaks Blvd to city limits
Sources: SACOG, 2012 and Fehr & Peers, 2013	



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MODIFIED SACMET LAND USE SUMMARY BY ANALYSIS DISTRICT

FIGURE 9

2.4. Traffic Operations Analysis Methodology

Because the study area already experiences peak period congestion, which is forecast to worsen, the traffic operations analysis required the use of simulation-based analysis. A congested network is very sensitive to any change in capacity or demand and the analysis tools need to be able to capture how changes in one location of the network affect the overall performance. Therefore, a VISSIM traffic simulation model was developed as follows.

- The model was constructed from roadway network (lane configuration), traffic volume (traffic counts), and traffic control (traffic signals and ramp meters) data.
- Additional detail was incorporated into the VISSIM network (posted speed limits, grades, etc.) to reflect observed field conditions.
- Driver behavior parameters were adjusted based on field observations.
- The distribution of vehicle types was calibrated to local conditions so that the percentages of trucks and HOVs match the traffic counts.

The VISSIM model was validated to existing conditions using the criteria contained in *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software* (Federal Highway Administration, 2004). The default VISSIM parameters for geometrics and driver behavior were iteratively adjusted until the model was validated to observed conditions (refer to the Technical Appendix for a complete summary of the VISSIM model validation). Since microsimulation models, like VISSIM, rely on the random arrival of vehicles, multiple runs are needed to provide a reasonable level of statistical accuracy and validity. Therefore, the results of 10 separate runs (each using a different random seed number) were averaged to determine the final results.

The calibrated and validated model was used to generate a variety of traffic operations performance measures including person throughput, vehicle throughput, vehicle delay, passenger car density, travel time, speed, and percent demand served. Some of these measures were used to determine level of service (LOS) values for analysis locations consistent with the methodology contained in the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2011).

The HCM methods use quantitative performance measures to determine LOS for analysis locations under AM and PM peak hour conditions. LOS is a qualitative measure of traffic operations from a driver's perspective, which varies from LOS A (the best) to LOS F (the worst), and is one of the main

evaluation criteria for this study. Tables 3 and 4 describe the LOS thresholds from the HCM for freeway sections and signalized intersections, respectively.

TABLE 3: FREEWAY LOS THRESHOLDS

LOS	Average Density (vplpm)		Description
	Basic Sections	Ramp Junction & Weave Sections	
A	< 11	< 10	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver.
B	> 11 to 18	> 10 to 20	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.
C	> 18 to 26	> 20 to 28	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.
D	> 26 to 35	> 28 to 35	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.
E	> 35 to 45	> 35 to 43	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.
F	> 45	> 43	Represents a breakdown in flow.

Notes: vplpm = vehicles per lane per mile.

Source: Fehr & Peers, 2013

TABLE 4: SIGNALIZED INTERSECTION LOS THRESHOLDS		
LOS	**Average Delay (sec/veh)**	**Description**
A	< 10	Very low delay occurs with favorable progression and/or short cycle length.
B	> 10 to 20	Low delay occurs with good progression and/or short cycle lengths.
C	> 20 to 35	Average delays result from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.
D	> 35 to 55	Longer delays occur due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop and individual cycle failures are noticeable.
E	> 55 to 80	High delay values indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.
F	> 80	Delays are unacceptable to most drivers due to over-saturation, poor progression, or very long cycle lengths.
Notes: sec/veh = seconds per vehicle Source: Fehr & Peers, 2013		

2.5. Evaluation Criteria

The analysis evaluation criteria were developed in collaboration with the PDT because the project has the potential to affect traffic operations across multiple jurisdictions. The main criteria used for this study is LOS as described below since each affected agency has establish policies and thresholds related to LOS expectations.

According to the *Interstate 80 and Capital City Freeway Corridor System Management Plan* and the *State Route 65 Corridor System Management Plan* (Caltrans District 3, May 2009), Caltrans has identified the route concept LOS for the following segments.

- LOS F for I-80 from Riverside Avenue/Auburn Boulevard to Sierra College Boulevard
- LOS F for SR-65 from I-80 to Blue Oaks Boulevard
- LOS E for SR-65 from Blue Oaks Boulevard to Industrial Avenue (Lincoln Boulevard)

LOS E conditions are desired when feasible but LOS F conditions are likely to occur in the study area under no build conditions as recognized by the concept LOS thresholds. The LOS E threshold will be used to identify minimum acceptable operations and potential impacts to State highway

mainline segments, ramp junctions, weaving segments, and ramp terminal intersections. For locations with LOS F under the no build condition, an impact would occur if the project alternatives would worsen the LOS F condition based on the quantitative performance measure associated with the specific type of analysis.

For study intersections within the City of Lincoln, the City of Lincoln General Plan (Adopted March 2008) contains the following LOS policies:

- Strive to maintain a LOS C at all signalized intersections in the City during the PM peak hours.
- The City shall coordinate with Caltrans in order to strive to maintain a minimum LOS "D" for SR-65 and SR-193.

With the recent construction of the SR-65 bypass, the analysis locations in Lincoln are local intersections. As a result, LOS C will serve as the minimum acceptable LOS for intersections in the City of Lincoln for both AM and PM peak hours.

For study intersections within the City of Roseville, the City of Roseville General Plan (Adopted May 5, 2010) LOS policy states:

- Maintain a level of service (LOS) "C" standard at a minimum of 70 percent of all signalized intersections and roadway segments in the City during the PM peak hours.

Some of the study intersections are shown in the General Plan to operate at worse than LOS C under 2025 conditions. For this project, the following criteria are proposed.

- For intersections shown to be operating at LOS C or better in the General Plan under 2025 conditions, LOS C will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS D in the General Plan under 2025 conditions, LOS D will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS E in the General Plan under 2025 conditions, LOS E will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS F in the General Plan under 2025 conditions, LOS F and the corresponding v/c ratio will be used as the minimum acceptable LOS.

These thresholds will be used for both the AM and PM peak hours in both the construction and design year analysis.

For study intersections within the City of Rocklin, the City of Rocklin General Plan (Adopted April 3, 1991), Section C Policy 13 (Circulation) states:

- To maintain a minimum traffic level of service "C" for all streets and intersections, except for intersections located within ½ mile from direct access to an interstate freeway where a level of service "D" will be acceptable. Exceptions may be made for peak hour traffic where not all movements exceed the acceptable level of service.

Based on these standards and for the purposes of this study, LOS C is the minimum acceptable LOS for the Pacific Street intersections at Woodside Drive and Sunset Boulevard. LOS D is the minimum acceptable LOS for the Rocklin Road intersections since they are less than one-half mile from I-80.

Chapter 3. Existing (2012) Conditions

The existing conditions analysis includes meso-scale network performance, micro-scale traffic operations, and traffic safety. The meso-scale network performance evaluates the entire network within the meso-scale study area based on vehicle miles of travel (VMT), vehicle hours of travel (VHT), vehicle hours of delay (VHD), and freeway VHD. VHD includes all hours of travel below the free-flow speed. Freeway VHD includes only hours of travel below 35 miles per hour (mph). The operations analysis is more detailed and analyzes individual facilities with separate discussions for freeways and arterial intersections, while the traffic safety evaluation focuses only on freeway facilities.

3.1. Meso-Scale Network Performance

Table 5 contains estimates of existing (2012) meso-scale study area VMT, VHT, VHD, and Freeway VHD for AM and PM peak period conditions. This information shows that the PM peak period has the highest level of travel with VHD equal to almost 35 percent of all VHT. The AM peak period also experiences congested conditions with a VHD at approximately 25 percent of all VHT.

TABLE 5: PEAK PERIOD MESO-SCALE NETWORK PERFORMANCE SUMMARY – EXISTING (2012) CONDITIONS

Measure of Effectiveness	AM Peak Period (6:00 to 10:00)	PM Peak Period (3:00 to 7:00)
VMT	1,182,073	1,562,794
VHT	31,314	49,967
VHD	7,807	17,423
Freeway VHD	1,459	4,564

3.2. Traffic Operations

Traffic operations analysis was performed for existing (2012) conditions under AM and PM peak period and peak hour conditions. This analysis relied on the AM and PM four hour peak period VISSIM models from which peak hour results were extracted. The VISSIM model only includes the freeway network and the immediate arterial network around the I-80/SR-65 interchange. As a result, performance measures such as VMT and VHT reported from this model will contain much smaller values compared to the larger meso-scale network results presented in Table 5. Overall traffic operations performance of the micro-scale network is summarized in Table 6.

TABLE 6: PEAK PERIOD MICRO-SCALE NETWORK PERFORMANCE SUMMARY – EXISTING (2012) CONDITIONS		
Measure of Effectiveness	**AM Peak Period (6:00 to 10:00)**	**PM Peak Period (3:00 to 7:00)**
VMT	645,270	730,100
VHT	13,760	16,850
VHD	2,670	3,950
Average Travel Speed (mph)	46.9	43.3

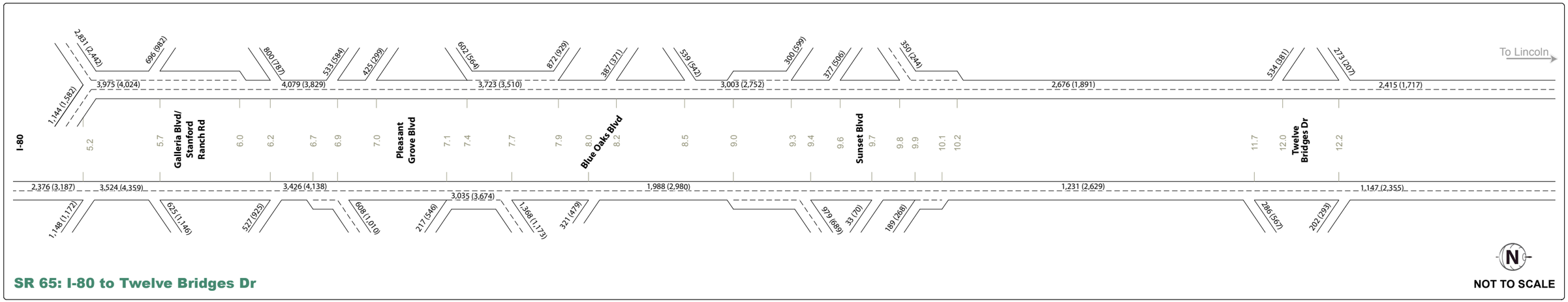
Similar to the Table 5 results, the PM peak period has the highest level of travel and delay with the most congestion lasting up to three hours for select segments.

3.2.1. Freeway Operations

Detailed freeway operations analysis was completed for the entire four-hour AM and PM peak periods. The AM (7:30 to 8:30) and PM (4:30 to 5:30) peak hour results are reported in this section and reflect conditions based on estimates of peak hour freeway mainline and ramp traffic volumes for 2012 conditions shown in Figure 10. The existing conditions analysis confirmed field observations and provided some insight as to specific bottleneck locations, causes, and duration. Photos 1 and 2 below show the PM peak hour queue extending back from the WB I-80 on-ramp junction with the NB SR-65 connector.

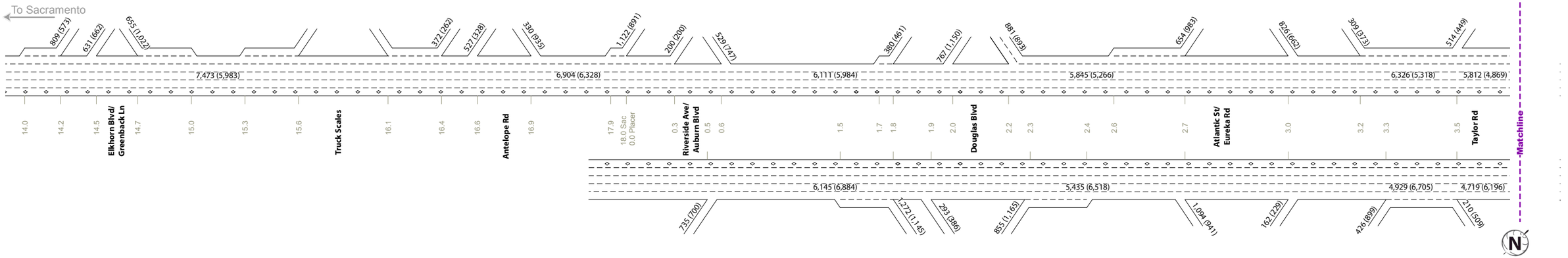
Photo 1: EB I-80 from Taylor Road Overcrossing (PM Peak Hour)

Photo 2: EB I-80 from Roseville Pkwy Overcrossing (PM Peak Hour)



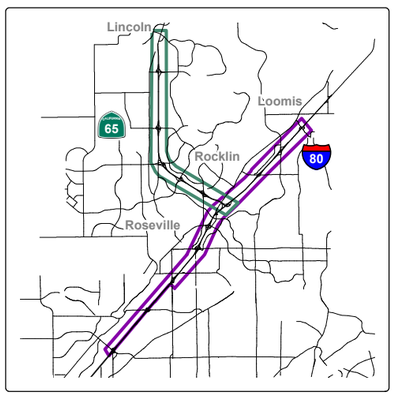
SR 65: I-80 to Twelve Bridges Dr

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE

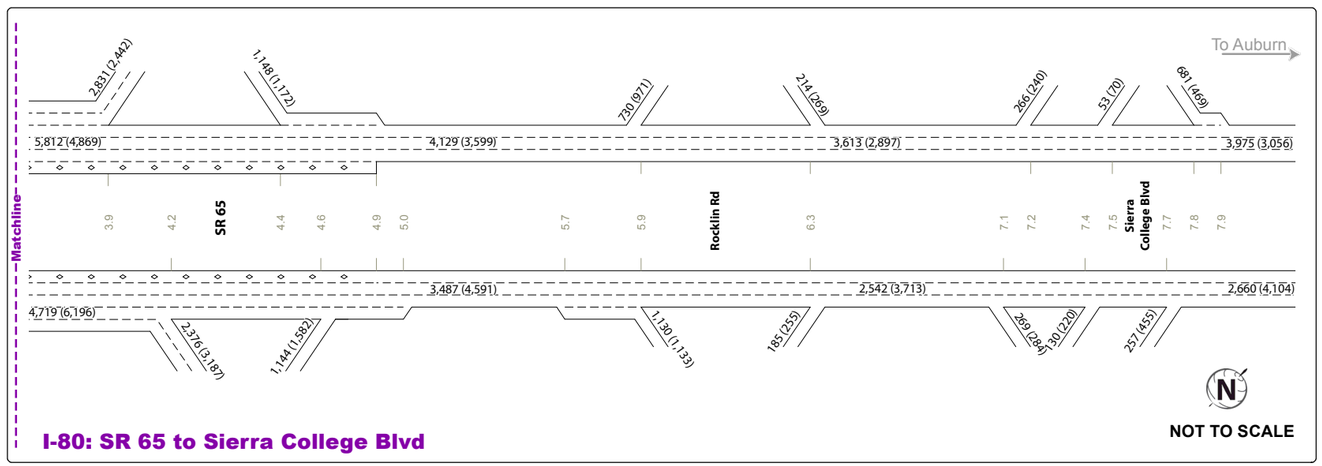


LEGEND

AM (PM) Peak Hour Traffic Volume

10.1 Postmile

NOTE: Traffic volumes collected in February 2012.



I-80: SR 65 to Sierra College Blvd

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AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

FIGURE 10

The existing (2012) conditions analysis of freeway and arterial performance matched observed conditions such as those shown in the photos above. Specific examples are listed below.

- Bottleneck areas have poor LOS results as highlighted in Table 7, which contains select LOS results for freeway operations. See the Technical Appendix for all study location results.
- The speed contour maps of the I-80 and SR-65 corridors produced from the VISSIM models show reduced speeds in bottleneck areas (see Figures 11 through 14 below).

TABLE 7: SELECTED FREEWAY OPERATIONS RESULTS – EXISTING (2012) CONDITIONS

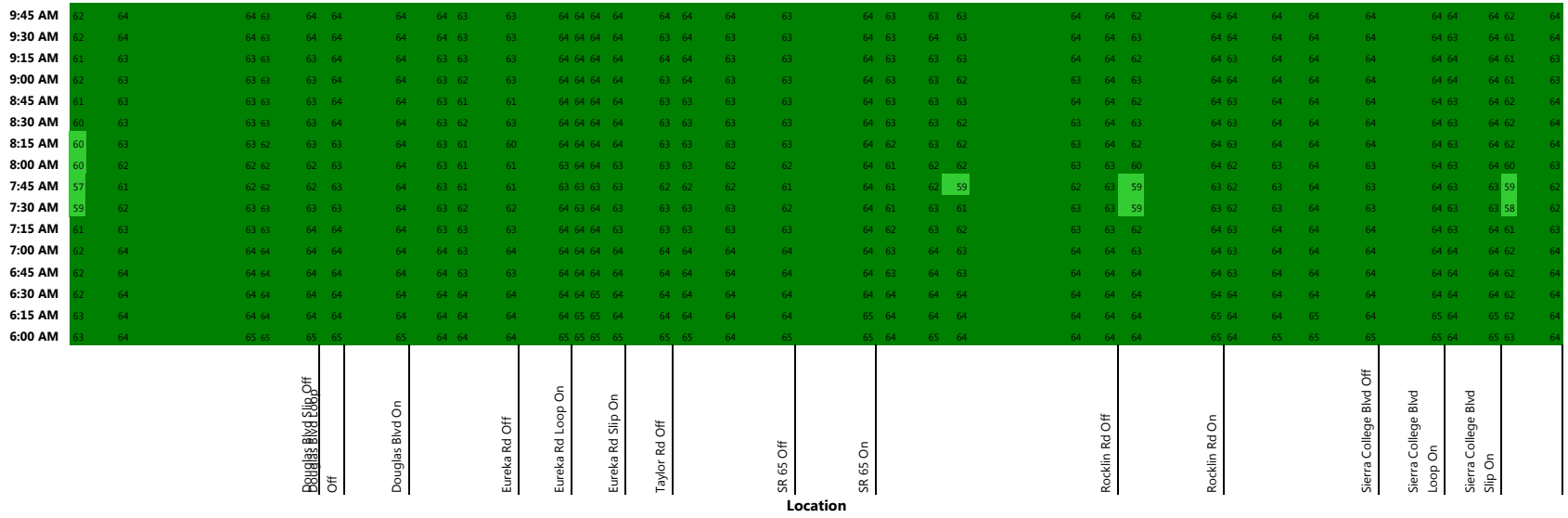
Freeway	Location	Type	AM Peak Hour	PM Peak Hour
EB I-80	Eureka Rd Off-ramp	Diverge	C / 26	**F / 46**
	Eureka Rd Off to On-ramp	Basic	C / 21	C / 23
	Eureka Rd EB On-ramp	Merge	B / 19	B / 20
	Eureka Rd to Taylor Rd	Weave	C / 23	E / 39
	Taylor Rd to SR-65	Basic	D / 27	E / 40
	SR-65 Off-ramp	Diverge	C / 28	**F / 52**
WB I-80	SR-65 Off-ramp	Diverge	B / 18	**F / 46**
	Douglas Blvd Off-ramp	Diverge	B / 19	B / 18
	Douglas Blvd WB On-ramp	Merge	E / 36	D / 34
	Douglas Blvd EB On-ramp	Merge	E / 42	E / 37
	Douglas Blvd to Riverside Ave	Basic	D / 33	D / 31
	Riverside Ave Off-ramp	Diverge	E / 40	E / 36
NB SR-65	I-80 WB On-ramp	Merge	**F / 53**	**F / 95**
	I-80 to Stanford Ranch Rd	Basic	D / 32	**F / 77**
	Stanford Ranch Rd Off-ramp	Diverge	D / 33	**F / 62**
SB SR-65	Blue Oaks Blvd WB On-ramp	Merge	**F / 60**	B / 20
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	**F / 75**	C / 21
	Pleasant Grove Blvd Off to On-ramp	Basic	**F / 89**	C / 25
	Pleasant Grove Blvd WB On-ramp	Merge	**F / 72**	D / 31
	Pleasant Grove Blvd EB On-ramp	Merge	**F / 53**	E / 39
	Pleasant Grove Blvd to Galleria Blvd	Basic	E / 36	D / 32
	Galleria Blvd Off-ramp	Diverge	E / 35	D / 27

Note: Bold and underline font indicate LOS F conditions. The level of service and average density for the study segment are reported.

Source: Fehr & Peers, 2013

FIGURE 11 - I-80 EASTBOUND EXISTING CONDITIONS PEAK PERIOD SPEED CONTOUR MAP

AM PEAK PERIOD



PM PEAK PERIOD

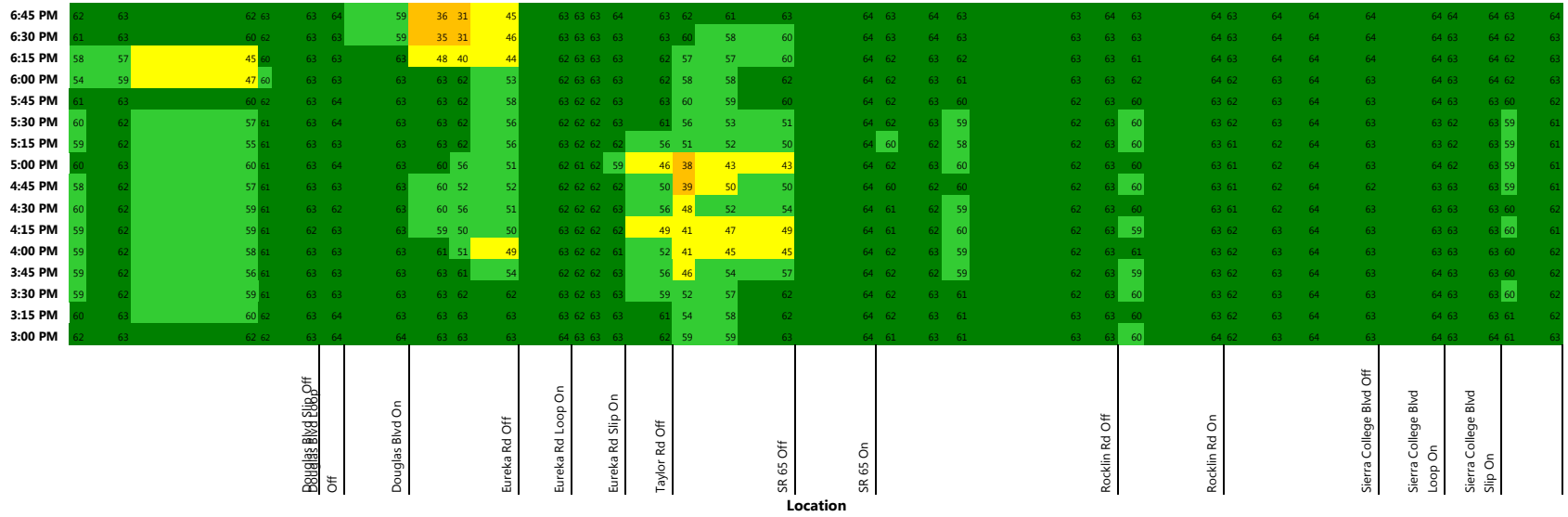
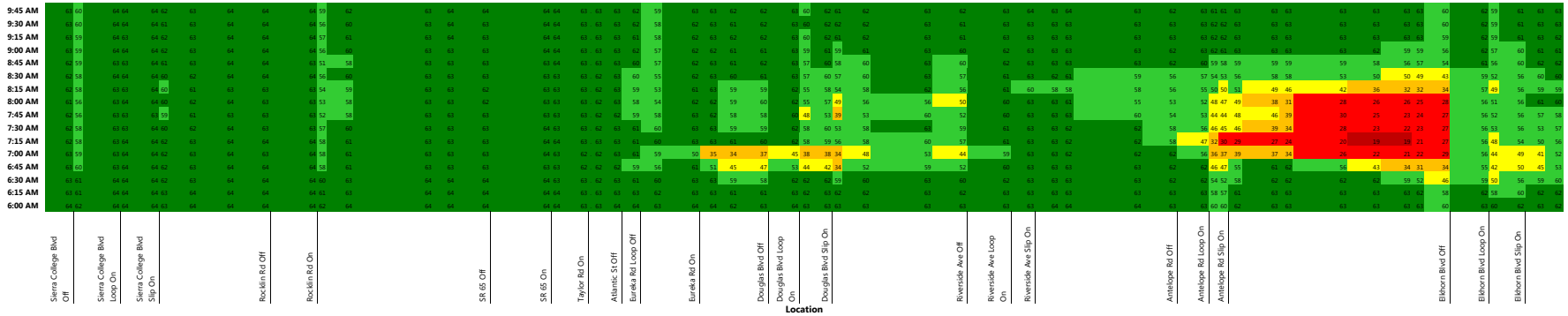


FIGURE 12 - I-80 WESTBOUND EXISTING CONDITIONS PEAK PERIOD SPEED CONTOUR MAP

AM PEAK PERIOD



PM PEAK PERIOD

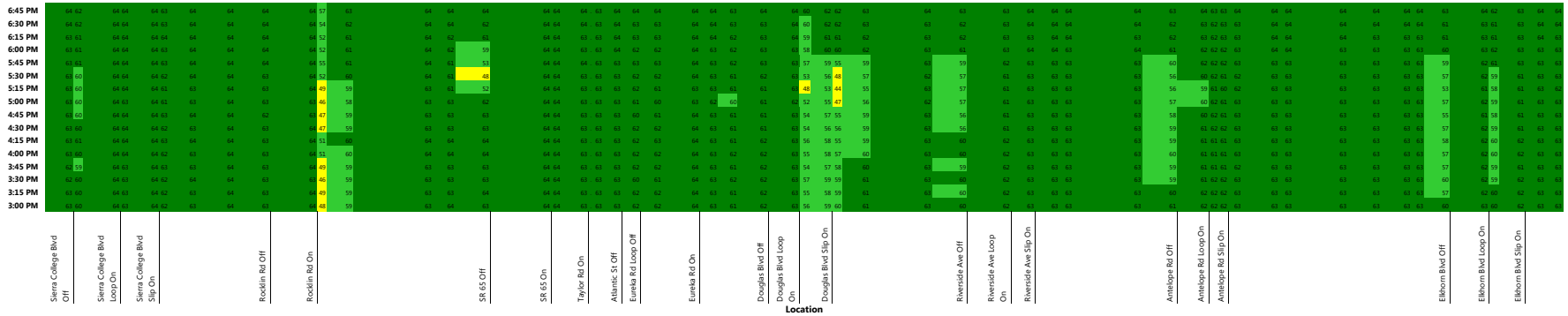
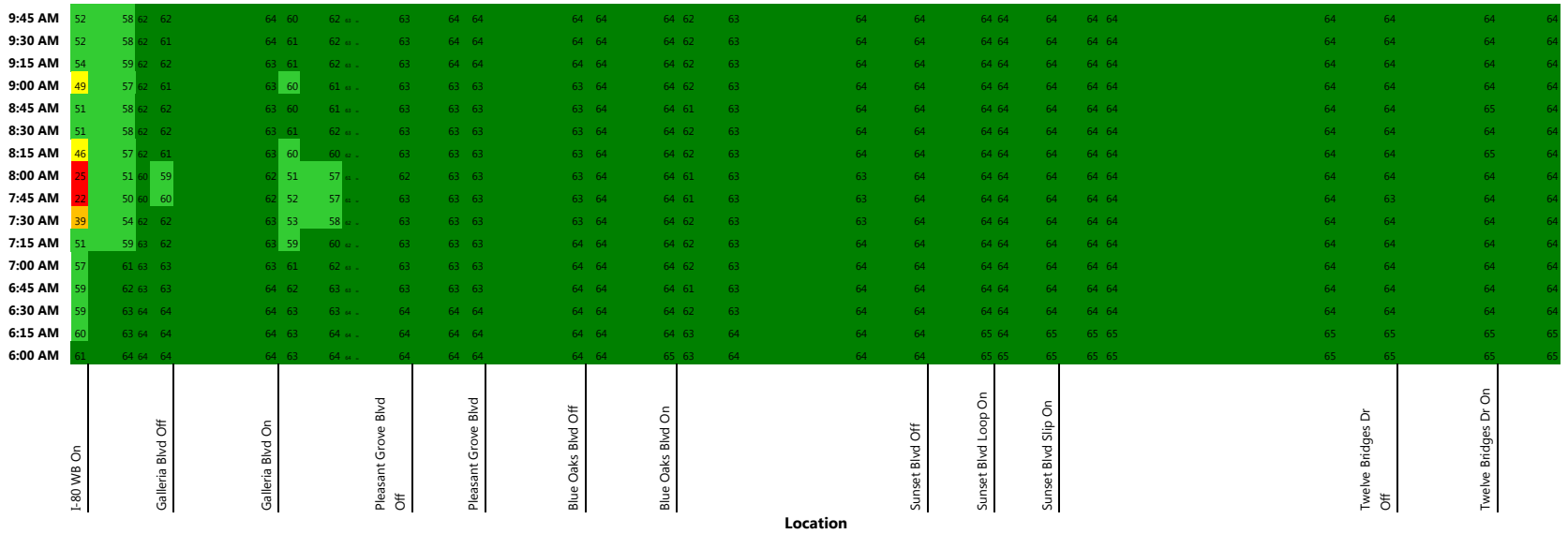


FIGURE 13 - SR-65 NORTHBOUND EXISTING CONDITIONS PEAK PERIOD SPEED CONTOUR MAP

AM PEAK PERIOD



PM PEAK PERIOD

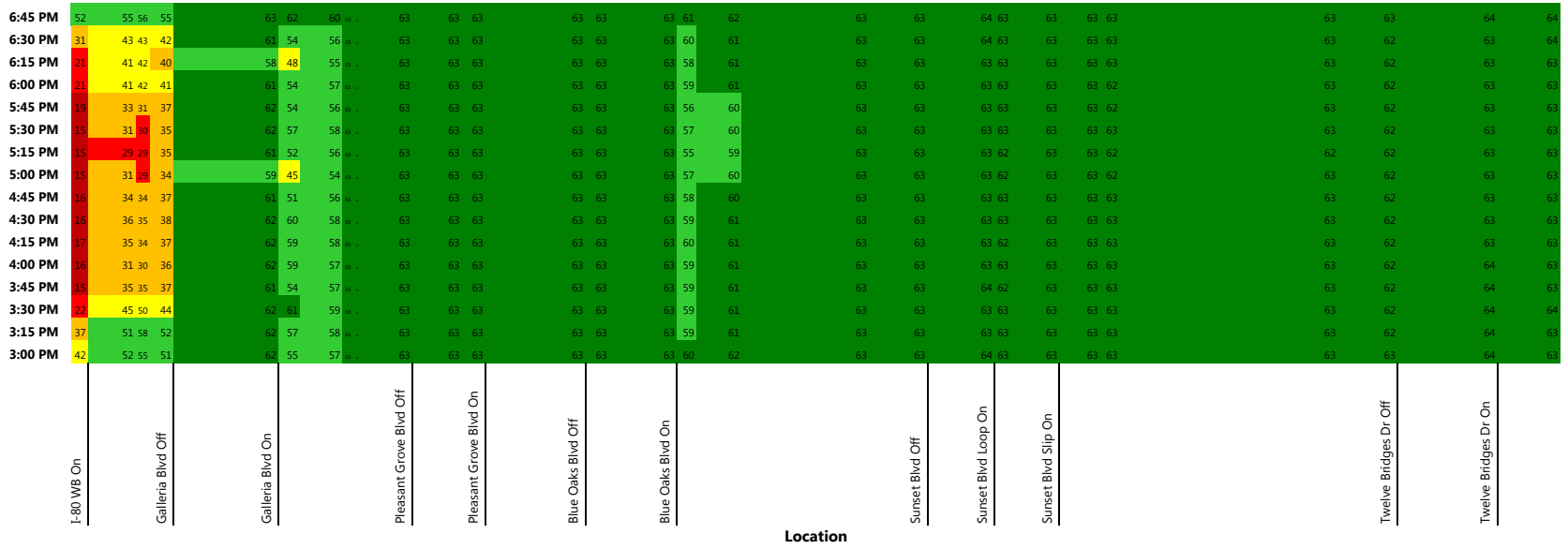
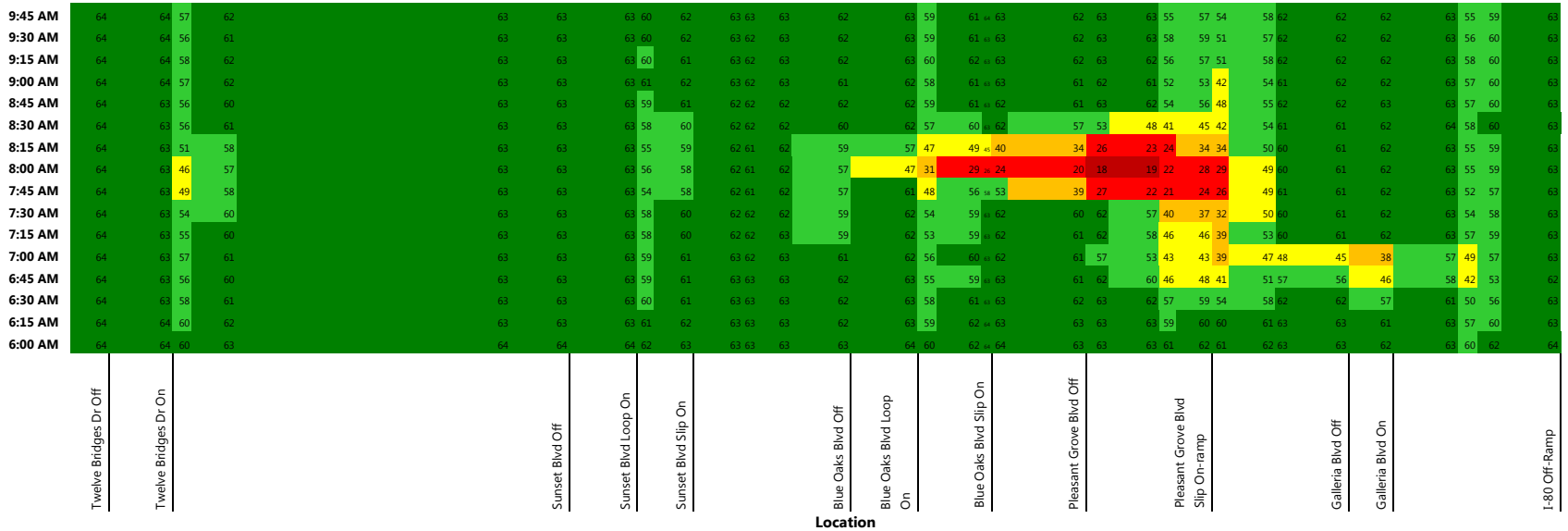
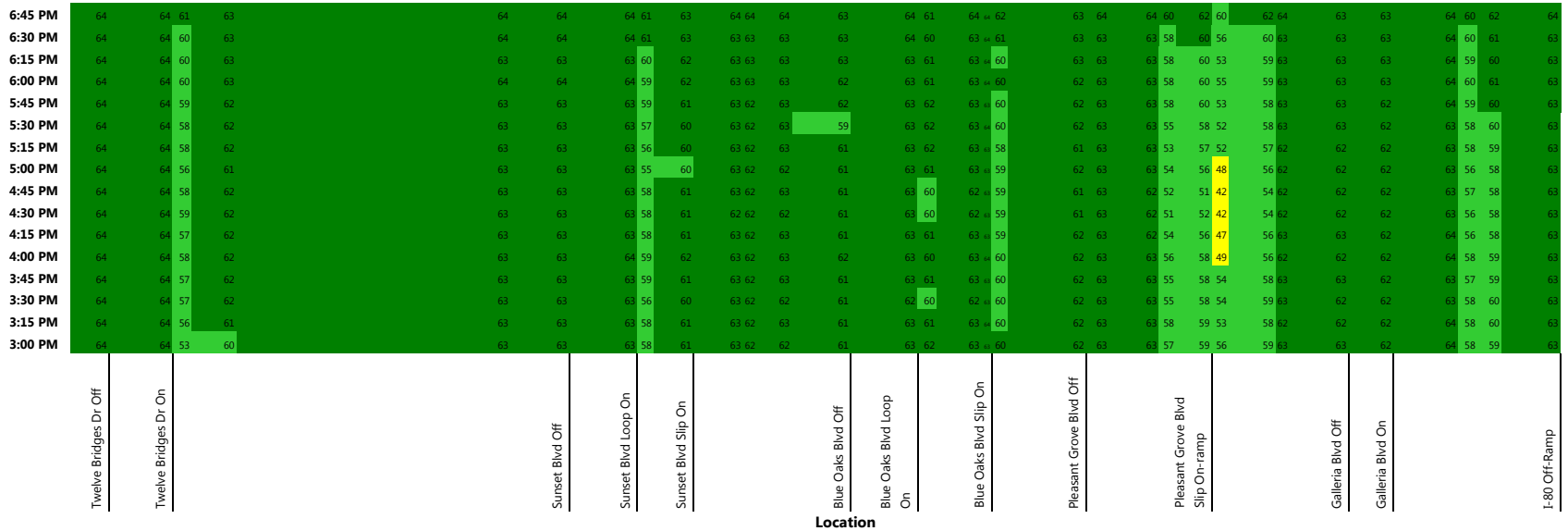


FIGURE 14 - SR-65 SOUTHBOUND EXISTING CONDITIONS PEAK PERIOD SPEED CONTOUR MAP

AM PEAK PERIOD



PM PEAK PERIOD



During the AM peak hour, congested LOS F conditions occur on NB SR-65 at the I-80 on-ramp and SB SR-65 between Blue Oaks Boulevard and Pleasant Grove Boulevard. On NB SR-65, the merging of the WB I-80 on-ramp causes congestion. For SB SR-65, the constraint is the high demand from the mainline combined with the Pleasant Grove Boulevard on-ramp volume.

During the PM peak hour, the primary bottleneck is NB SR-65 at the on-ramp from WB I-80. This bottleneck results in LOS F conditions on EB I-80 at the SR-65 off-ramp. LOS E conditions exist from Taylor Road to Eureka Road, with the rightmost lanes mostly congested (queued from the SR-65 off-ramp) while the left lanes operate with higher speeds. The Eureka Road off-ramp has LOS F conditions due to queues spilling back from the ramp terminal intersection. WB I-80 has LOS F conditions at the SR-65 off-ramp due to the same bottleneck. LOS D/E conditions occur further north on NB SR-65 between Stanford Ranch Road and Pleasant Grove Boulevard. This suggests that if the bottleneck at I-80 were relieved, this section may become congested.

3.2.2. Arterial Intersection Operations

In general, arterial intersections operate better than freeway locations during the peak hours. Table 8 shows the LOS and average delay at key study intersections under existing (2012) conditions. Based on the evaluation criteria for this study, all of the study intersections operate acceptably. See the Technical Appendix for all study intersection results.

The AM peak hour intersection LOS results indicate all intersections operate at LOS C or better, except for the Roseville Parkway/Sunrise Avenue and Blue Oaks Boulevard/Washington Boulevard intersections which operate at LOS D. The Roseville Parkway/Sunrise Avenue intersection operates with split phasing to accommodate the hospital driveway, which leads to less efficient operations. The Blue Oaks Boulevard intersection experiences high peak period peak direction traffic flows because it serves both inbound (employees) and outbound (residents) commuters for west Roseville.

During the PM peak hour, four intersections operate at LOS D or E:

- Galleria Boulevard / Roseville Parkway
- Roseville Parkway / Sunrise Avenue
- Eureka Road / Taylor Road / I-80 EB Ramps
- Douglas Blvd / Sunrise Avenue
- Rocklin Road / Granite Drive

TABLE 8: SELECTED INTERSECTION OPERATIONS RESULTS – EXISTING (2012) CONDITIONS		
Intersection	**AM Peak Hour**	**PM Peak Hour**
6. Blue Oaks Blvd / Washington Blvd / SR-65 SB Ramps	D / 43	C / 33
10. Stanford Ranch Rd / Five Star Blvd	B / 19	C / 32
11. Stanford Ranch Rd / SR-65 NB Ramps	A / 9	B / 15
12. Galleria Blvd / SR-65 SB Ramps	B / 13	B / 19
13. Galleria Blvd / Antelope Creek Dr	B / 10	C / 24
14. Galleria Blvd / Roseville Pkwy	C / 30	D / 36
15. Roseville Pkwy / Creekside Ridge Dr	A / 6	B / 17
16. Roseville Pkwy / Taylor Rd	C / 30	C / 28
17. Roseville Pkwy / Sunrise Ave	D / 37	D / 37
18. Atlantic St / Wills Rd	B / 10	B / 12
19. Atlantic St / I-80 WB Ramps	A / 7	B / 11
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 26	E / 61
21. Eureka Rd / Sunrise Ave	C / 24	C / 30
26. Douglas Blvd / Sunrise Ave	C / 26	D / 35
28. Pacific St / Sunset Blvd	B / 18	C / 29
29. Rocklin Rd / Granite Dr	B / 15	D / 37
30. Rocklin Rd / I-80 WB Ramps	C / 21	B / 17
31. Rocklin Rd / I-80 EB Ramps	B / 17	B / 20
32. Rocklin Rd / Aguilar Rd	A / 8	B / 13
Note: The LOS and average delay in seconds per vehicle are reported. Source: Fehr & Peers, 2013		

Like the Blue Oaks Boulevard intersection in the AM peak hour, the Roseville Parkway and Eureka Road corridors serve both inbound (residents and shoppers) and outbound (employees) commuters. Additionally, reduced speeds occur on EB Eureka Road approaching the I-80 interchange. A project to widen EB Eureka Road is under construction. All other intersections operate at LOS C or better during the PM peak hour.

3.3. Traffic Safety

Table 9 summarizes the traffic collision data compiled by Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for the mainline freeway sections adjacent to the I-80/SR-65 interchange. The data shown are for the three-year period between January 1, 2008 and December 31, 2010. Within the study area, 772 collisions occurred on the freeway sections in the three-year period.

TABLE 9: MAINLINE ACCIDENT HISTORY

Freeway Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
EB I-80 (PM 1.9 to 6.3) Douglas Blvd Off to Rocklin Rd On	235	1	0.003	0.22	0.72	0.010	0.32	1.04
EB I-80 Off to NB SR-65 (PM 4.2)	23	0	0.000	0.20	0.76	0.004	0.21	0.75
EB I-80 On from SB SR-65 (PM 4.5)	3	0	0.000	0.19	0.29	0.004	0.15	0.45
WB I-80 (PM 1.9 to 6.3) Rocklin Rd Off to Douglas Blvd On	340	1	0.003	**0.33**	**1.05**	0.010	0.32	1.04
WB I-80 Off to NB SR-65 (PM 4.3)	4	1	**0.070**	0.28	0.28	0.005	0.15	0.42
WB I-80 On from SB SR-65 (PM 4.0)	15	0	0.000	**0.17**	**0.50**	0.003	0.11	0.35
NB SR-65 (PM 5.2 to 7.4) I-80 On to Pleasant Grove Blvd Off	54	0	0.000	0.15	0.46	0.011	0.36	1.12
SB SR-65 (PM 5.2 to 7.4) Pleasant Grove Blvd On to I-80 Off	98	0	0.000	0.26	0.84	0.011	0.36	1.12

Notes: Bold and underline font indicate actual accident rates that are higher than the statewide average for similar facilities.

[1.] The accident rate is accidents per million vehicle-miles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not included in the table.

Source: Caltrans District 3 TASAS Table B, January 1, 2008 to December 31, 2010

Collision rates were higher than statewide averages for one mainline section and two ramps as highlighted in the table. These locations experience some of the most severe congestion during peak periods and are more likely to experience excessive speed differentials. The congestion

contributes to certain types of collisions such as rear-end collisions as shown in Table 10. The build alternatives for this project would modify all these locations and reduce congestion in these locations.

TABLE 10: COLLISIONS BY TYPE

Location	Head On	Side Swipe	Rear End	Broadside	Hit Object	Overturn	Auto-Ped	Other
EB I-80 (PM 1.9 to 6.3) Douglas Blvd Off to Rocklin Rd On	1	40	147	7	30	4	2	4
EB I-80 Off to NB SR-65 (PM 4.2)	4	4	5	1	7	2	0	0
EB I-80 On from SB SR-65 (PM 4.5)	0	0	2	0	1	0	0	0
WB I-80 (PM 1.9 to 6.3) Rocklin Rd Off to Douglas Blvd On	0	72	205	4	43	8	2	6
WB I-80 Off to NB SR-65 (PM 4.3)	0	0	2	0	1	1	0	0
WB I-80 On from SB SR-65 (PM 4.0)	0	5	1	0	9	0	0	0
NB SR-65 (PM 5.2 to 7.4) I-80 On to Pleasant Grove Blvd Off	0	6	29	1	14	2	0	2
SB SR-65 (PM 5.2 to 7.4) Pleasant Grove Blvd On to I-80 Off	0	16	71	2	9	0	0	0

Source: Caltrans District 3 TASAS- Table B, January 1, 2008 to December 31, 2010

Chapter 4. Travel Demand Forecasts

The travel demand forecasts for the project were developed using a validated sub-area model derived from the SACMET regional travel demand forecasting (TDF) model developed by SACOG[1]. The approach to developing travel demand forecasts started with the recognition that regional travel demand models do not contain sufficient detail or sensitivity for local applications like developing directional freeway mainline and ramp volume forecasts. Instead, the regional model provides a starting point for creating a more detailed sub-area model along the freeway corridor. Having a valid sub-area model is a critical step in ensuring a high level of confidence in the traffic volume forecasts that will be used to evaluate the effects of improving the I-80/SR-65 interchange.

4.1. Sub-Area Model Development

SACMET is a four-step TDF model that was last calibrated and validated in 2008. This model represents the state of the practice for a metropolitan planning organization such as SACOG given the geographic area and population size covered by the model. Two advanced features of the model include a destination choice model for the home-based work purpose and a feedback loop between trip assignment and trip distribution. Issues or limitations of the model include the following.

- No feedback to land use projections – The model's land use projections are developed independently of specific model runs and are not affected by congestion and accessibility. For corridors where significant roadway capacity expansion will occur (which makes land along those corridors more accessible), the model does not contain sufficient sensitivity to capture the full effects of induced traffic that occurs due to induced growth. This issue is not considered significant for the I-80/SR-65 interchange since the increase in capacity is not commensurate with the increase in land use growth. Therefore, the peak period traffic volume forecasts that are the basis for the operations analysis substantially exceed available capacity.

- No feedback to trip generation – The model is insensitive to congestion effects on trip making behavior since it uses the same fixed trip generation rates in base year and future year models. This limits the model's sensitivity to congestion effects and likely results in higher traffic volume forecasts than are likely to occur in future years.

[1] The SACMET model used for this project was released in May 2011 and was developed to be consistent with the Sacramento Area Council of Governments Metropolitan Transportation Plan/Sustainable Communities Strategy 2035.

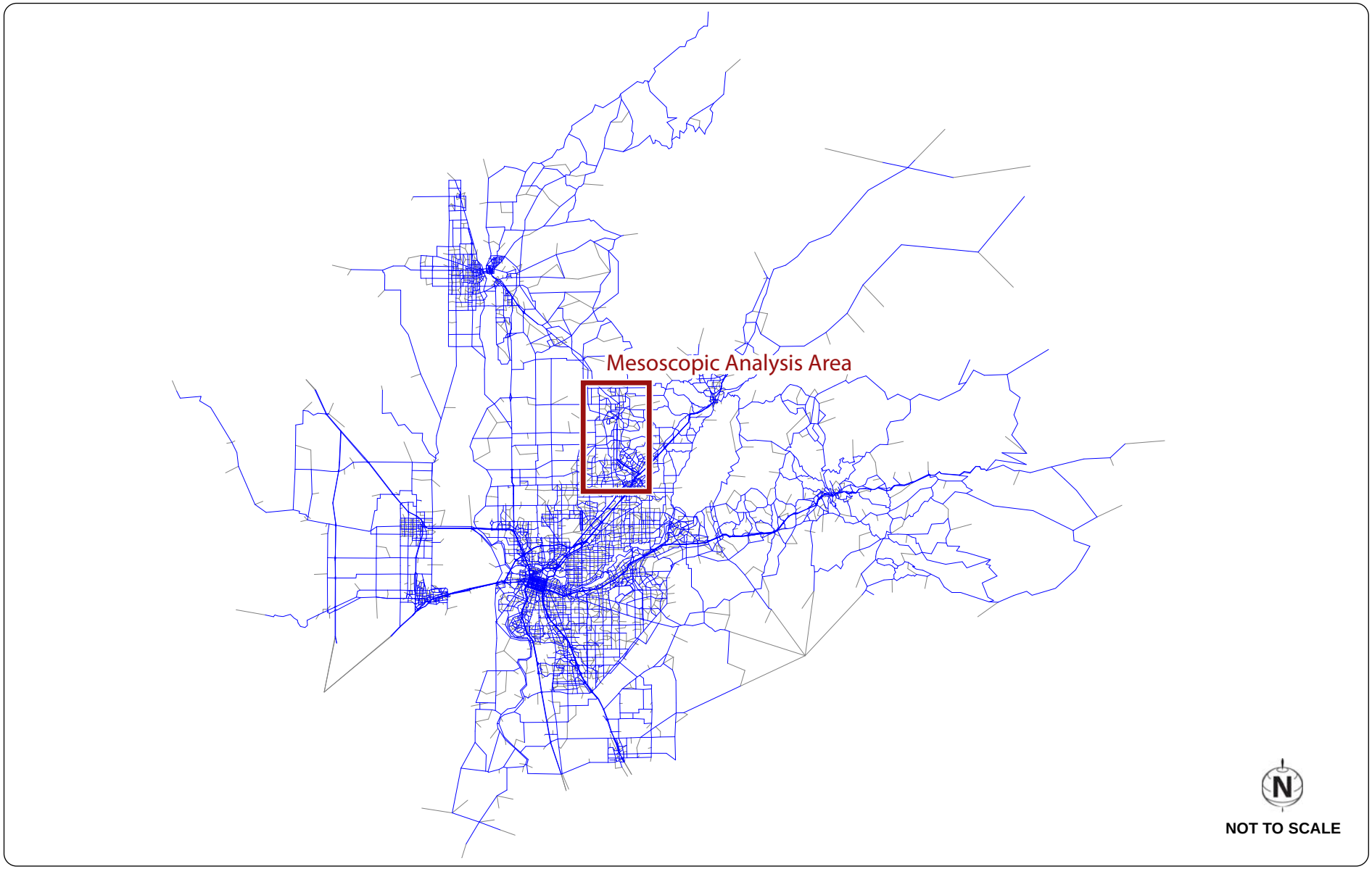
- Fixed peak period percentages – The model's forecasts of peak period traffic volumes are based on fixed percentages that are carried over from the base year model to the future year models. In reality, peak periods will spread as congestion worsens and the peak period percentages will change. The use of base year peak period percentages for the future year models will likely result in peak period traffic volumes that are higher than the roadway network could operationally support.

For the I-80/SR-65 interchange project, the last two issues were addressed through the integration of the sub-area travel demand forecasts with a meso-scale trip assignment model and a microsimulation traffic operations model (which were built using the VISUM 12.0 and VISSIM 5.4 software, respectively). Figure 15 displays the entire SACMET model network and highlights the portion that is the study area for the I-80/SR-65 project.

Key modifications to the SACMET model that were made within the sub-area are listed below.

- Updated base year land use estimates within the study area based on field observations, aerial photography, and input from Placer County and the Cities of Rocklin and Roseville.
- Updated base year roadway network to include greater detail and correct inconsistencies between model inputs and field observations.
- Added new traffic analysis zones (TAZs) in the study area to increase the level of detail and improve the loading of traffic from TAZs onto the network.

Figure 8 shows the VISUM mesoscopic model area and the VISSIM microscopic model area. Trip tables from the SACMET model were used to forecast peak period travel demand, and the mesoscopic VISUM model was used to refine the peak period temporal distribution into individual one hour assignments. In the final step, the VISUM trip tables and paths are imported to VISSIM where the final assignment occurs and the end result is a forecast of peak spreading and refined peak period traffic volume flows that are sensitive to the operational capacity constraints of the I-80/SR-65 network.



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SACMET MODEL NETWORK AND SUB-AREA LIMITS

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FIGURE 15

4.2. Model Validation

Validation compares model estimates of base year conditions to observed traffic counts and sensitivity tests are conducted to ensure the models respond in the correct direction and magnitude when changes to inputs are made. The comparison of model volumes to counts is referred to as static validation and involves statistical tests to measure how well the model volume estimates match the traffic counts. The sensitivity tests are called dynamic validation.

The base year for the SAMET model is 2008 so the static validation for the modified SACMET model and the VISUM model relied on available traffic counts from 2006 to 2009. This was necessary since a complete set of traffic counts was not available for 2008 alone. The static validation results should be viewed within this context because the model volumes are intended to represent 2008 conditions. Specific validation tests and thresholds were obtained from the *2010 California Regional Transportation Plan Guidelines* (California Transportation Commission, 2010). This document includes modeling guidelines for state, regional, and local agency projects.

4.2.1. Static Validation

After the changes noted above were completed, the modified SACMET model was validated within the project study area. Specific criteria have been established as target thresholds for the static tests. The static validation results for both models are compared to the target thresholds in Tables 11 and 12 below. As a regional model, the SACMET model performed well within the small sub-area. It passed all but one of the static tests (although it improved from its original off-the-shelf performance for this test). In general, the model generated volume estimates that closely matched freeway and ramp volumes. Differences tended to be larger on low volume roadways on the edge of the study area.

The VISUM model was developed just for the project study area and includes more network detail and a different approach to estimating and assigning trips. The VISUM model was developed using Airsage cell phone OD data and TomTom GPS speed data. The cell phone OD data were processed through a trip table estimation procedure to match 2008 traffic flows. The GPS speed data was used to set the link free-flow speed. As a result, the VISUM model static validation results in Table 12 show a close match to traffic counts.

TABLE 11: SACMET MODEL VALIDATION RESULTS					
Measure	**AM Peak Hour**	**PM Peak Hour**	**AM Four-Hour**	**PM Four-Hour**	**Threshold[1]**
Model/Count Ratio	0.98	1.01	1.05	0.97	
Percent Within Caltrans Maximum Deviation	71%	*69%*	77%	70%	**> 75%**
Percent Root Mean Square Error	30%	31%	28%	28%	**< 40%**
Correlation Coefficient	0.94	0.93	0.96	0.94	**> 0.88**

Note: [1] *2010 California Regional Transportation Plan Guidelines*, California Transportation Commission, 2010
Source: Fehr & Peers, 2013

TABLE 12: VISUM MODEL VALIDATION RESULTS					
Measure	**AM Peak Hour**	**PM Peak Hour**	**AM Four-Hour**	**PM Four-Hour**	**Threshold[1]**
Model/Count Ratio	1.01	1.01	1.01	1.01	
Percent Within Caltrans Maximum Deviation	100%	100%	100%	100%	**> 75%**
Percent Root Mean Square Error	11%	17%	16%	17%	**< 40%**
Correlation Coefficient	1.00	1.00	1.00	1.00	**> 0.88**

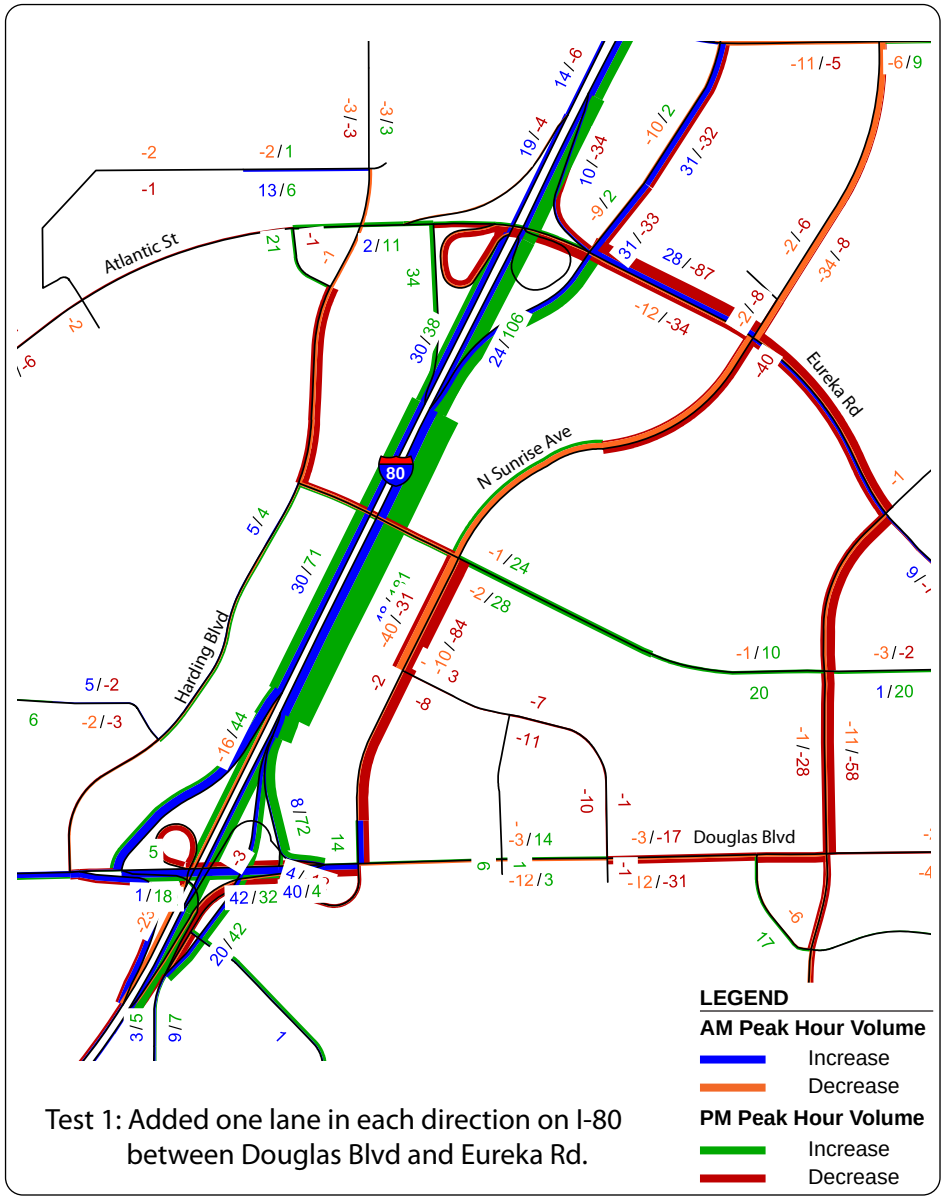
Note: [1] *2010 California Regional Transportation Plan Guidelines*, California Transportation Commission, 2010
Source: Fehr & Peers, 2013

4.2.2. Dynamic Validation

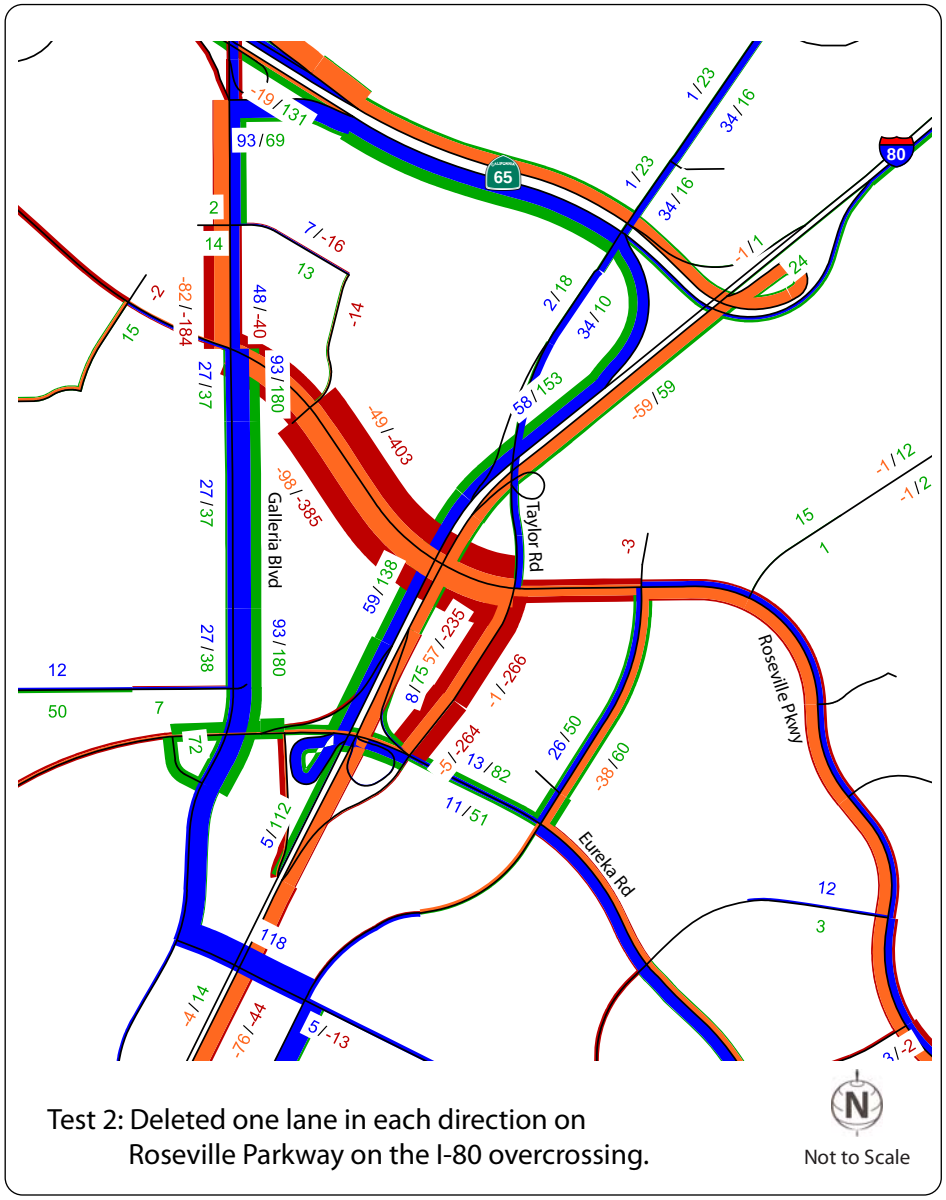
The SACMET and VISUM models were tested dynamically by deleting and adding links. Figure 16 displays two of the dynamic tests for illustrative purposes. The first test shows the change in peak hour traffic volumes when one lane is added in each direction on I-80 between Douglas Boulevard and Eureka Road. The second test shows the change in traffic levels when one lane in each direction is deleted from Roseville Parkway at the I-80 overcrossing.

In the first test, the model increased the I-80 volume as a result of adding a lane by shifting volume from the parallel roadways: Harding Boulevard, Sunrise Avenue, and Rocky Ridge Drive. In the second test, traffic volume on Roseville Parkway dropped with the reduction of a lane and volume was shifted to the parallel SR-65 and Atlantic Street/Eureka Road. Both models responded in the correct direction and magnitude when making changes to network inputs. The SACMET model also demonstrated appropriate responses in changes to land use inputs during the static validation process.

With the sub-area model validated, the next step was to use the model to generate future year forecasts.



Test 1: Added one lane in each direction on I-80 between Douglas Blvd and Eureka Rd.



Test 2: Deleted one lane in each direction on Roseville Parkway on the I-80 overcrossing.

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DYNAMIC VALIDATION TESTS

FIGURE 16

4.3. Future Year Forecasts

Traffic forecasts for design and construction year analysis were developed for the following project alternatives (see Figure 2).

- No Build Alternative
- TSM Alternative
- No Taylor Alternative (or Taylor Road Interchange Eliminated)
- Half Taylor Alternative (or Taylor Road Access Shifted)
- Taylor Diamond Alternative (or Taylor Road Full Access Diamond Shape Interchange)
- Taylor Trumpet Alternative (or Taylor Road Full Access Trumpet Shape Interchange)

From a forecasting perspective, the last two alternatives are similar since the connection points for the proposed I-80/Taylor Road interchange occur at about the same location. Therefore, these two alternatives share one set of forecasts, called the "Full Taylor Alternative".

Traffic forecasts were developed for one additional alternative: Full Taylor Alternative with Antelope Creek Drive Connection. In this alternative, Antelope Creek Drive is extended east across the railroad tracks to Taylor Road. While this alternative was dropped from consideration for more detailed analysis as explained previously, traffic forecasts were completed to aid in this decision and those results may prove useful in further developing or refining the Antelope Creek Drive connection as a future project. As such, this alternative is included in traffic forecasts summary.

4.3.1. Design Year Forecasts

From a macro perspective, the proposed project alternatives – modification at one interchange – would not change regional travel demand. A sensitivity test of the SACMET model showed almost no change in travel demand with a change in capacity of the congested freeway connector ramps. Instead, the most significant effects on future traffic volumes will occur in terms of trip routing within the meso-scale study area due to travel time differences caused by the alternatives. Therefore, the PDT agreed to use the same set of trip tables for all project alternatives, which means that volumes at the sub-area boundaries are the same across alternatives.

The volume forecast process began with isolating the incremental peak period volume growth (2008 to 2035) between traffic analysis zones (TAZs) in the sub-area using the modified SACMET

model (macro level). This incremental growth was then added to the base year VISUM trip table (meso level) that was derived from the Airsage cell phone data. The incremental SACMET growth was inspected to verify that the changes in origin-destination trips were commensurate with the location of socioeconomic growth. Individual origin-destination pair volumes were not allowed to decrease between base and cumulative years.

In the next step, the four-hour peak period trip tables were divided into hourly trip tables by mode: SOV, HOV, and truck. The conversion from peak period to hourly trip tables used the existing ratio of hourly traffic volume to peak period volume. The mode share for HOVs was based on the relative peak period mode share in the 2035 SACMET model. For the entire meso study area, the overall forecast HOV shares are 18 and 19 percent during the AM and PM peak periods, respectively. The truck share is assumed to increase from 2.7 and 1.4 percent under existing conditions to 3.0 and 2.0 percent under the design year for the AM and PM peak periods, respectively.

Some adjustments were made to the HOV shares for select locations based on previous comments from Caltrans about HOV forecasts being lower than observed conditions on I-80. Table 13 shows the AM and PM peak hour HOV percentages for the I-80 western gateway from the 2035 SACMET model, the 2012 traffic counts, and the proposed 2040 forecast values. The 2008 and 2035 SACMET model forecasts show similar values of 11 to 13 percent at this gateway. These values are lower than the traffic counts that were collected in 2012. The proposed 2040 HOV percentages use the 2012 traffic count percentages for the off-peak directions. In the peak direction, a five percentage point increase was assumed to compensate for the difference between model estimates and counts. Additionally, traffic congestion is expected to be more severe in the design year, which would encourage the formation of carpools.

TABLE 13: PEAK PERIOD HOV PERCENTAGE FOR I-80 WESTERN GATEWAY

Direction	2035 SACMET		2012 Counts		2040 Forecast	
	AM	PM	AM	PM	AM	PM
EB	11%	13%	15%	17%	15%	22%
WB[1]	13%	13%	14%	18%	19%	18%

Note: 1. The count location was at the Riverside Ave/Auburn Blvd overcrossing, but the WB study area gateway is between Elkhorn Blvd and Madison Ave.

Source: Fehr & Peers, 2013

The five percentage point increase was also validated based on a June 2012 sampling of traffic volumes at the I-80/Douglas Boulevard, I-80/Eureka Road, and SR-65/Galleria Boulevard on-ramps, which found HOV percentages ranging from 9 to 25 percent for the AM peak hour and 14 to 36 percent for the PM peak hour. The AM and PM peak hour averages of 16 and 24 percent from these samples are generally similar to the 2035 SACMET forecasts of 18 and 19 percent, respectively. However, peak direction HOV percentages were some of the largest values observed. The adjustments noted in Table 13 result in HOV volume forecasts that are at or near the HOV lane operating capacity under design year conditions, so they were considered reasonable for purposes of this study.

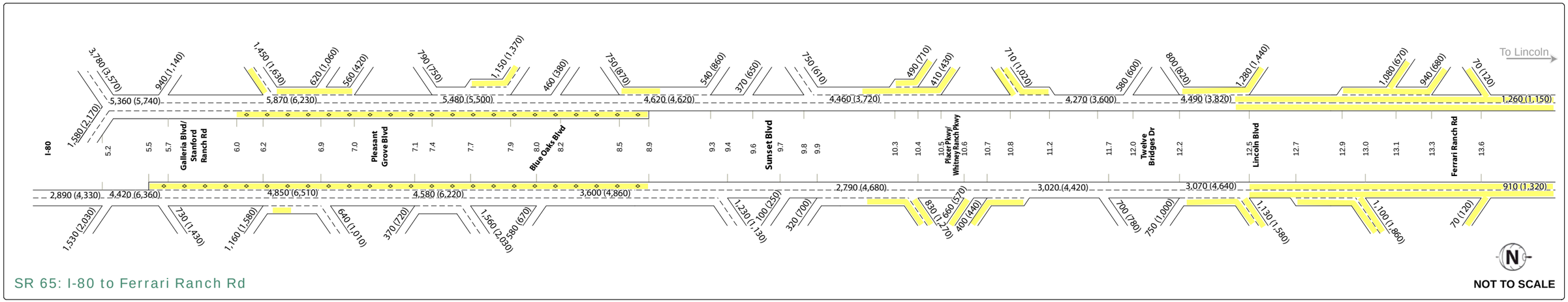
The future year VISUM trip tables were then assigned to each project alternative network. These networks included all the planned transportation improvements shown in Figures 3 and 4 plus unique features of each alternative. The preliminary forecasts from this step were reviewed and adjusted for anomalies such as unexpected decreases in traffic volumes when compared to existing conditions. The expected decreases that occurred are noted below.

- Riverside Avenue slip on-ramp to WB I-80 – This ramp shows a decrease over existing volumes. This decrease is allowed since the cumulative roadway network includes several projects that increase parallel capacity between west Roseville and Sacramento County (widening Baseline Road/Riego Road between SR-99 and Foothills Boulevard, widening Watt Avenue, etc.). These capacity enhancements redistribute some existing long-distance trips from Placer County to Sacramento County to alternative routes.

- Sunset Boulevard loop on-ramp to SB SR-65 – The construction of the SR-65/Whitney Ranch Parkway interchange provides an alternate route so that the demand at SR-65/Sunset Boulevard is lower.

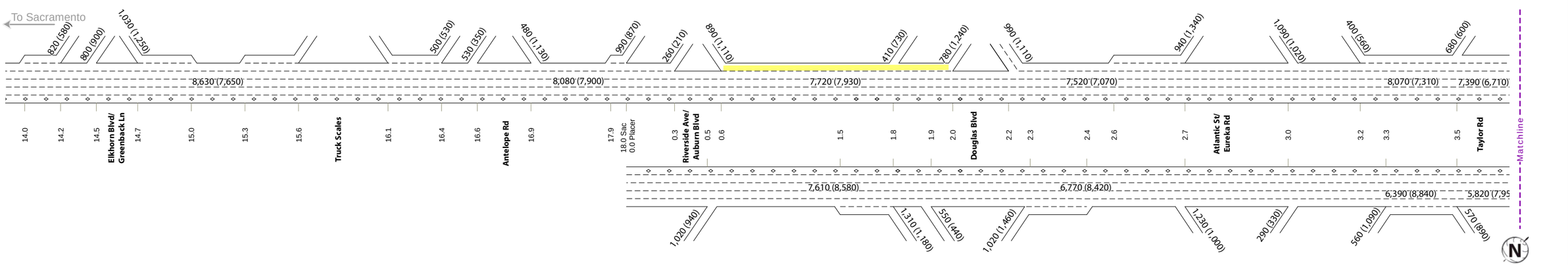
- Taylor Road off-ramp from EB I-80 for the Half and Full Taylor Alternatives – With the widening of the EB to NB freeway connector, traffic destined to Rocklin can use SR-65 to Stanford Ranch Road rather than the more indirect route of Taylor Road and Pacific Street to Sunset Boulevard.

The final trip tables and the associated travel paths from the VISUM assignment were transferred to VISSIM for final assignment and analysis. Figures 17 through 22 display the specific freeway lane configurations associated with each alternative, along with the AM and PM peak hour traffic volume forecasts. These volumes represent traffic demand that may not be fully accommodated during the peak hour, which is determined as part of the VISSIM analysis. The traffic forecasts for the study intersections are provided in the Technical Appendix.



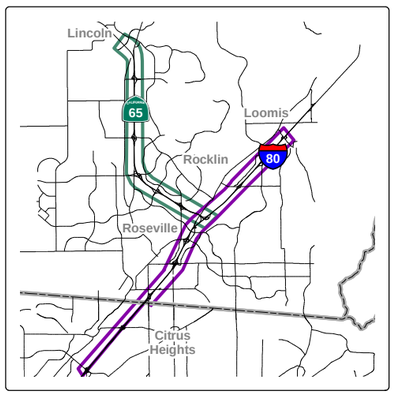
SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE

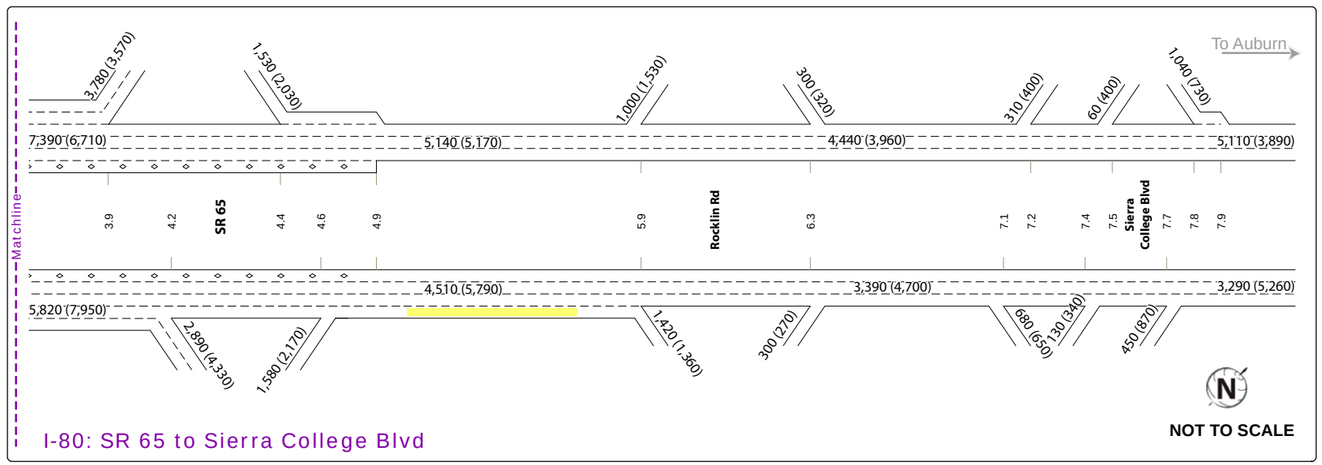


LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects



I-80: SR 65 to Sierra College Blvd

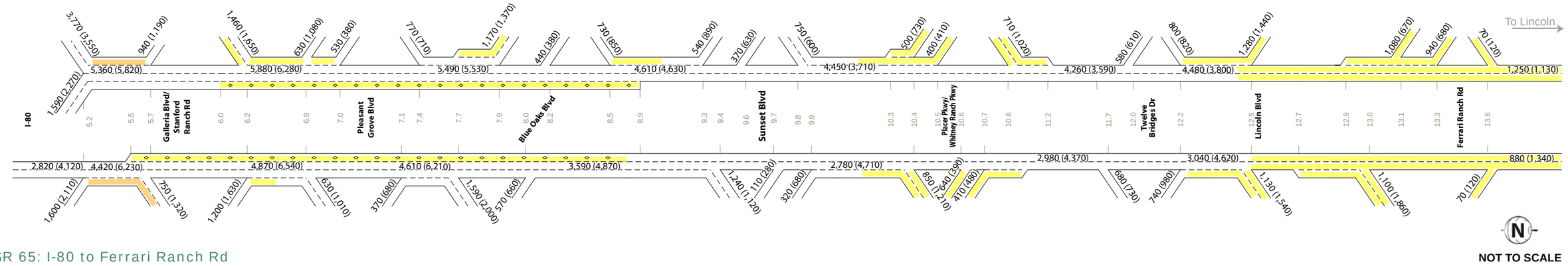
NOT TO SCALE

FEHR PEERS

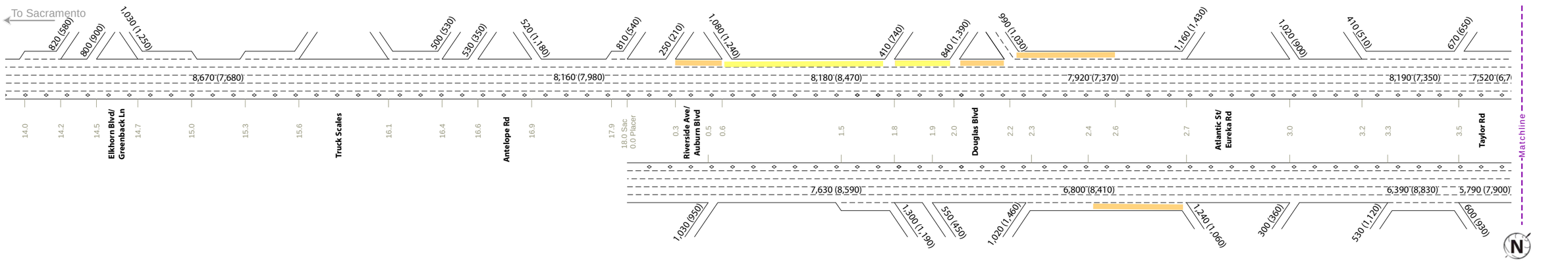
Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Draft\GIS\MXD\LOS_Schematic\F17_year2040_NoBuild.mxd

DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO BUILD ALTERNATIVE

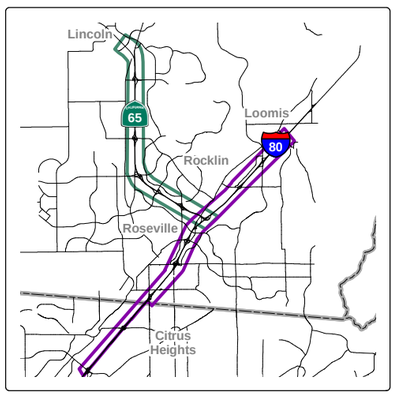
FIGURE 17



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to Taylor Rd



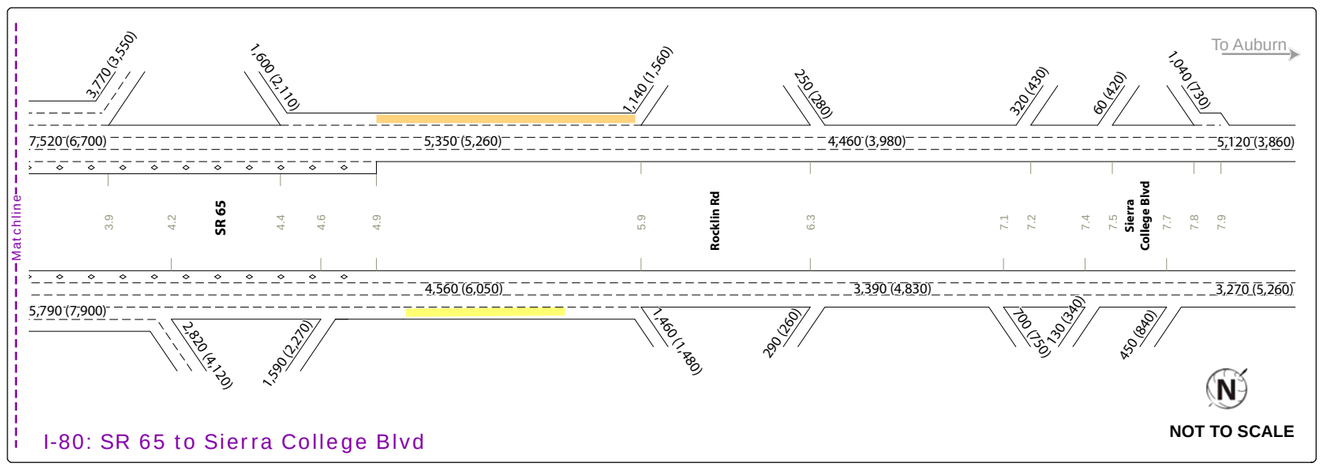
LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects

TSM Alternative



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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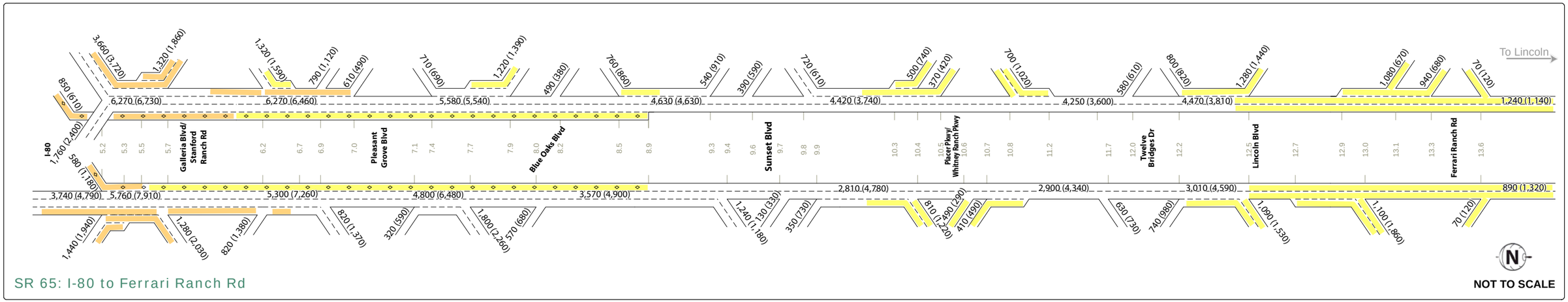
DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TSM ALTERNATIVE

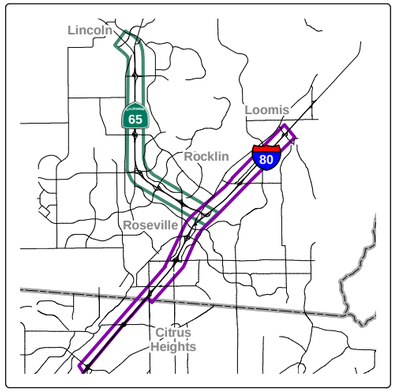
FIGURE 18



SR 65: I-80 to Ferrari Ranch Rd

I-80: Elkhorn Blvd to SR 65

I-80: SR 65 to Sierra College Blvd



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects

No Taylor Alternative

FEHR PEERS

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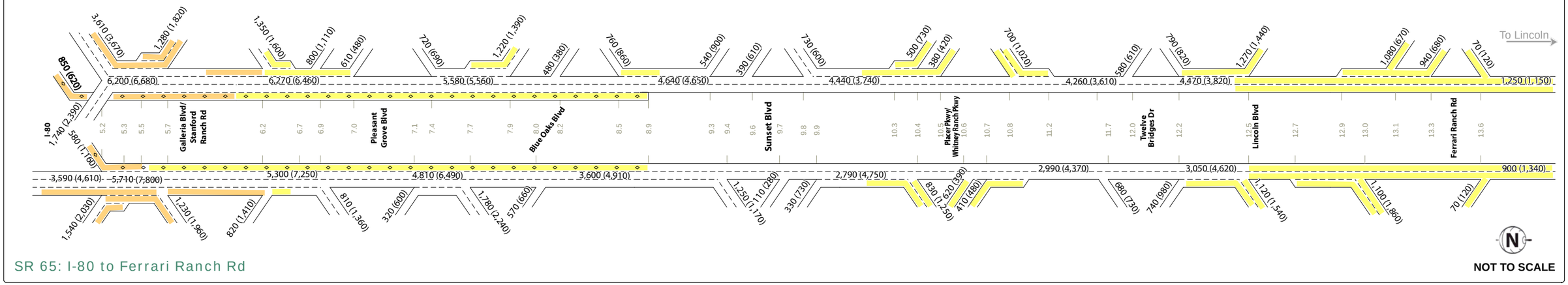
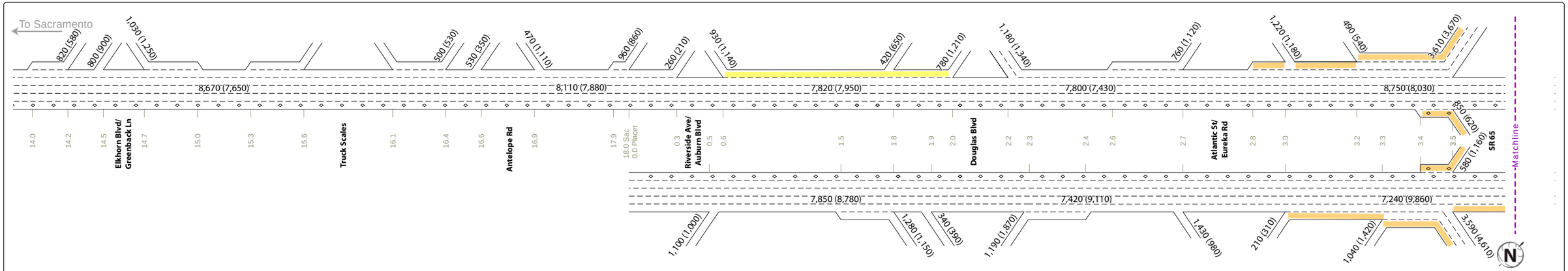
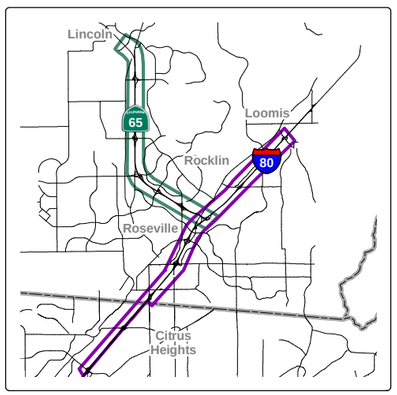
DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO TAYLOR ALTERNATIVE

FIGURE 19







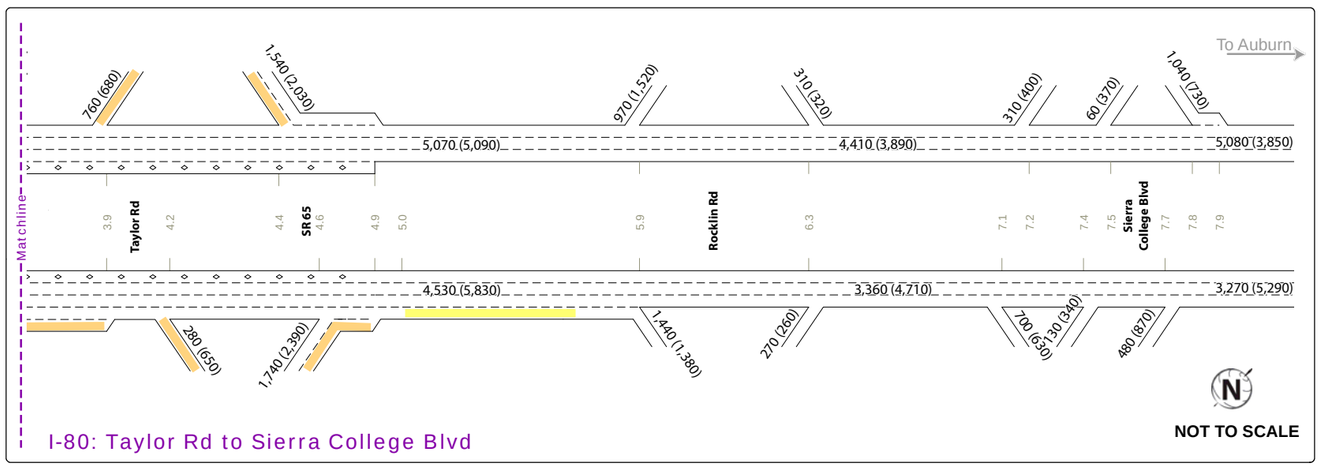
LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects

Half Taylor Alternative



FEHR PEERS

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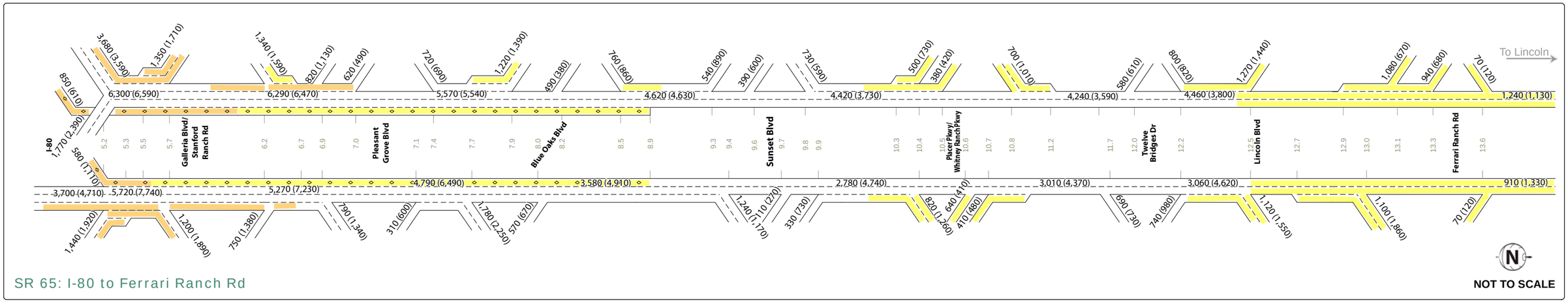
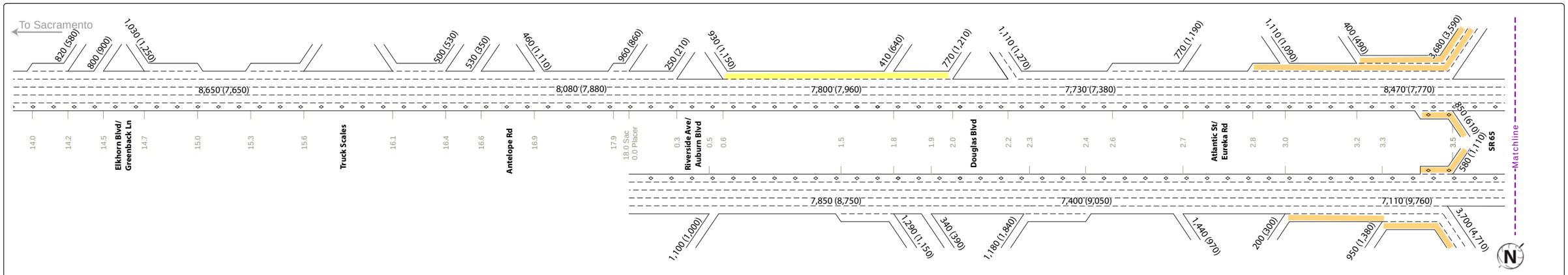
DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - HALF TAYLOR ALTERNATIVE

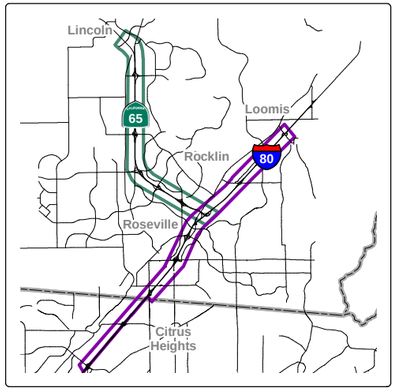
FIGURE 20



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65



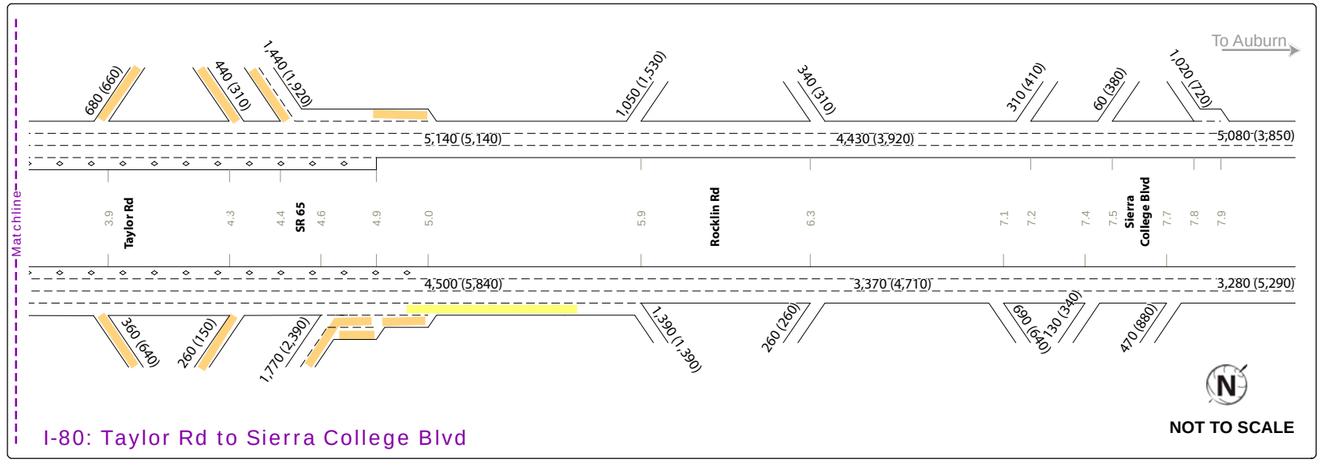
LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects

Full Taylor Alternative



I-80: Taylor Rd to Sierra College Blvd

FEHR PEERS

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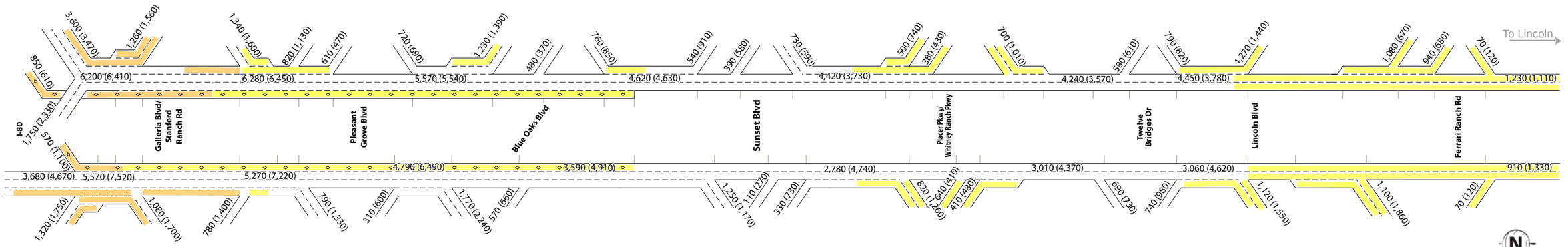
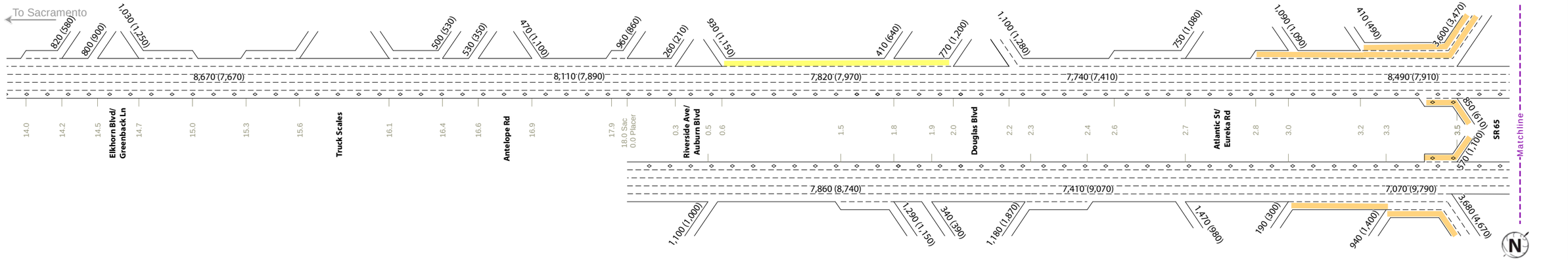
DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - FULL TAYLOR ALTERNATIVE

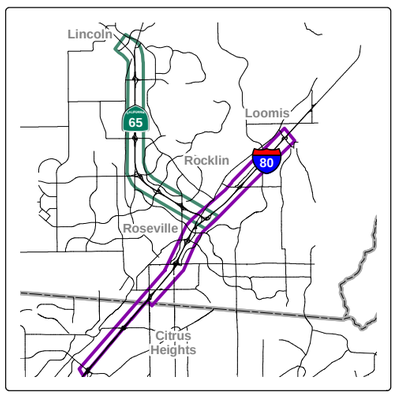
FIGURE 21



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65



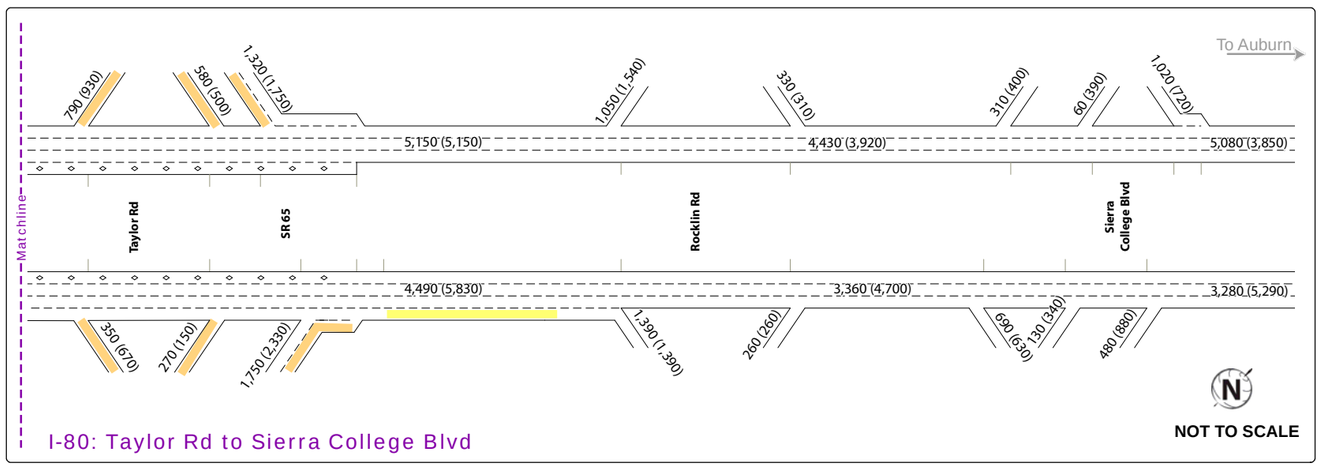
LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects

Full Taylor Alternative



I-80: Taylor Rd to Sierra College Blvd

FEHR PEERS

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DESIGN YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - FULL TAYLOR ALTERNATIVE WITH ANTELOPE DRIVE CONNECTION

FIGURE 22

Exhibits 1 through 4 show volume comparison plots between project alternatives. The orange and red colors indicate a volume decrease for the AM and PM peak hours, respectively. The blue and green colors indicate a volume increase for the AM and PM peak hours, respectively.

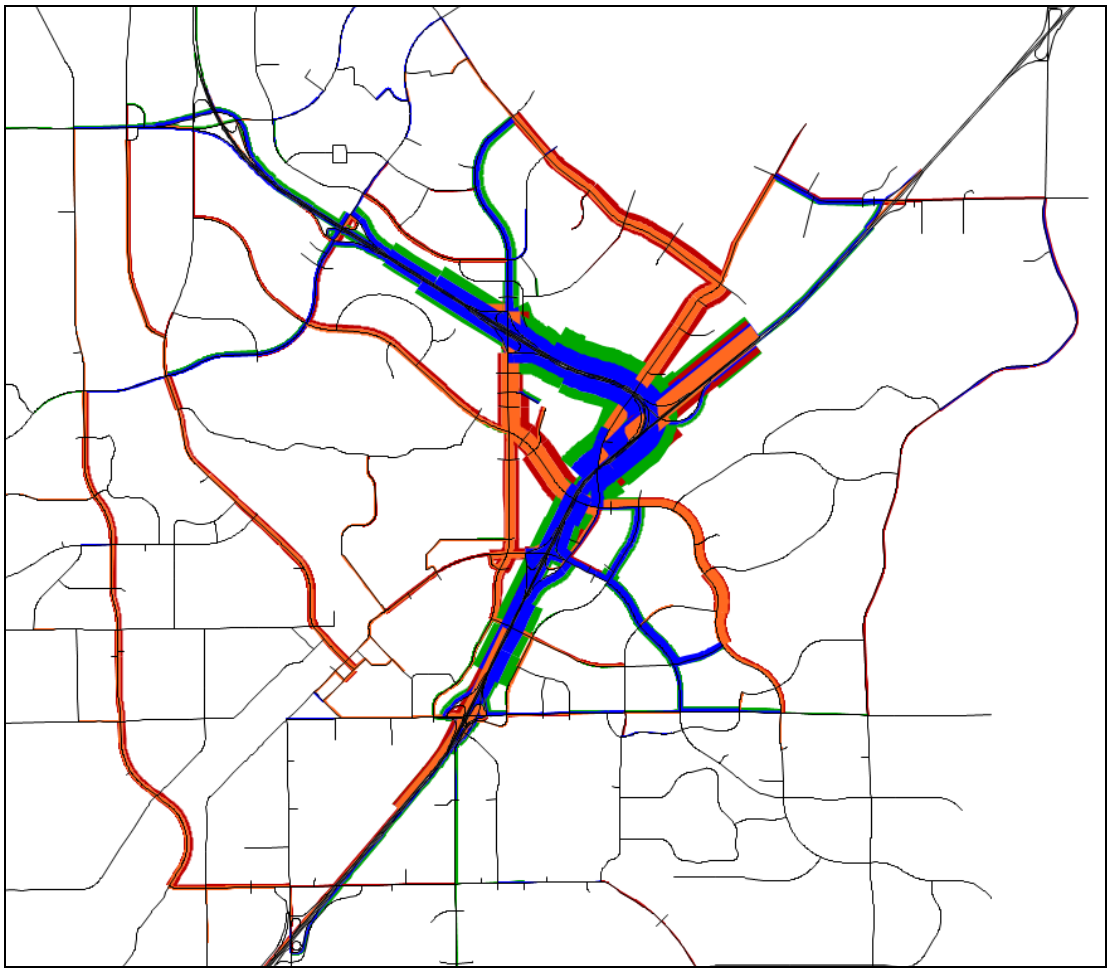


Exhibit 1: Volume Comparison of No Build and No Taylor Alternatives

Exhibit 1 shows a comparison of the No Taylor and No Build alternatives. With the additional capacity at the I-80/SR-65 interchange, volumes are higher from Douglas Boulevard on I-80 to Blue Oaks Boulevard on SR-65 under the No Taylor alternative. Volume increases also occur on arterials that access the north and south ends of this freeway segment: Eureka Road east of I-80, Stanford Ranch Road north of SR-65, and Pleasant Grove Boulevard and Blue Oaks Boulevard west of SR-65. Routes parallel to the freeway segment show decreases: Foothill Boulevard, Washington Boulevard, Roseville Parkway, and Galleria Boulevard/Harding Boulevard. Removing the I-80/Taylor Road interchange shifts traffic from Taylor Road and Sunset Boulevard to SR-65 and Stanford Ranch Road. The differences between the No Build alternative and the other freeway reconstruction alternatives (Half and Full Taylor) are similar.

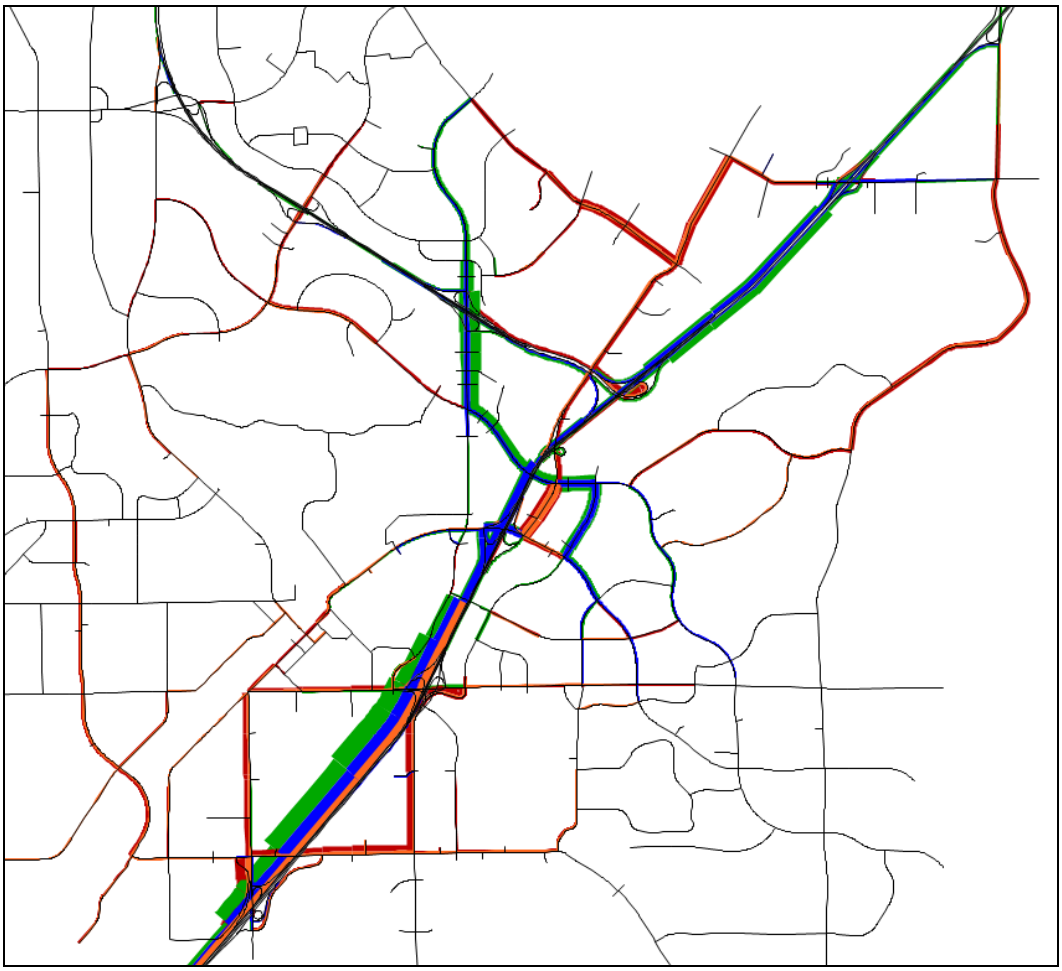


Exhibit 2: Volume Comparison of No Build and TSM Alternatives

Exhibit 2 compares the TSM and No Build alternatives. Volume increases are shown for the locations with additional auxiliary lanes along I-80: WB at Douglas Boulevard and between SR-65 and Rocklin Road. The signal coordination improvements along Galleria Boulevard and Roseville Parkway are expected to provide higher volumes, too. Volume decreases would occur on the parallel routes at the auxiliary lane locations: Douglas Blvd, Riverside Avenue, Sunrise Avenue, and Cirby Way to the south and Taylor Road and Sierra College Boulevard to the north. Despite the addition of auxiliary lanes, the traffic demand volume for SR-65 between I-80 and Galleria Boulevard is not forecasted to change much. While the auxiliary lanes would provide more capacity, the I-80 ramps to and from the west would remain over capacity, which would constrain the demand volume.

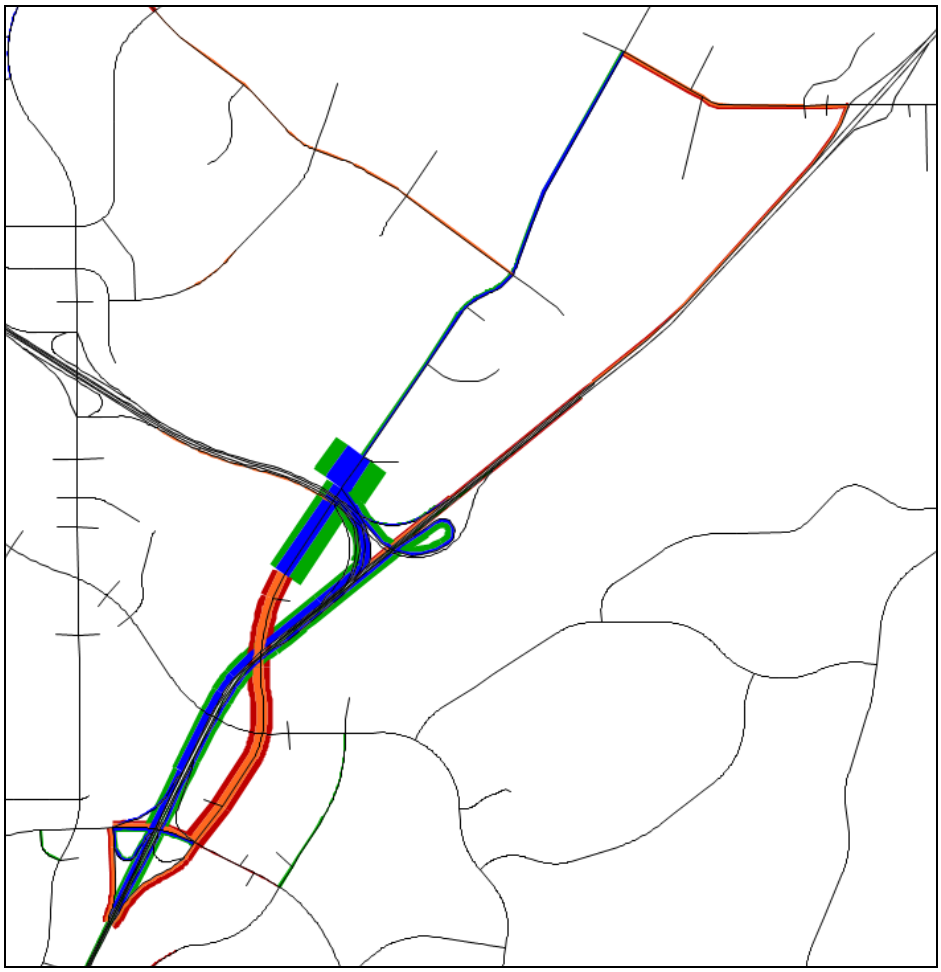


Exhibit 3: Volume Comparison of No Taylor and Half Taylor Alternatives

Exhibit 3 shows the volume differences between the No Taylor and Half Taylor alternatives. Although both alternatives would expand the I-80/SR-65 interchange, the Half Taylor alternative restores the existing Taylor Road connections. As a result, traffic volume would mostly shift from the Eureka Road interchange to the new Taylor Road interchange. The Rocklin Road interchange would see some diversion, but no change would likely occur at the SR-65/Galleria Boulevard interchange. As noted above, the increase in capacity at the freeway-to-freeway interchange would shift volume to the Galleria Boulevard interchange without regard to whether an interchange is provided at Taylor Road.

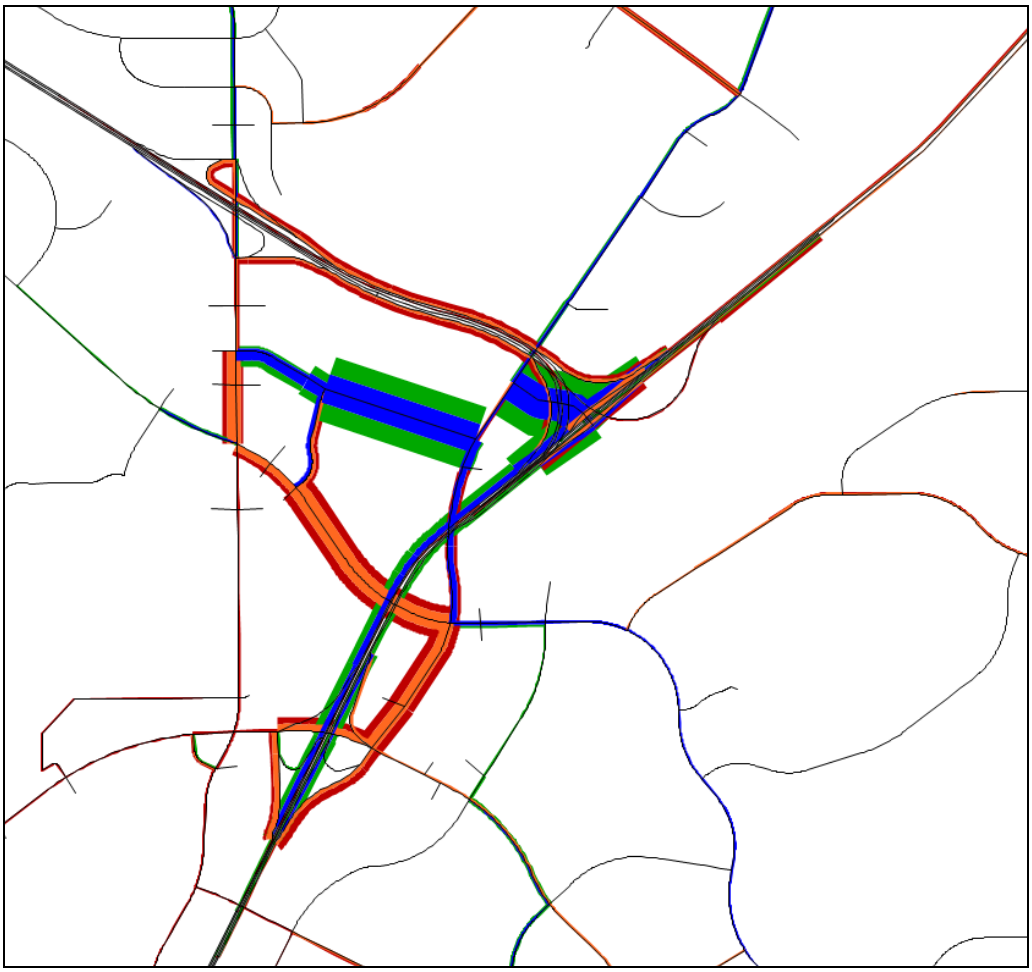


Exhibit 4: Volume Comparison showing the Antelope Creek Drive Connection

Exhibit 4 shows the effect of adding the Antelope Creek Drive connection to Taylor Road under the Full Taylor alternative. The new connection to the retail areas along Galleria Boulevard would increase travel demand for the I-80/Taylor Road interchange, Taylor Road north of Roseville Parkway, and I-80 between Eureka Road and Taylor Road. Traffic would shift from the I-80/Eureka Road and SR-65/Galleria Boulevard interchanges. In particular, the demand volume would be lower for the SR-65 viaduct between I-80 and Galleria Boulevard, which parallels the proposed Antelope Creek Drive connection.

4.3.2. HOV Volume Forecasts

The VISUM model includes HOV lanes as separate roadway links to account for the additional HOV-only capacity. Due to the close-spacing of the ramps, access to the HOV direct connectors at the I-80/SR-65 interchange is restricted in the model to traffic west of Eureka Road and north of Galleria Boulevard. The resulting HOV lane projections for the project alternatives are listed in Table 14.

TABLE 14: HOV LANE VOLUME FOR DESIGN YEAR CONDITIONS

Location	No Build		TSM		No Taylor		Half Taylor		Full Taylor	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
EB I-80: Eureka Rd to SR-65	850	1,380	850	1,370	880	1,520	900	1,590	900	1,680
WB I-80: SR-65 to Atlantic St	1,100	910	1,140	930	1,310	1,070	1,330	1,020	1,300	1,010
EB I-80 to NB SR-65	n/a	n/a	n/a	n/a	570	1,170	560	1,150	570	1.110
SB SR-65 to WB I-80	n/a	n/a	n/a	n/a	940	600	940	590	890	580
NB SR-65: I-80 to Stanford Ranch Rd	100[1]	960	100[1]	950	620	1,530	630	1,520	640	1,490
SB SR-65: Galleria Blvd to I-80	280	430	300	470	940	680	940	670	890	680

Note: [1.] An estimated minimum value.

Source: Fehr & Peers, 2013

Under the No Build alternative, HOVs will use the regular direct connector ramps to travel between the HOV lanes on I-80 and SR-65. Because the ramps will be over capacity, the demand will be constrained. In particular, the AM peak hour HOV lane volume on NB SR-65 would be low. With demand constrained at the I-80 interchange, NB SR-65 would be relatively free from congestion, so the HOV lane would not provide a travel time advantage.

With the addition of the HOV direct connector ramps, the mainline HOV lane volume would increase. The HOV direct connector peak hour volume is projected to range from 560 to 1,170 vehicles per hour depending on the direction and peak hour. With the HOVs from the WB to NB connector added in, the HOV lane volume on NB SR-65 would be similar to the EB I-80 volume. HOV lane volumes would be similar across the build alternatives.

4.3.3. Meso-Scale Network Performance for Design Year

In addition to generating traffic volume forecasts for input to the VISSIM microsimulation traffic operations model, the VISUM model was used to produce the same meso-scale network performance measures reported for existing conditions. Figures 23 through 26 compare VMT, VHT, VHD, and Freeway VHD, respectively, across the forecasting alternatives for design year conditions during the AM, the PM, and both the AM and PM peak periods. The results generally show that the build alternatives all improve network efficiency by lowering VHT and VHD compared to No Build. The Full Taylor alternatives have the largest reductions in VHT and VHD although the TSM alternative provides the best results when only considering freeway delay due to auxiliary lanes that are not included in the other alternatives.

4.3.4. Construction Year Forecasts

The construction year (2020) forecasts shown in Figures 27 through 31 were developed by interpolating between the hourly matrices for the baseline (2012) traffic volume estimates and the design year (2040) forecasts. Using VISUM, the resulting matrices were assigned to the roadway network that corresponds to the planned projects expected to be completed by 2020 (as shown in Figure 3). Due to these changes, construction year demand volumes at any particular location may not be the exact linearly interpolated value between the existing and design year volumes.

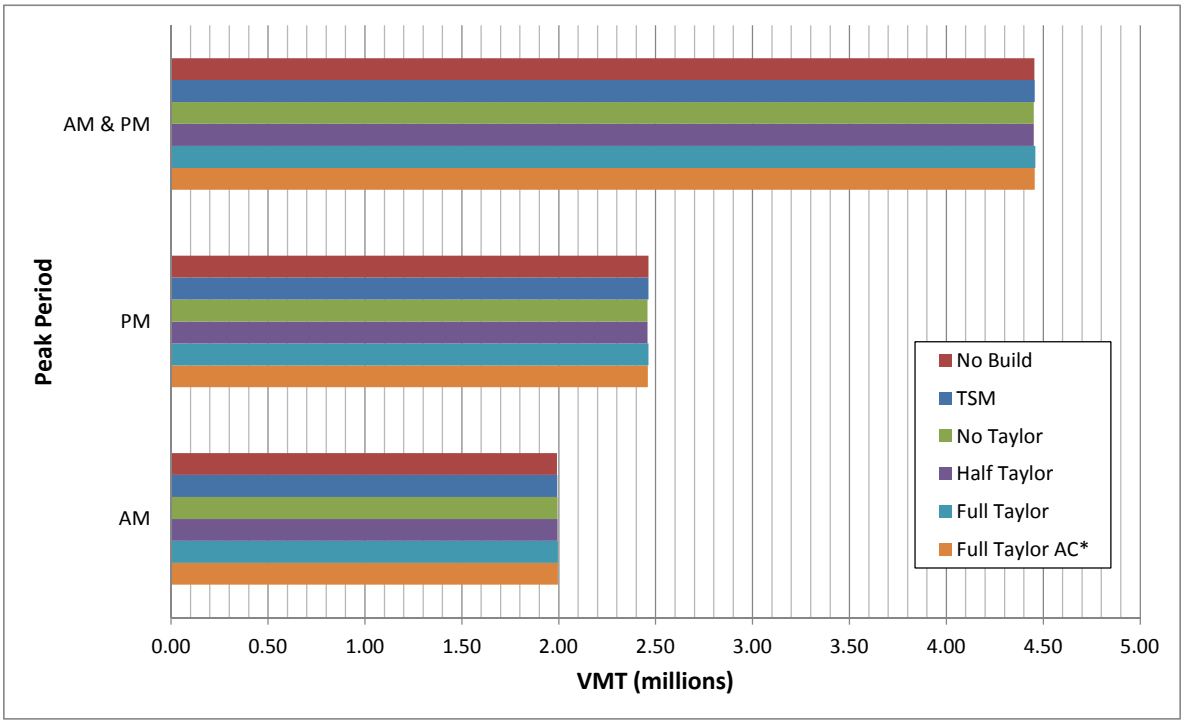
This process presumes a linear growth relationship and captures some of the influence of project alternatives on trip assignment. One of the potential limitations of this approach is that recent growth has not kept pace with the projected linear growth rate. The sluggish economic recovery from the 2008/09 recession may result in actual construction year volumes that are lower than the projections, but this outcome is acceptable for the purpose of designing and evaluating project alternatives.

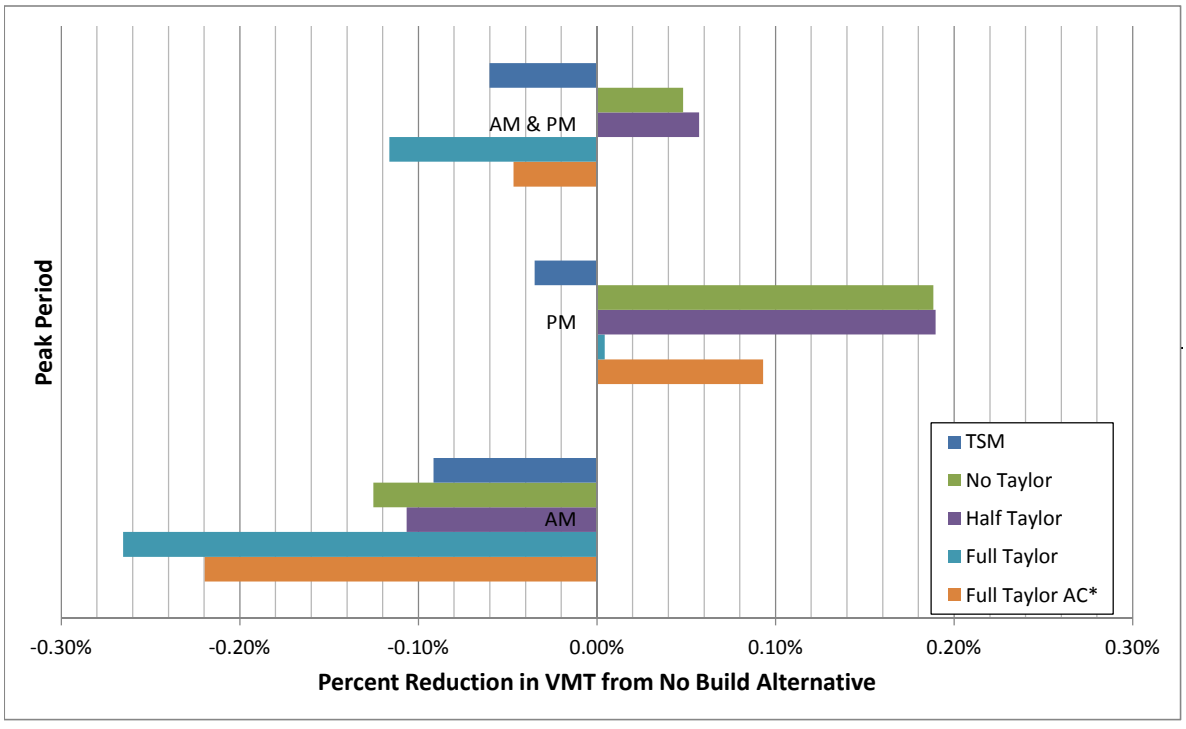
4.3.5. Meso-Scale Network Performance for Construction Year

In addition to generating traffic volume forecasts for input to the VISSIM microsimulation traffic operations model, the VISUM model was used to produce the same meso-scale network performance measures reported for existing conditions. Figures 32 through 35 compare VMT, VHT, VHD, and Freeway VHD, respectively, across the forecasting alternatives for construction year conditions. The results generally show that the build alternatives all improve network efficiency by lowering VHT and VHD compared to No Build. Freeway VHD only declines under the TSM alternative. This occurs because sufficient mainline capacity is not being added in the other build alternatives in the construction year, which reduces the effectiveness of the I-80/SR-65 interchange improvements. Without additional mainline capacity in locations such as WB I-80 at Douglas Boulevard and NB SR-65, the interchange improvements simply shift bottlenecks.

FIGURE 23 - I-80/SR 65 INTERCHANGE ALTERNATIVES DESIGN YEAR MESO-SCALE VMT COMPARISON

	Vehicle Miles of Travel (millions)			% Change from No Build		
Alt	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
No Build	1.99	2.46	4.45	-	-	-
TSM	1.99	2.46	4.46	-0.09%	-0.03%	-0.06%
No Taylor	1.99	2.46	4.45	-0.13%	0.19%	0.05%
Half Taylor	1.99	2.46	4.45	-0.11%	0.19%	0.06%
Full Taylor	2.00	2.46	4.46	-0.27%	0.00%	-0.12%
Full Taylor AC*	2.00	2.46	4.46	-0.22%	0.09%	-0.05%

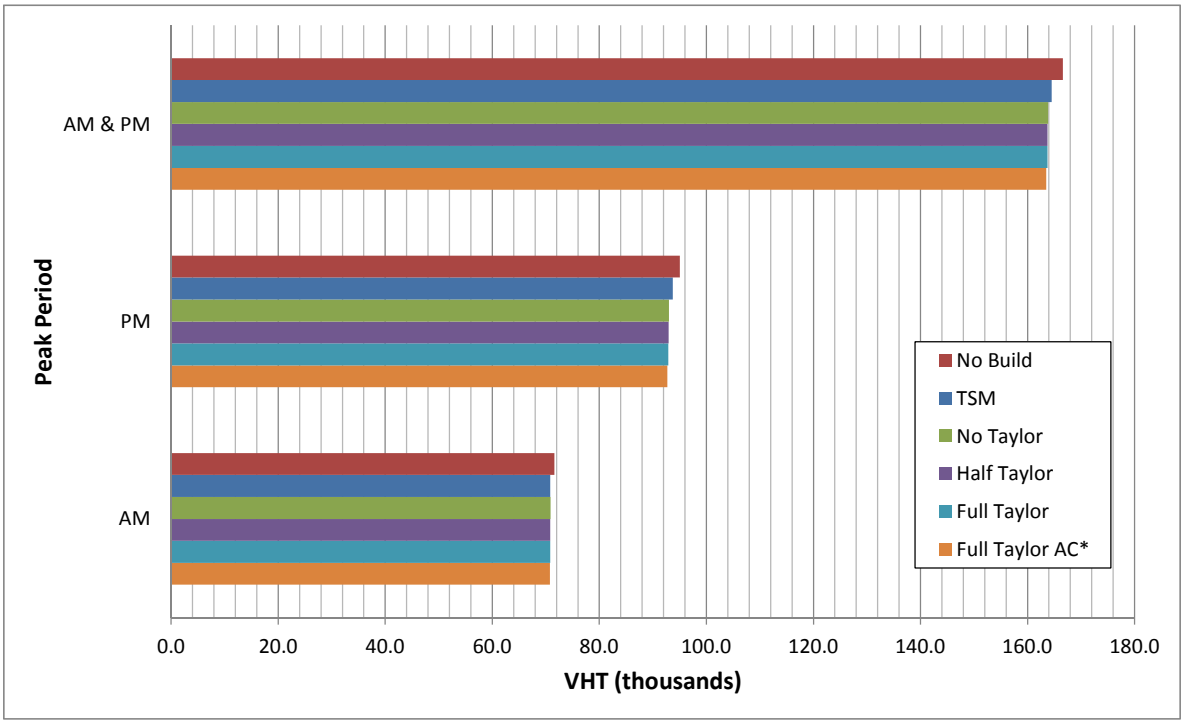


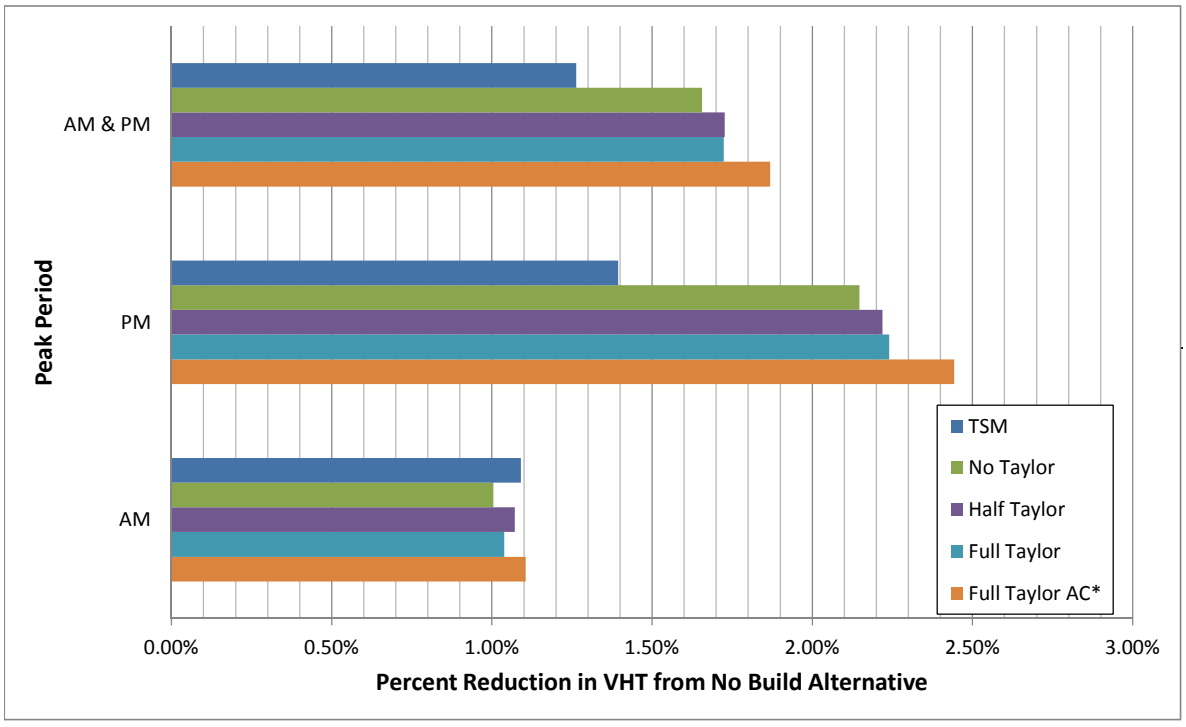


* Full Taylor AC is the Full Taylor alternative with the extension of Antelope Creek Dr to Taylor Rd

FIGURE 24 - I-80/SR 65 INTERCHANGE ALTERNATIVES DESIGN YEAR MESO-SCALE VHT COMPARISON

	Vehicle Hours of Travel (thousands)			% Change from No Build		
Alt	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
No Build	71.6	95.0	166.6	-	-	-
TSM	70.8	93.7	164.5	1.09%	1.39%	1.26%
No Taylor	70.9	93.0	163.9	1.00%	2.15%	1.66%
Half Taylor	70.8	92.9	163.7	1.07%	2.22%	1.73%
Full Taylor	70.8	92.9	163.7	1.04%	2.24%	1.72%
Full Taylor AC*	70.8	92.7	163.5	1.11%	2.44%	1.87%

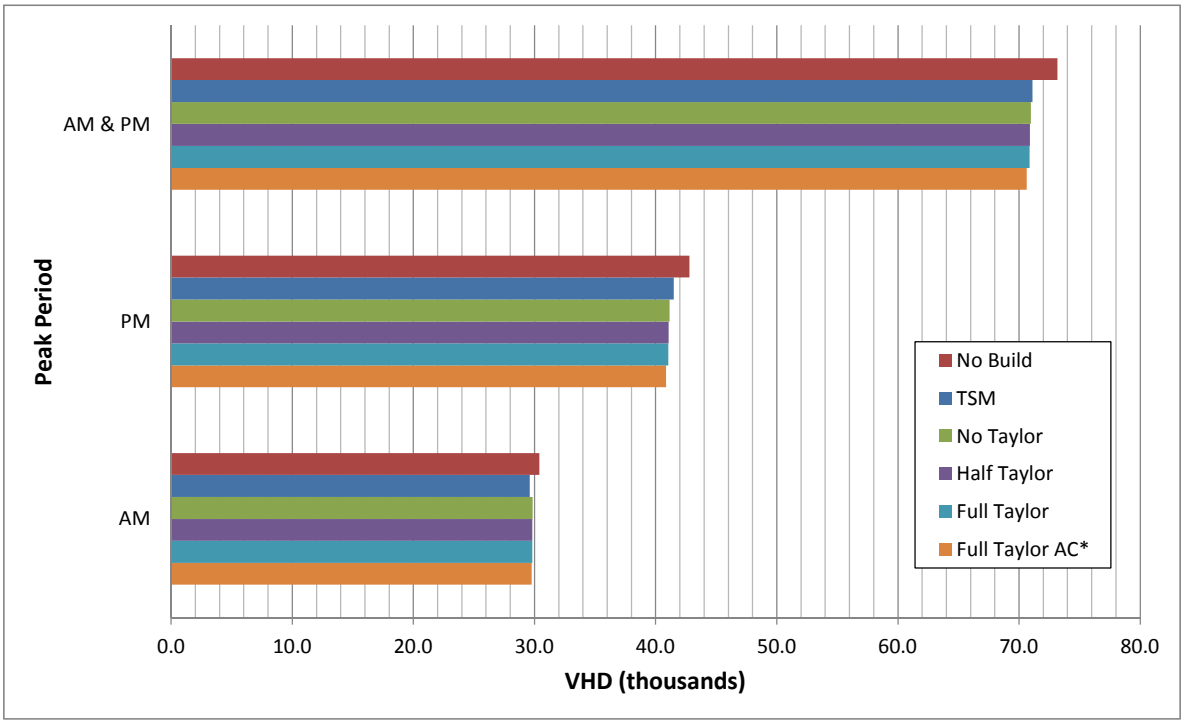


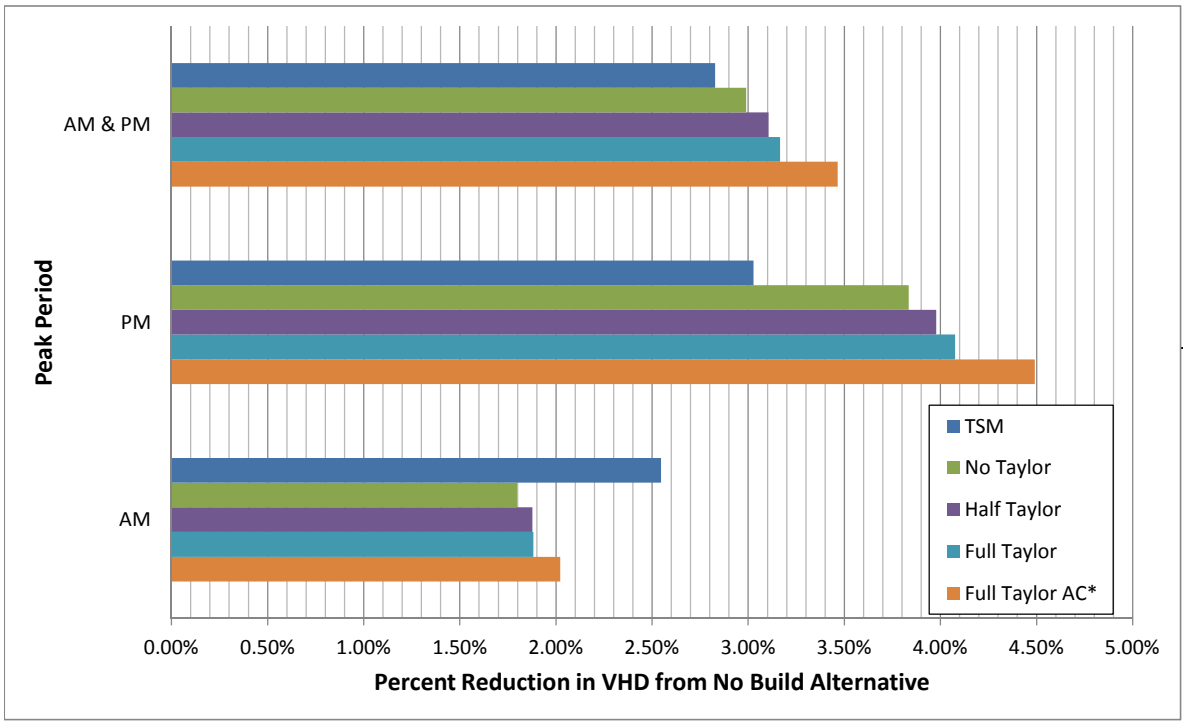


* Full Taylor AC is the Full Taylor alternative with the extension of Antelope Creek Dr to Taylor Rd

FIGURE 25 - I-80/SR 65 INTERCHANGE ALTERNATIVES DESIGN YEAR MESO-SCALE VHD COMPARISON

	Vehicle Hours of Delay (thousands)			% Change from No Build		
Alt	AM	PM	AM & PM	AM	PM	AM & PM
No Build	30.4	42.8	73.2	-	-	-
TSM	29.6	41.5	71.1	2.55%	3.03%	2.83%
No Taylor	29.8	41.1	71.0	1.80%	3.83%	2.99%
Half Taylor	29.8	41.1	70.9	1.88%	3.98%	3.11%
Full Taylor	29.8	41.0	70.9	1.88%	4.08%	3.16%
Full Taylor AC*	29.8	40.9	70.6	2.02%	4.49%	3.47%

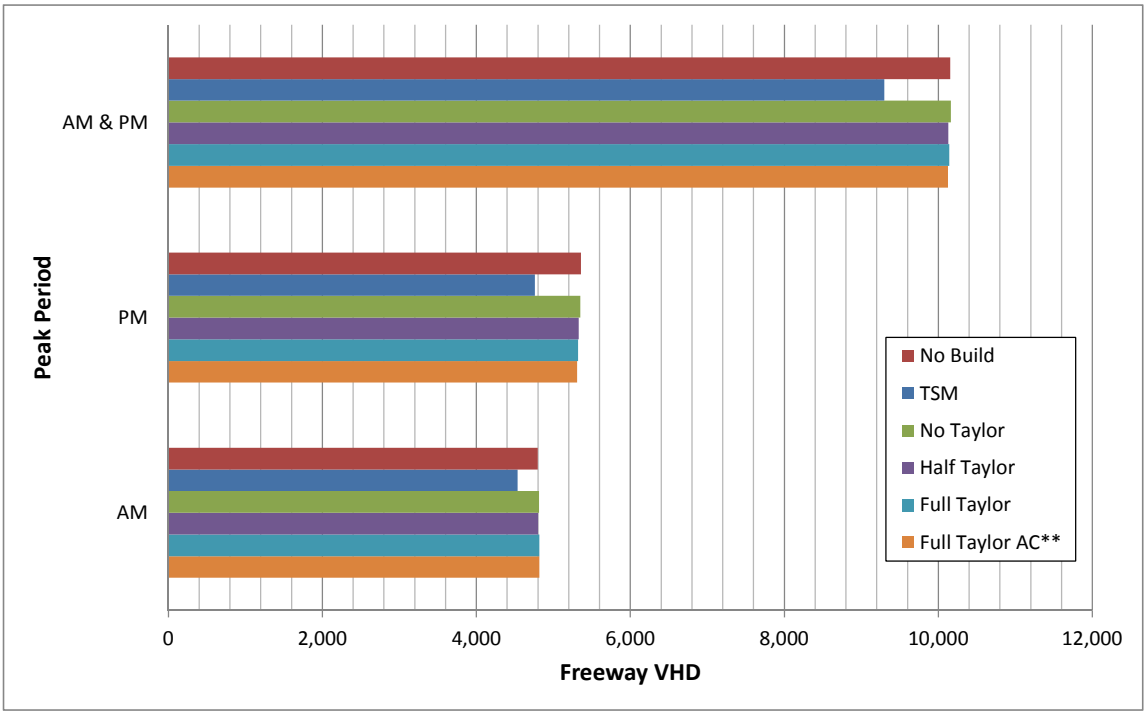


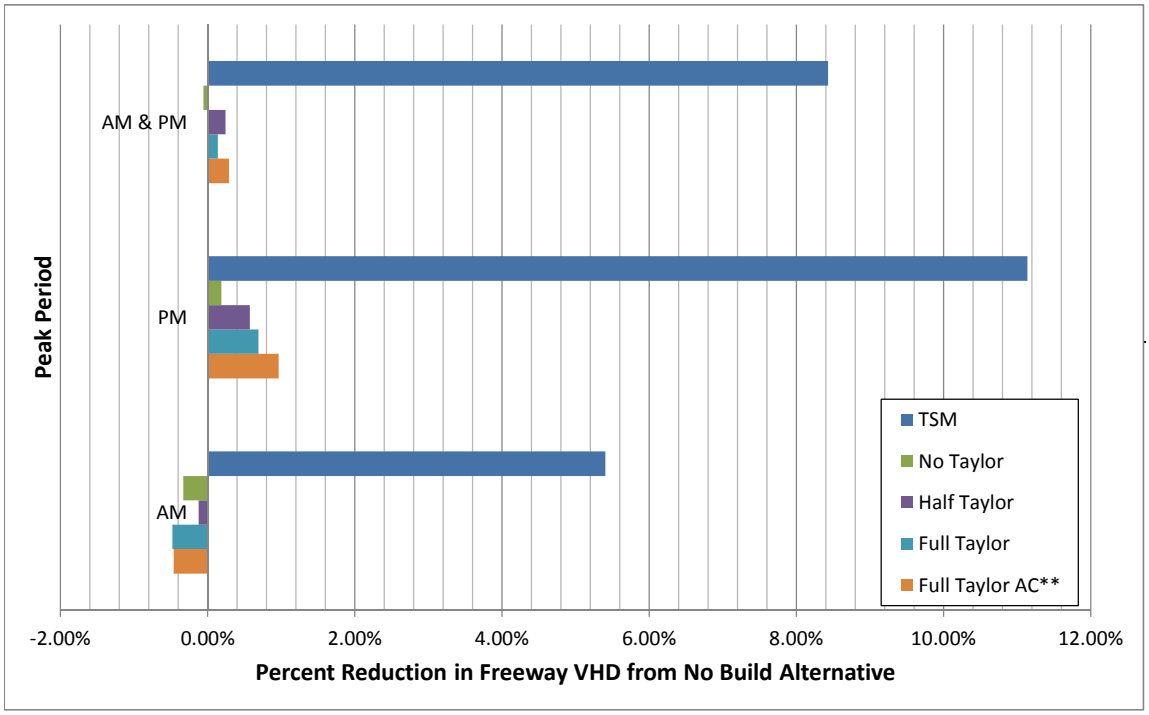


* Full Taylor AC is the Full Taylor alternative with the extension of Antelope Creek Dr to Taylor Rd

FIGURE 26 - I-80/SR 65 INTERCHANGE ALTERNATIVES DESIGN YEAR MESO-SCALE FREEWAY VHD COMPARISON

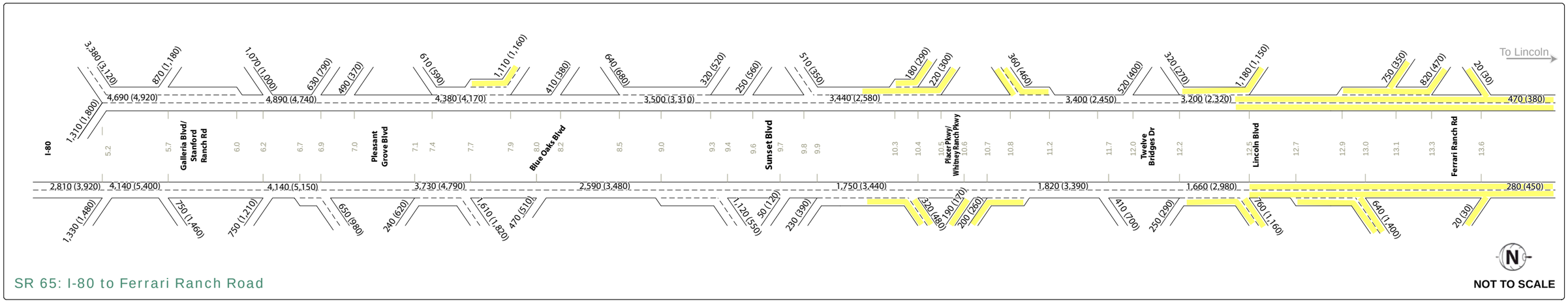
	Freeway Vehicle Hours of Delay*			% Change from No Build		
Alt	AM	PM	AM & PM	AM	PM	AM & PM
No Build	4,796	5,359	10,155	-	-	-
TSM	4,537	4,762	9,299	5.41%	11.14%	8.43%
No Taylor	4,812	5,349	10,161	-0.33%	0.19%	-0.06%
Half Taylor	4,802	5,328	10,130	-0.12%	0.57%	0.24%
Full Taylor	4,819	5,322	10,141	-0.48%	0.69%	0.14%
Full Taylor AC**	4,818	5,307	10,125	-0.46%	0.96%	0.29%



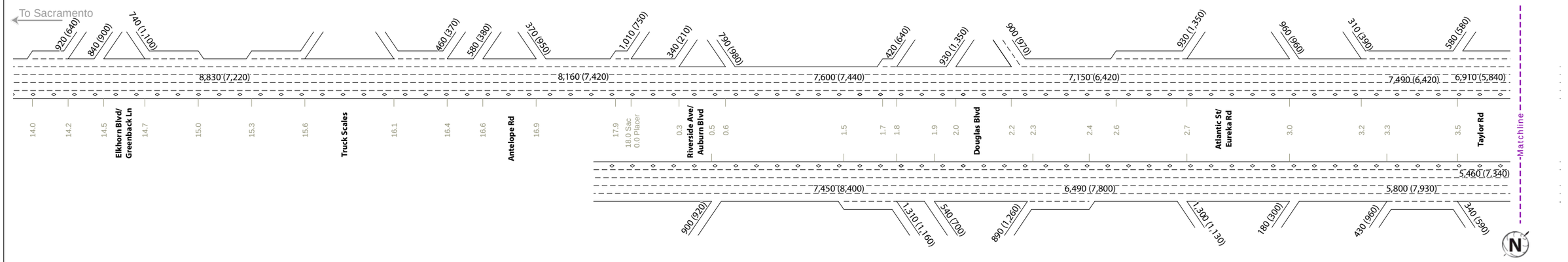


* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

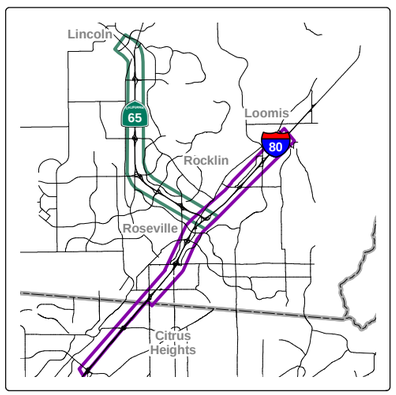
** Full Taylor AC is the Full Taylor alternative with the extension of Antelope Creek Dr to Taylor Rd.



SR 65: I-80 to Ferrari Ranch Road



I-80: Elkhorn Blvd to Taylor Rd

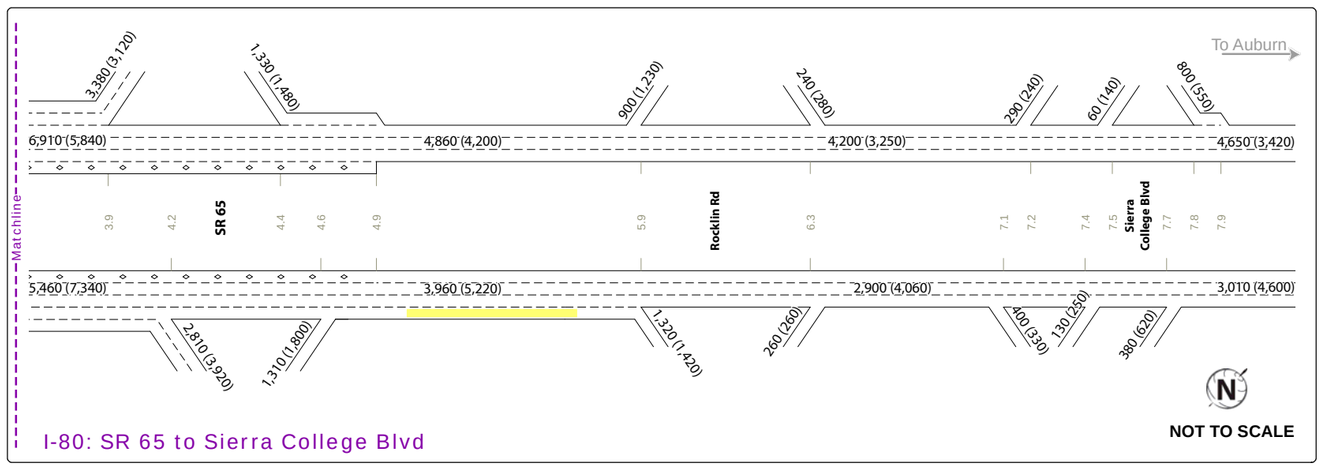


LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

10.1 Postmile

Separate Planned Projects



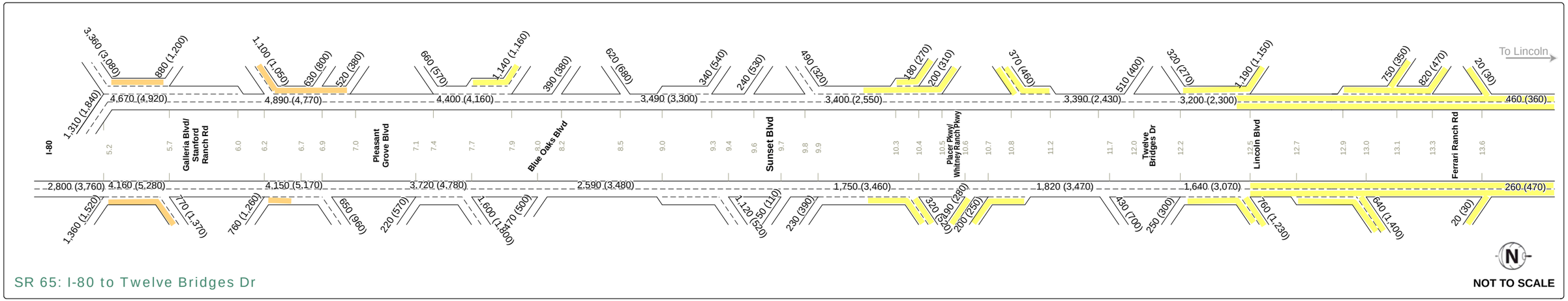
I-80: SR 65 to Sierra College Blvd

FEHR PEERS

Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Draft\GIS\MXD\Figure2013\F27_year2020_NoBuild.mxd

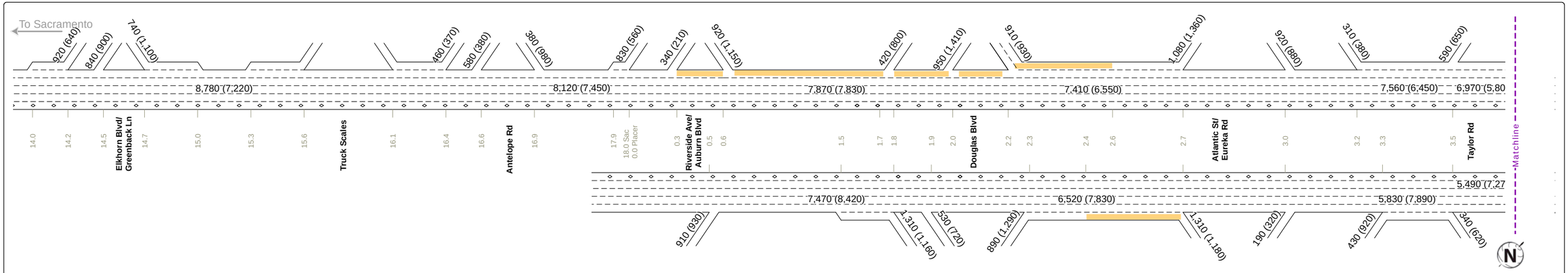
CONSTRUCTION YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO BUILD ALTERNATIVE

FIGURE 27



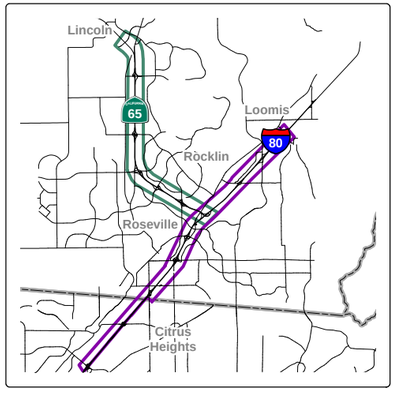
SR 65: I-80 to Twelve Bridges Dr

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE



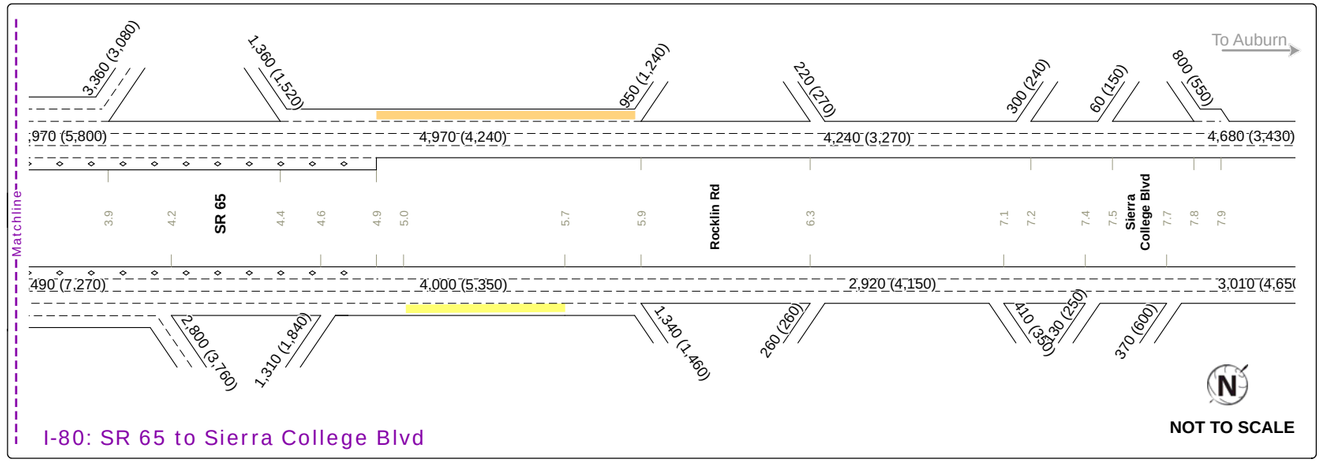
LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

10.1 Postmile

Separate Planned Projects

TSM Alternative



I-80: SR 65 to Sierra College Blvd

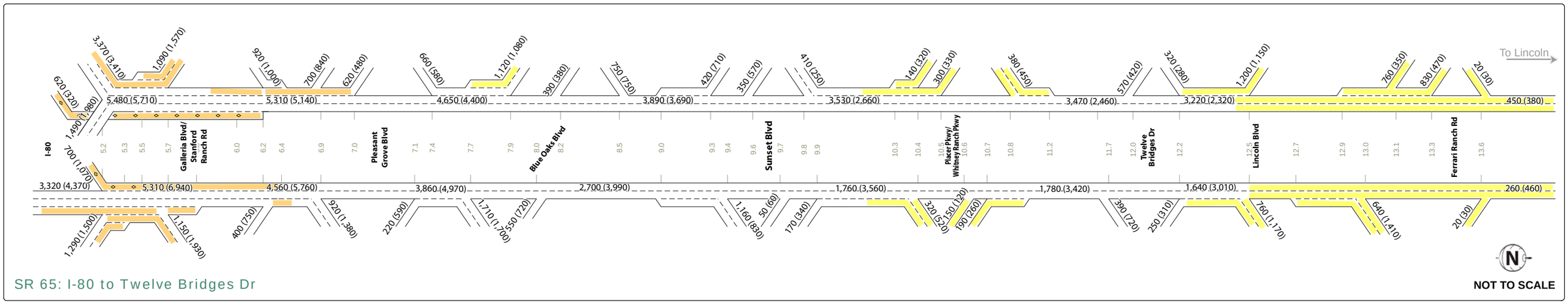
NOT TO SCALE

FEHR PEERS

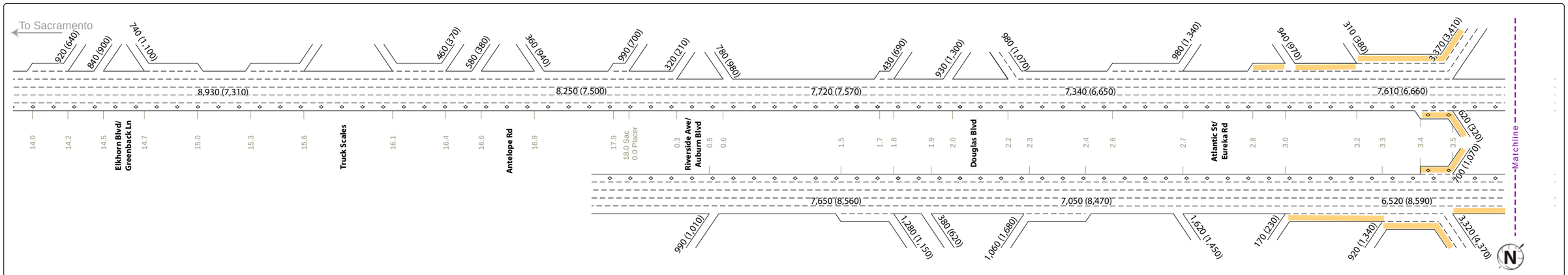
Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Draft\GIS\MXD\LOS_Schematic\F28_year2020_TSM.mxd

CONSTRUCTION YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TSM ALTERNATIVE

FIGURE 28

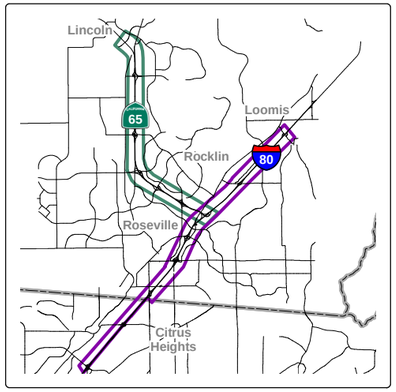


SR 65: I-80 to Twelve Bridges Dr



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE



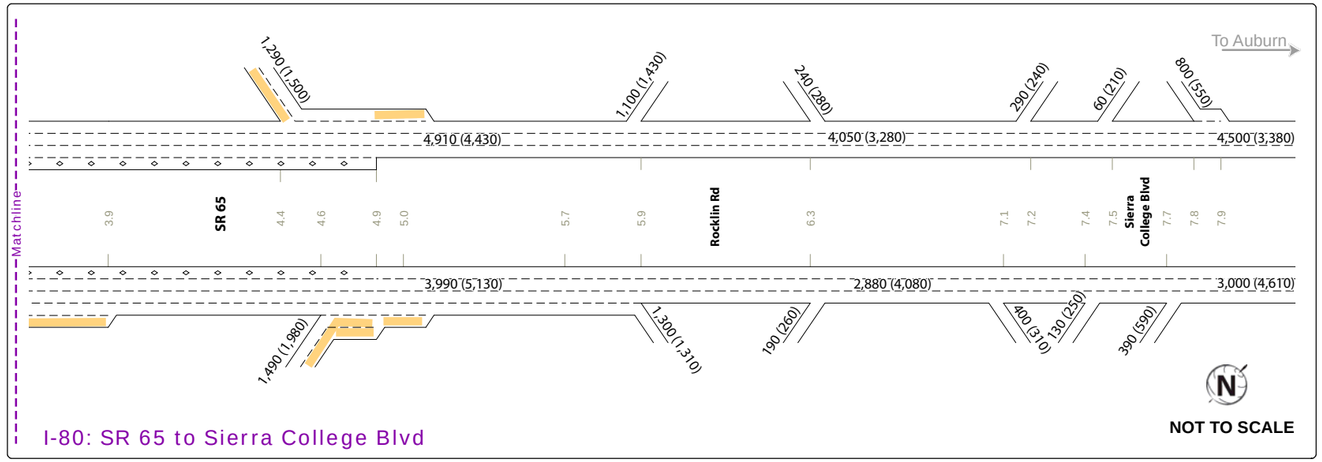
LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

10.1 Postmile

Separate Planned Projects

No Taylor Alternative



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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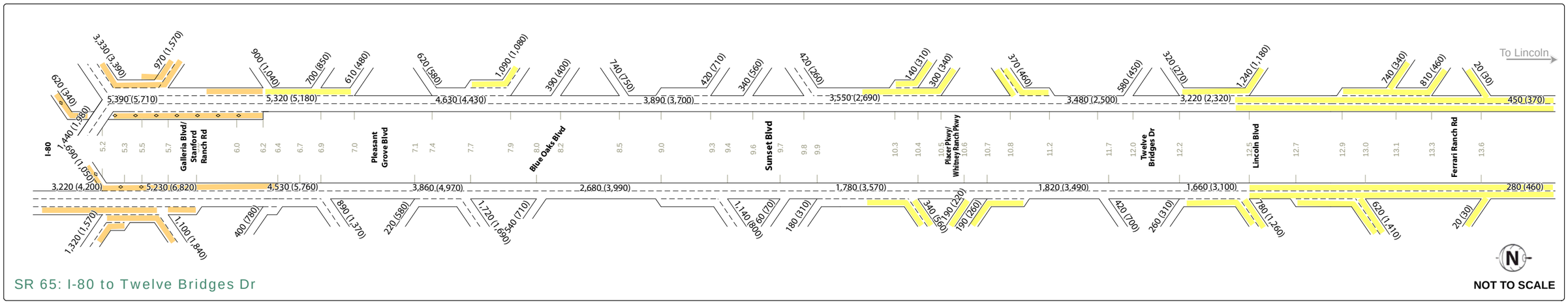
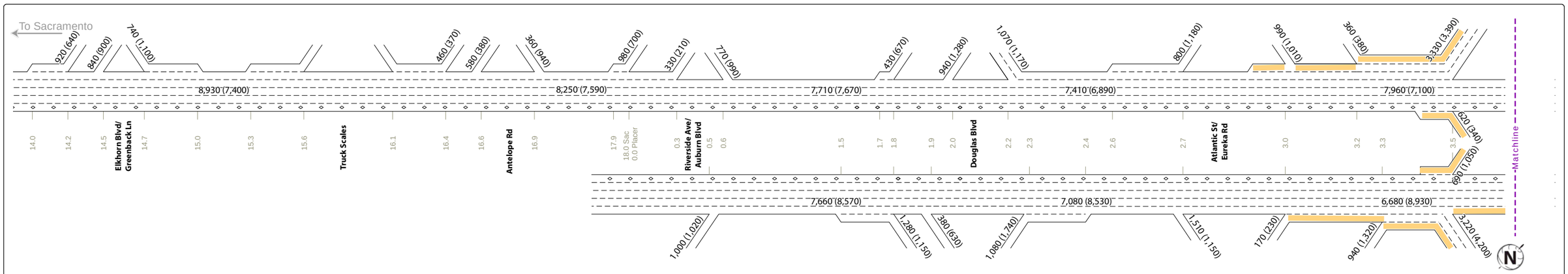
CONSTRUCTION YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO TAYLOR ALTERNATIVE

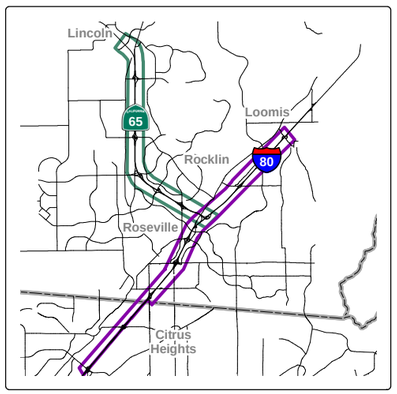
FIGURE 29



SR 65: I-80 to Twelve Bridges Dr



I-80: Elkhorn Blvd to Taylor Rd



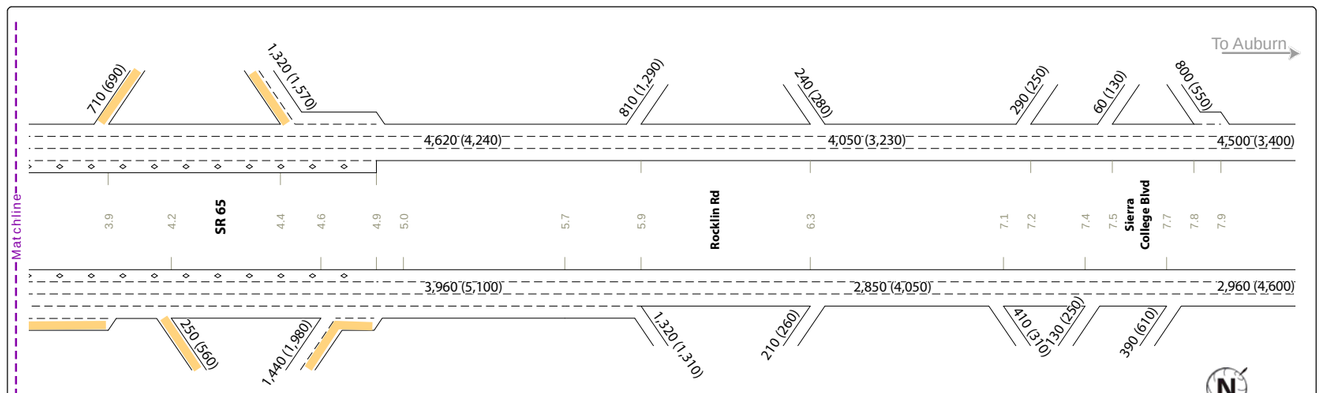
LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

10.1 Postmile

Separate Planned Projects

Half Taylor Alternative



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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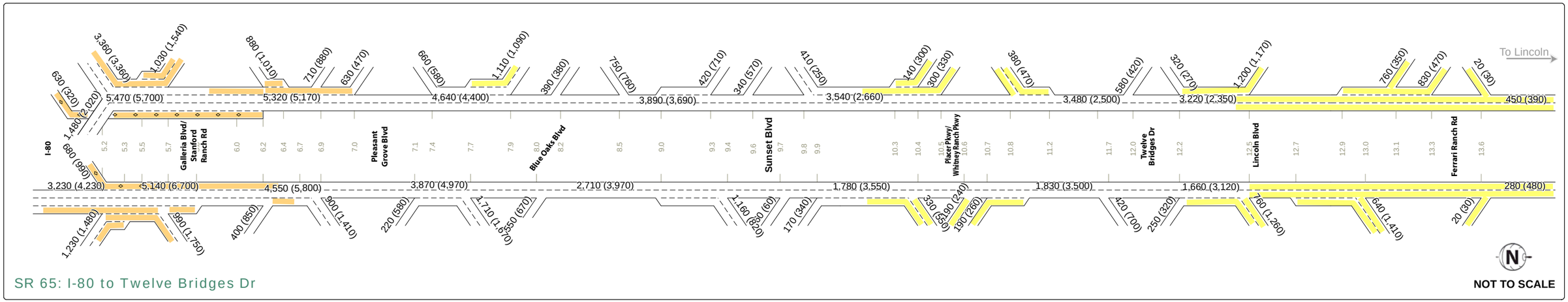
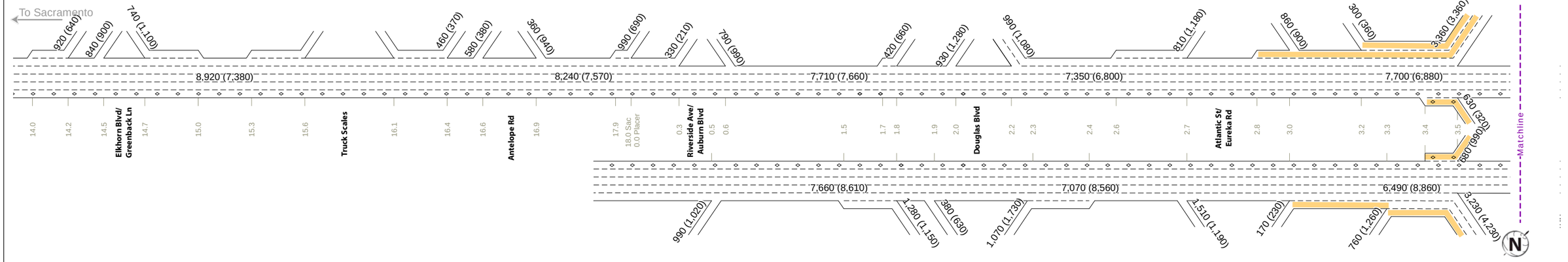
CONSTRUCTION YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - HALF TAYLOR ALTERNATIVE

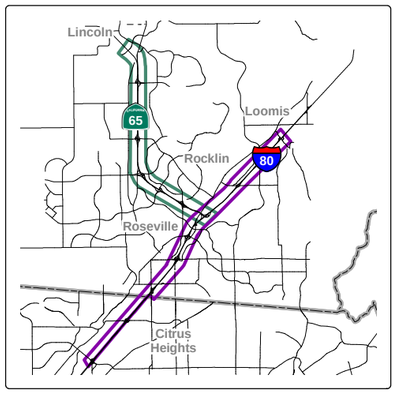
FIGURE 30



SR 65: I-80 to Twelve Bridges Dr



I-80: Elkhorn Blvd to Taylor Rd



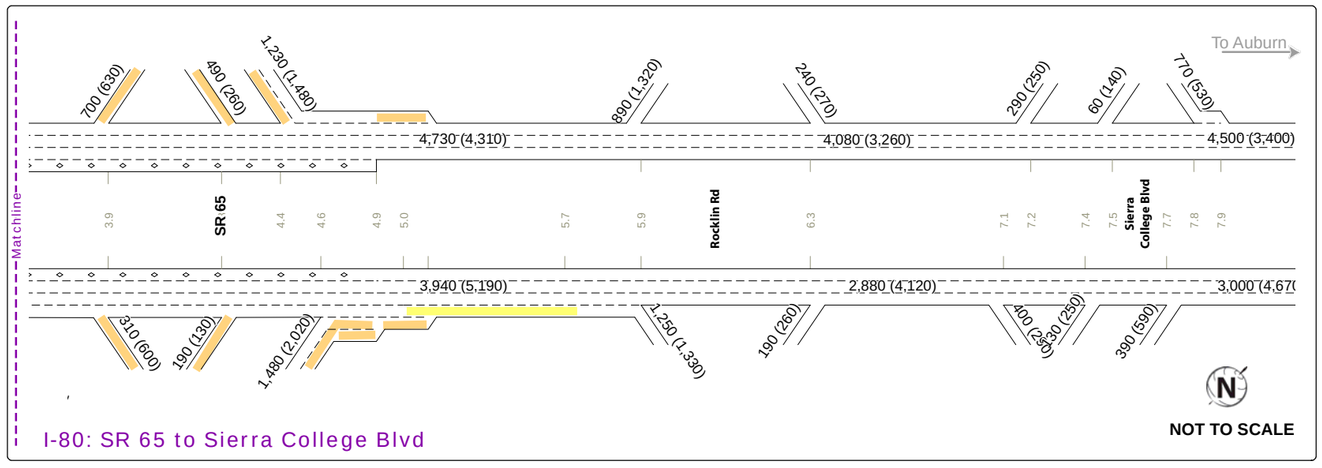
LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

10.1 Postmile

Separate Planned Projects

Full Taylor Alternative



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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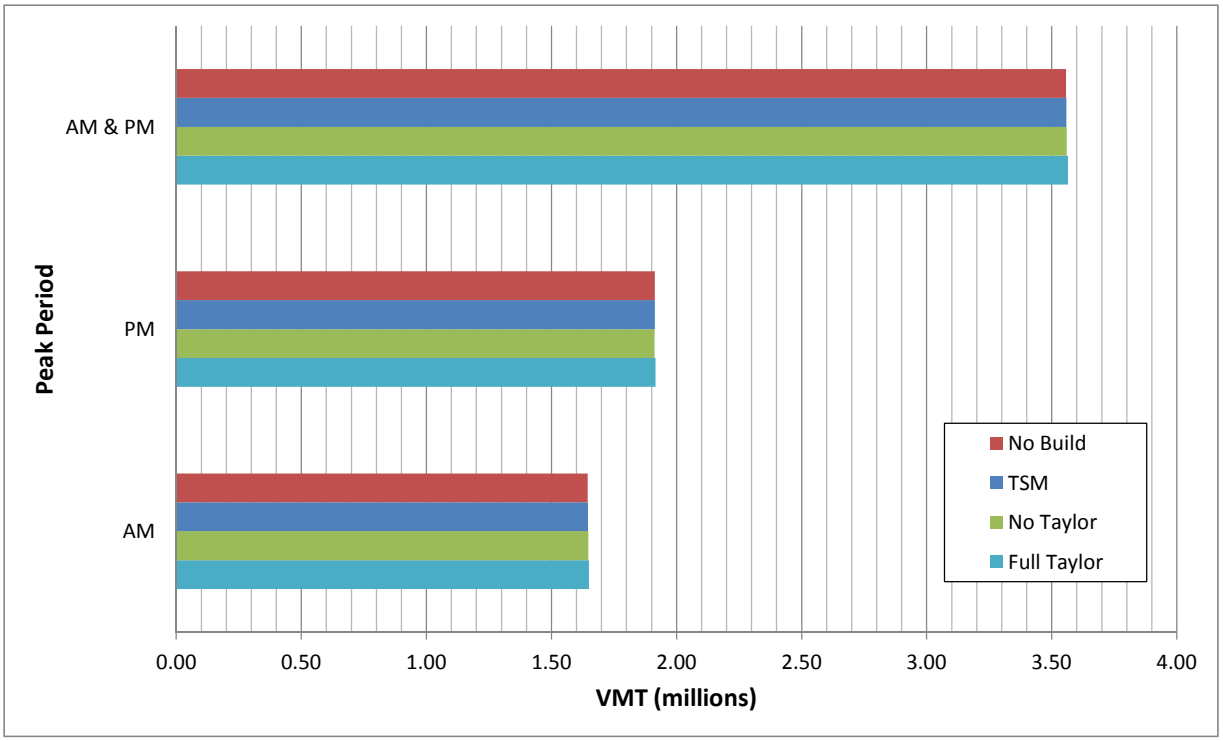
CONSTRUCTION YEAR AM AND PM PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - FULL TAYLOR ALTERNATIVE

FIGURE 31

FIGURE 32 - I-80/SR 65 INTERCHANGE ALTERNATIVES CONSTRUCTION YEAR MESO-SCALE VMT COMPARISON

	Vehicle Miles of Travel (millions)			% Change from No Build		
Alt	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
No Build	1.64	1.91	3.56	-	-	-
TSM	1.65	1.91	3.56	-0.09%	0.00%	-0.04%
No Taylor	1.65	1.91	3.56	-0.22%	0.08%	-0.06%
Full Taylor	1.65	1.92	3.57	-0.33%	-0.11%	-0.21%



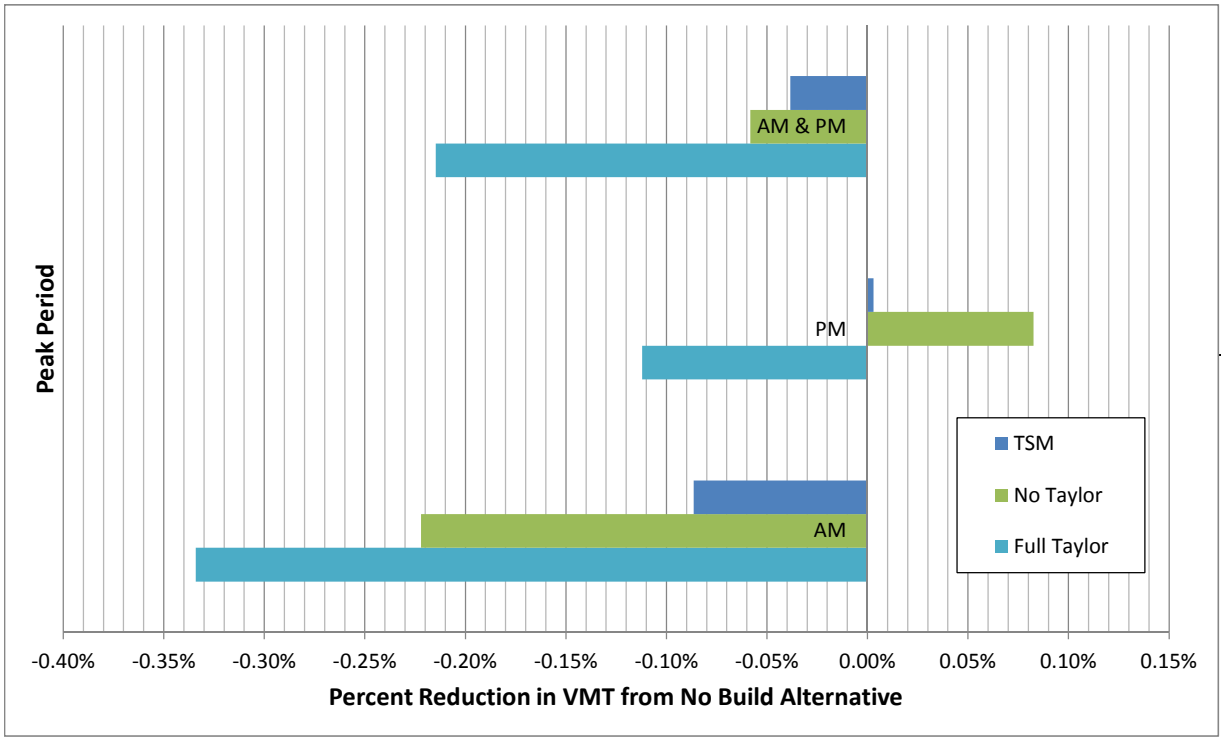
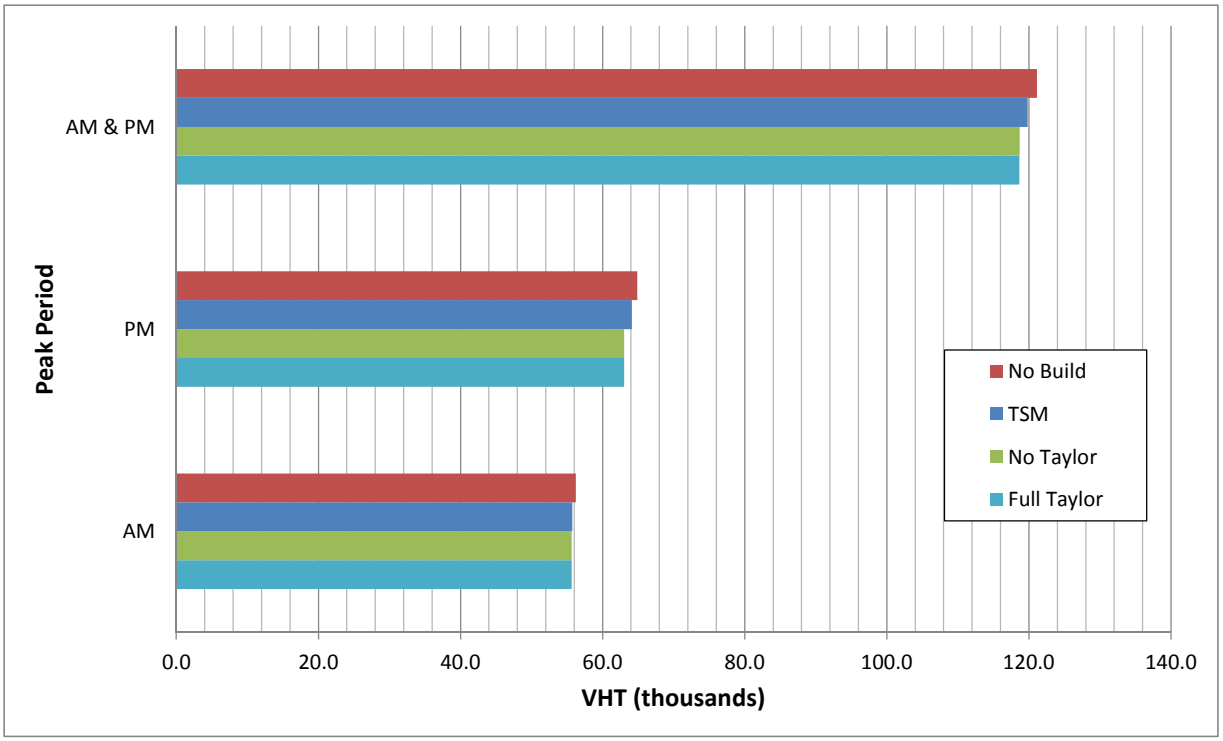


FIGURE 33 - I-80/SR 65 INTERCHANGE ALTERNATIVES CONSTRUCTION YEAR MESO-SCALE VHT COMPARISON

	Vehicle Hours of Travel (thousands)			% Change from No Build		
Alt	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
No Build	56.3	64.9	121.1	-	-	-
TSM	55.7	64.1	119.8	0.95%	1.16%	1.06%
No Taylor	55.7	63.0	118.7	1.05%	2.85%	2.01%
Full Taylor	55.6	63.0	118.6	1.11%	2.86%	2.04%



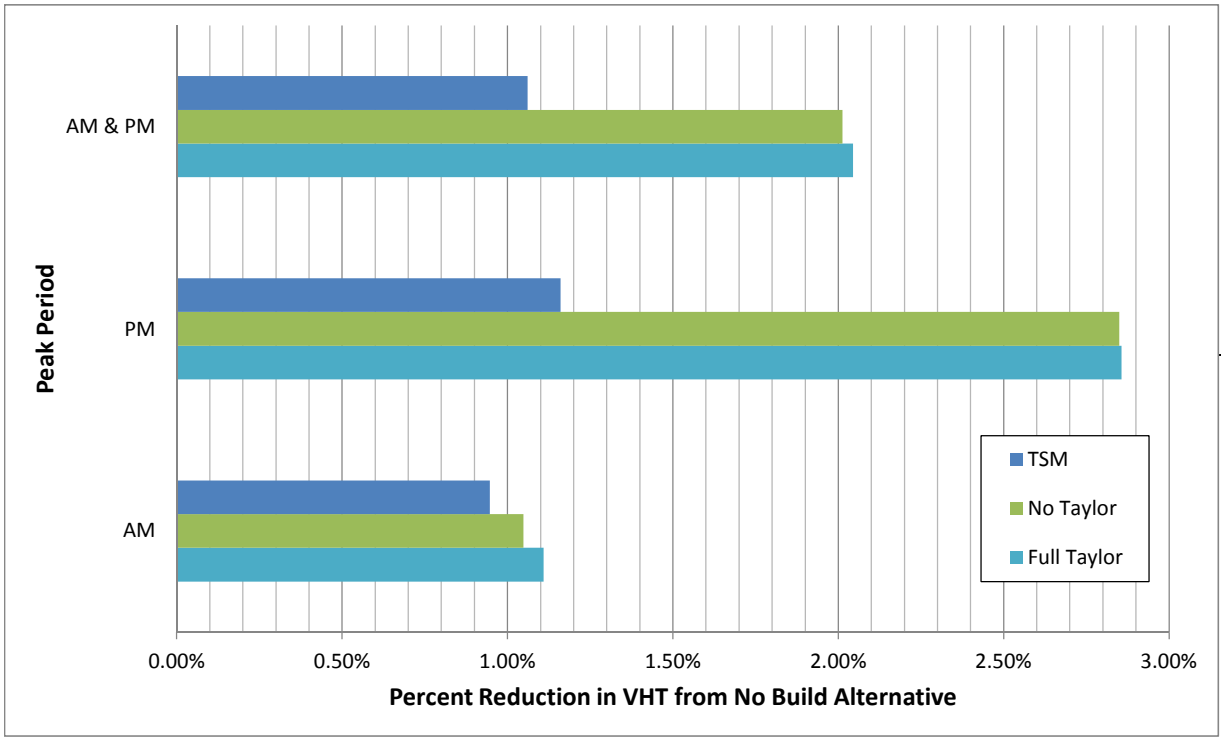
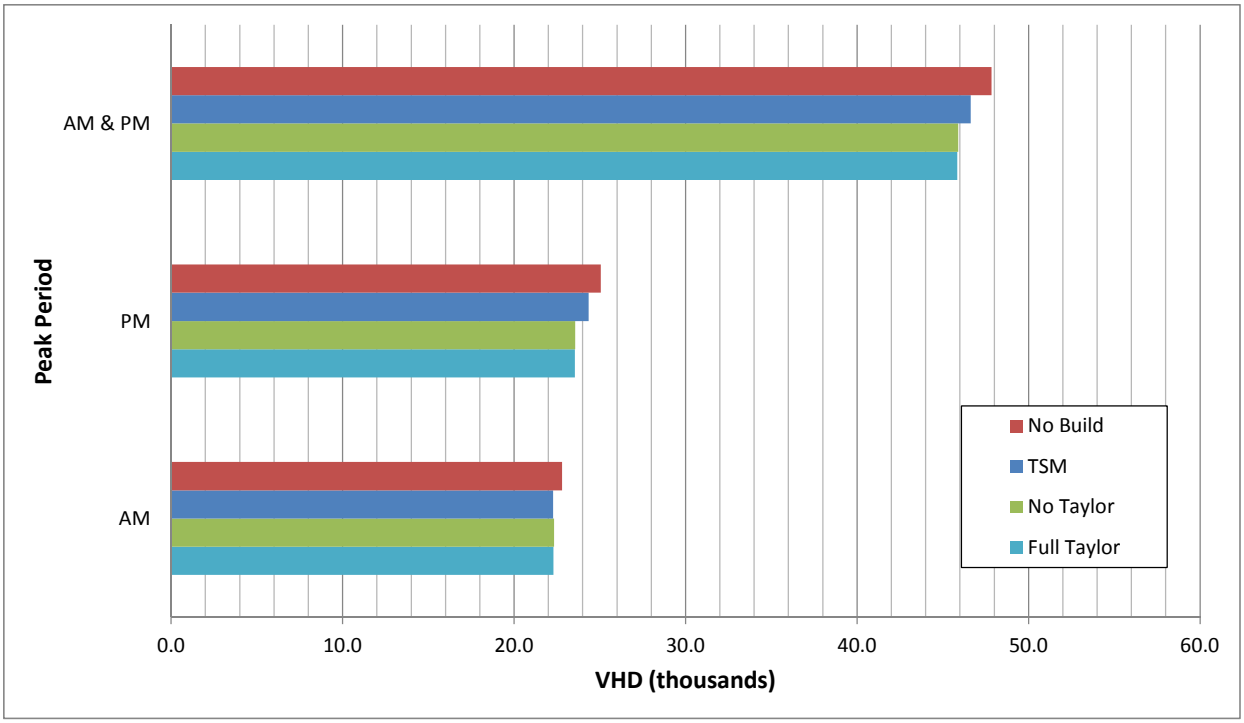


FIGURE 34 - I-80/SR 65 INTERCHANGE ALTERNATIVES CONSTRUCTION YEAR MESO-SCALE VHD COMPARISON

	Vehicle Hours of Delay (thousands)			% Change from No Build		
Alt	AM	PM	AM & PM	AM	PM	AM & PM
No Build	22.8	25.1	47.8	-	-	-
TSM	22.3	24.3	46.6	2.26%	2.84%	2.56%
No Taylor	22.3	23.6	45.9	1.99%	5.98%	4.08%
Full Taylor	22.3	23.5	45.8	2.17%	6.06%	4.20%



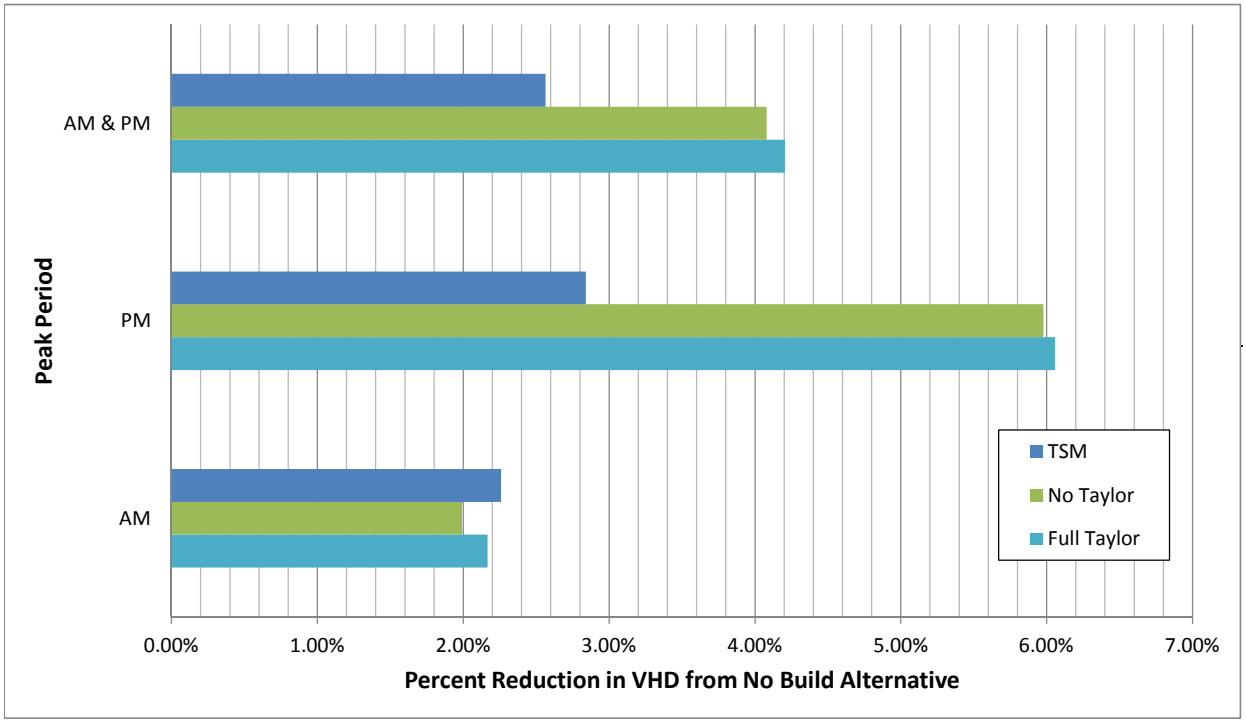
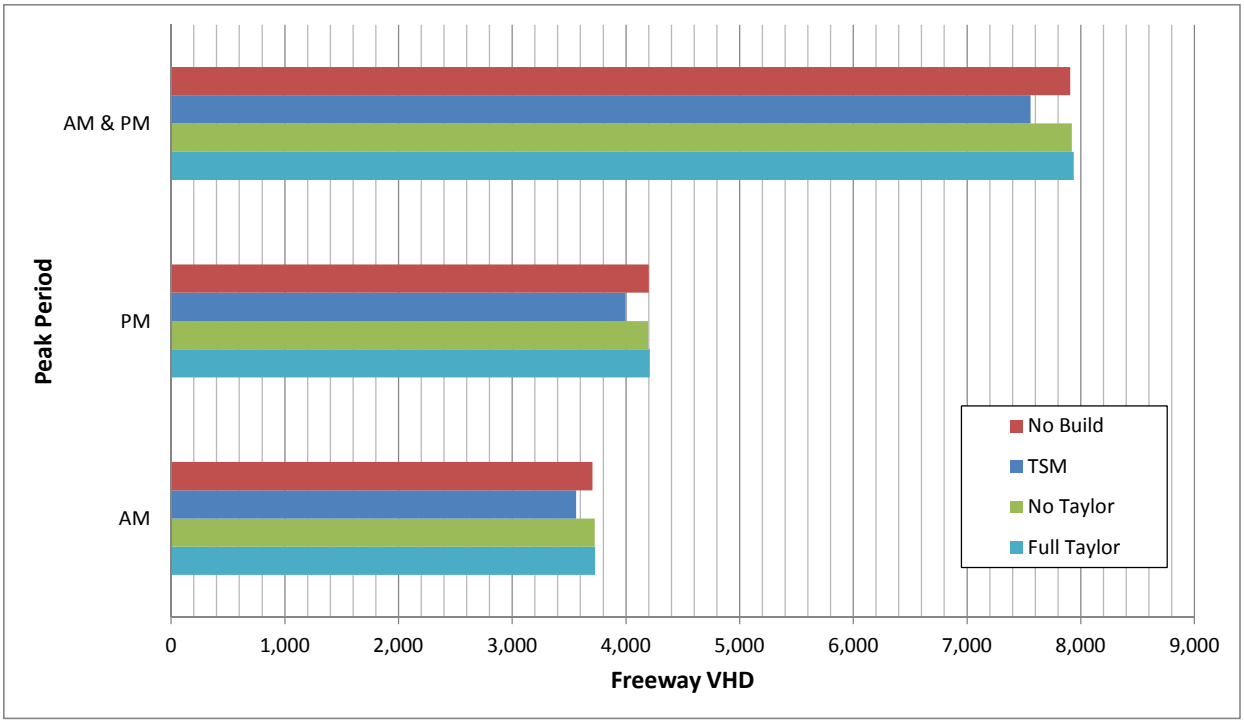
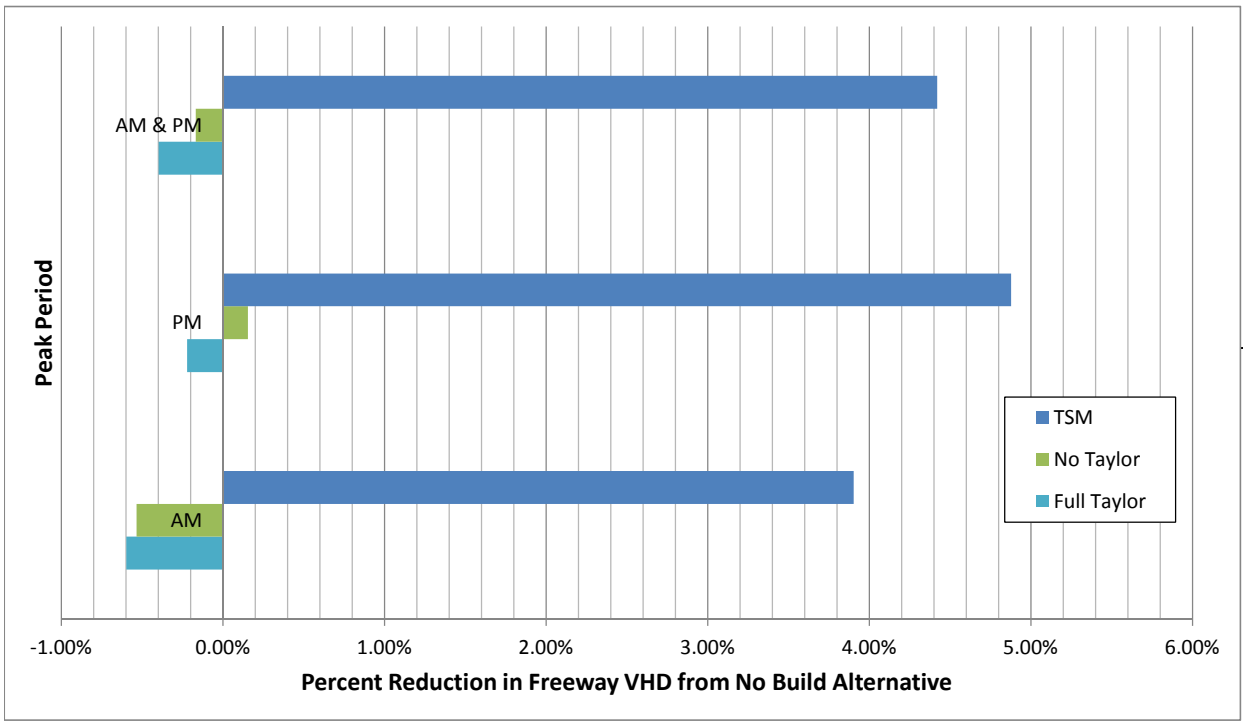


FIGURE 35 - I-80/SR 65 INTERCHANGE ALTERNATIVES CONSTRUCTION YEAR MESO-SCALE FREEWAY VHD COMPARISON

	Freeway Vehicle Hours of Delay*			% Change from No Build		
Alt	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
No Build	3,707	4,201	7,908	-	-	-
TSM	3,562	3,996	7,559	3.90%	4.88%	4.42%
No Taylor	3,727	4,195	7,921	-0.53%	0.15%	-0.17%
Full Taylor	3,729	4,211	7,940	-0.60%	-0.22%	-0.40%





* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph

4.3.6. Induced Travel

The phenomenon where additional capacity leads to additional demand for travel is known as "induced travel." Induced travel occurs when the cost of travel is reduced (i.e., travel time reduction due to additional capacity) causing an increase in demand (more travelers using the improved facility). The reduction in travel time causes various responses by travelers, including diversion from other routes, changes in destinations, changes in mode, departure time shifts, and possibly the creation of new trips all together. As described previously, the SACMET and VISUM models have limitations, but they do account for most of the factors that influence induced travel (e.g., changes in route, mode, and destination). The main factors they do not fully account for is the potential generation of new trips and long-term induced land use growth.

Since the SACMET trip generation model was calibrated to 2008 base year conditions when vehicle trip making in the region was not constrained by congestion, pricing, or some other means, the model represents a full level of travel demand being generated by households and employment. This means that new trips being created as a result of a network change are very unlikely because there is no constraint preventing these trips from occurring.

Long-term induced land use growth is the one factor that may not be fully represented because there is no direct feedback process to the land use growth forecasts. However, as part of this project, land use growth was assessed by the PDT. The PDT increased the growth of households and employment in the study area recognizing this area has been planned for additional growth and the transportation improvements associated with this project are intended to help accommodate that growth.

Chapter 5. Traffic Operations Analysis

This section summarizes the traffic operations analysis results based on the VISSIM microsimulation traffic operations model (refer to Figure 8 for specific VISSIM network limits). This analysis provides more detailed insights about peak period and peak hour traffic operations under each alternative. Technical calculations supporting the results can be found in the separately bound Technical Appendix. Design year analysis results are presented first followed by the construction year. All analysis was conducted with the same methodology described in Chapter 2. Further, the evaluation criteria from Chapter 2 were used to identify locations with deficient operations. For these locations, improvements are proposed that may be considered as project refinements or mitigation.

5.1. Design Year Conditions

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 15 and 16 below, respectively.

TABLE 15: COMPARISON OF OVERALL NETWORK PERFORMANCE BASED ON DESIGN YEAR AM PEAK PERIOD VISSIM MODEL

Performance Measure		Existing Conditions	Design Year Conditions			
			No Build	No Taylor	Full Taylor	TSM
Volume Served (% of total demand)		143,450 (100 %)	200,650 (95 %)	206,390 (98 %)	207,230 (99 %)	207,670 (98 %)
VMT		645,270	831,280	873,070	880,140	869,830
PMT		786,260	1,004,060	1,056,980	1,065,190	1,049,610
VHT		13,760	26,470	20,080	21,060	20,420
VHD (% of VHT)		2,670 (19.4 %)	12,040 (45.5 %)	4,990 (24.9 %)	5,830 (27.7 %)	5,310 (26.0 %)
Delay per Vehicle Served (min)		1.1	3.6	1.5	1.7	1.5
PHD		3,240	13,880	5,800	6,510	6,180
Average Travel Speed		46.9	31.4	43.5	41.8	42.6
Average HOV Speed		48.5	36.2	46.7	48.4	45.6
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	9:29	8:31	8:30	8:31
	HOV	9:27	8:31	8:17	8:14	8:22

Notes: PMT = person miles of travel, PHD = person hours of delay

Source: Fehr & Peers, 2013

TABLE 16: COMPARISON OF OVERALL NETWORK PERFORMANCE BASED ON DESIGN YEAR PM PEAK PERIOD VISSIM MODEL

Performance Measure		Existing Conditions	Design Year Conditions			
			No Build	No Taylor	Full Taylor	TSM
Volume Served (% of total demand)		198,170 (100 %)	259,410 (85 %)	294,690 (97 %)	300,780 (99 %)	281,870 (93 %)
VMT		730,101	863,410	1,030,810	1,041,610	954,650
PMT		880,180	1,071,230	1,286,520	1,276,960	1,172,800
VHT		16,850	43,430	32,930	29,140	37,180
VHD (% of VHT)		3,950 (23.4 %)	28,070 (64.6 %)	14,700 (44.6 %)	10,680 (36.7 %)	20,140 (54.2 %)
Delay per Vehicle Served (min)		1.2	6.5	3.0	2.2	4.3
PHD		4,670	32,910	17,470	12,580	23,550
Average Travel Speed		43.3	19.9	31.3	35.8	25.7
Average HOV Speed		46.9	24.7	35.6	39.2	30.3
Travel Time: Auburn Blvd to Blue Oaks Blvd.	SOV	9:16	45:38	12:08	7:22	43:08
	HOV	9:11	15:38	8:32	6:40	17:03

Notes: PMT = person miles of travel, PHD = person hours of delay

Source: Fehr & Peers, 2013

Reviewing the results in Tables 15 and 16 should consider the following information.

- The Full Taylor alternative serves the largest percentage of the peak period demand volumes. The performance metrics do not fully account for vehicles that could not enter the network during the peak periods.

- The No Taylor alternative has slightly lower delay and higher average speed during the AM peak period than the Full Taylor alternative. The removal of the Taylor Road on-ramp and concentration of traffic at other on-ramps creates improved freeway operations that more than offset the increase in congestion on the local arterial network. However, this pattern does not occur in the PM peak period where having one fewer off-ramps results in substantial delay on the freeway and arterial system.

- The PM peak period results reveal that the Full Taylor alternative serves the most vehicles while having the lowest delay for vehicles and persons, as well as the lowest travel times for SOVs and HOVs.

- Overall, the build alternatives improve overall network performance compared to no build conditions.

- The AM peak period travel times are better under design year conditions than existing conditions for all alternatives. The improvement is due to auxiliary lane and HOV lane improvements that are common to all alternatives (even No Build). In particular, the WB I-80 auxiliary lane between Douglas Boulevard and Riverside Avenue substantially improves traffic flow, and SR-65 SB has a HOV lane from Blue Oaks Boulevard to I-80 under design year conditions.

Specific details about design year freeway and arterial intersection operations are discussed in more detail in the following sections.

5.1.1. Freeway Operations

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM and 4:30 to 5:30 PM) of the four hour AM and PM peak periods. The AM and PM peak hour results for select locations are reported in Tables 17 and 18, respectively. The remaining results are available in the Technical Appendix. Figures 36 through 43 display the average speed in the mixed-flow lanes throughout the network during the peak periods for each alternative.

I-80 EB

The freeway operations results indicate the No Build alternative would result in LOS F operations on I-80 in the EB direction between the beginning of the analysis area at Auburn Blvd and the SR-65 off-ramp during the AM and PM peak periods. The speed for vehicles in the mixed flow lanes would be less than 10 mph for most of this segment. All of the build alternatives provide significant congestion relief in the AM peak period; therefore no project impacts occur on EB I-80 in the AM peak hour. However, some slowing would remain between Auburn Blvd and Douglas Blvd and at the Douglas Boulevard on-ramp.

During the PM peak hour, the No Taylor and Full Taylor alternatives offer significant decreases in delay on EB I-80. However, heavy demand volumes at the Douglas Boulevard slip off-ramp results in LOS F conditions and an impact at the No Taylor alternative. The No Taylor alternative would also result in significant slowing at the Eureka Road off-ramp in the last hour of the peak period due to congestion on the arterial network that spills back onto the freeway. The project results in the following impacts on I-80 EB in the PM peak hour:

TABLE 17: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**No Build**	**TSM**	**No Taylor**	**Full Taylor**
EB I-80	Auburn Blvd to Douglas Blvd	Basic	**F / 78**	**F / 45**	**F / 47**	**F / 45**
	Douglas Blvd EB Off-ramp	Diverge	**F / 71**	D / 29	D / 30	D / 29
	Douglas Blvd WB Off-ramp	Diverge	**F / 127**	C / 24	D / 32	C / 26
	Douglas Blvd On-ramp	Merge	**F / 153**	C / 25	**F / 80**	**F / 56**
	Eureka Rd Off-ramp	Diverge	**F / 114**		E / 38	D / 31
	Eureka Rd EB On-ramp	Merge	**F / 132**	C / 26	D / 31	C / 28
	Eureka Rd to SR-65	Weave	**F / 131[1]**	D / 32[1]	C / 22	B / 20
	Taylor Rd Off-ramp	Diverge			-	B / 19
	SR-65 On-ramp	Weave	B / 20[1]	C / 26[1]	C / 26	C / 22
WB I-80	SR-65 Off-ramp	Diverge	C / 27	C / 26	C / 23	C / 23
	Taylor Rd Off-ramp	Diverge	-	-	-	C / 24
	Taylor Rd On-ramp	Merge	D / 32	E / 35	-	C / 21
	SR-65 to Atlantic St	Weave	E / 42[1]	E / 45[1]	C / 23	C / 24
	Atlantic St EB Off-ramp	Diverge	**F / 53**	**F / 56**	E / 44	D / 33
	Atlantic St On-ramp	Merge	C / 28	C / 25	D / 31	B / 19
	Douglas Blvd WB On-ramp	Merge	C / 25	E / 37	D / 28	D / 30
	Truck Scales to Elkhorn Blvd	Basic	E / 39	E / 44	**F / 46**	D / 33
	Elkhorn Blvd WB On-ramp	Merge	C / 28	D / 29	D / 30	E / 41
	Elkhorn Blvd EB On-ramp	Merge	E / 40	**F / 51**	E / 36	**F / 51**
NB SR-65	I-80 to Stanford Ranch Rd	Weave	**F / 57[1]**	D / 32	C / 23	C / 23
	Stanford Ranch Rd On-ramp	Merge	D / 30	E / 37	**F / 45**	E / 43

TABLE 17: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	No Build	TSM	No Taylor	Full Taylor
SB SR-65	Ferrari Ranch Rd EB On-ramp	Merge	C / 24	**F / 77**	E / 37	**F / 115**
	Lincoln Blvd to Twelve Bridges Dr	Weave	E / 37	**F / 83**	**F / 92**	**F / 93**
	Twelve Bridges Dr On-ramp	Merge	**F / 61**	**F / 71**	**F / 71**	**F / 71**
	Sunset Blvd WB On-ramp	Merge	E / 43	**F / 47**	**F / 56**	**F / 57**
	Blue Oaks Blvd WB On-ramp	Merge	D / 34	E / 44	**F / 45**	E / 37
	Pleasant Grove Blvd Off to On-ramp	Basic	D / 32	D / 33	**F / 59**	**F / 47**
	Galleria Blvd Off-ramp	Diverge	**F / 55**	D / 32	C / 26	C / 27
	Galleria Blvd to I-80	Weave	**F / 78[1]**	D / 31	C / 22	C / 26

Note: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.

[1] The facility type reported is for the Full Taylor and No Taylor alternatives. For locations where more than one segments exist, the highest density and LOS result is reported. The other results are contained in the Technical Appendix.

Source: Fehr & Peers, 2013

TABLE 18: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	No Build	TSM	No Taylor	Full Taylor
EB I-80	Auburn Blvd to Douglas Blvd	Basic	**F / 154**	**F / 167**	**F / 113**	E / 35
	Douglas Blvd EB Off-ramp	Diverge	**F / 107**	**F / 118**	**F / 139**	E / 42
	Douglas Blvd WB Off-ramp	Diverge	**F / 180**	**F / 185**	C / 28	C / 25
	Douglas Blvd On-ramp	Merge	**F / 181**	**F / 171**	E / 41	E / 37
	Eureka Rd Off-ramp	Diverge	**F / 149**		E / 36	E / 35
	Eureka Rd EB On-ramp	Merge	**F / 96**	**F / 161**	D / 34	D / 32
	Eureka Rd to SR-65	Weave	**F / 142**	**F / 153**	C / 25	C / 23
	Taylor Rd Off-ramp	Diverge			-	C / 22
	SR-65 On-ramp	Merge	C / 21[1]	C / 24[1]	E / 37	C / 21
WB I-80	Rocklin Rd On-ramp	Merge	**F / 117**	C / 22	D / 30	D / 32
	Rocklin Rd to SR-65	Basic	**F / 113[1]**	D / 29[1]	E / 39[1]	D / 31[1]
	SR-65 Off-ramp	Diverge	**F / 114**	D / 30	C / 27	C / 21
	Taylor Rd On-ramp	Merge	**F / 61**	C / 28	-	B / 18
	SR-65 to Atlantic St	Weave	**F / 72**	D / 28	C / 20	C / 21
	Atlantic St On-ramp	Merge	**F / 100**	C / 21	B / 19	B / 20
	Douglas Blvd Off-ramp	Diverge	**F / 108**		D / 32	C / 26
NB SR-65	I-80 to Stanford Ranch Rd	Weave	**F / 84[1]**	D / 30	E / 39	D / 35
	Stanford Ranch Rd On-ramp	Merge	D / 30	D / 32	**F / 93**	**F / 94**
	Blue Oaks Blvd On-ramp	Merge	C / 23	D / 28	E / 38	E / 41
	Twelve Bridges Dr Off-ramp	Diverge	D / 30	D / 32	E / 36	E / 36

TABLE 18: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	No Build	TSM	No Taylor	Full Taylor
SB SR-65	Sunset Blvd WB On-ramp	Merge	D / 32	E / 36	D / 30	E / 36
	Pleasant Grove Blvd EB On-ramp	Merge	D / 29	D / 29	C / 27	D / 28
	Galleria Blvd to I-80	Weave	E / 40[1]	C / 26	C / 22	C / 23

Note: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.

[1] The facility type reported is for the Full Taylor and No Taylor alternatives. For locations where more than one segments exist, the highest density and LOS result is reported. The other results are contained in the Technical Appendix.

Source: Fehr & Peers, 2013

- TSM Alternative
    - From the Auburn Boulevard on-ramp to the Douglas Boulevard WB off-ramp
    - From Eureka Road off-ramp to the Taylor Road off-ramp
- No Taylor Alternative
    - Douglas Boulevard EB off-ramp

The Full Taylor alternative does not result in any impacts on I-80 EB under design year conditions. To mitigate the TSM alternative's impacts, ramp metering would need to be more restrictive or additional mixed flow lanes would be needed on EB I-80 between Auburn Boulevard and Taylor Road. Both mitigation options would likely cause other impacts. Reducing the ramp meter rate would likely create longer queues that would extend back onto local arterials. Mainline widening could have right-of-way or environmental impacts. The No Taylor alternative impact could be mitigated by adding a second lane to the off-ramp or providing an auxiliary lane between Auburn Boulevard and Douglas Boulevard. This mitigation would likely have right-of-way impacts.

I-80 WB

During the AM peak period, slow speeds would occur between Atlantic Street and the Douglas Boulevard slip on-ramp and between the Antelope Road loop on-ramp and the Elkhorn Boulevard slip on-ramp. Most of the facilities would operate at LOS E or better during the AM peak hour, however LOS F conditions would exist at select locations, as shown in Table 17. The proposed project would result in impacts at the following locations on I-80 WB in the AM peak hour:

- TSM Alternative
    - Atlantic Street EB off-ramp
    - Truck Scales on-ramp
    - Elkhorn Boulevard EB on-ramp
- No Taylor
    - From the Truck Scales on-ramp to Elkhorn Boulevard
- Full Taylor
    - Elkhorn Boulevard EB on-ramp

To mitigate the impact at the off-ramp to EB Atlantic Street would likely require reconstruction of the interchange to provide more storage for the off-ramp. Preliminary options tested as part of this analysis suggest that the most effective interchange options would likely have significant right-of-way impacts and may not be feasible. Therefore, the most viable mitigation option would be to construct one of the other project alternatives. The impact to the truck scales on-ramp and the Elkhorn Boulevard slip on-ramp would require more restrictive metering or additional mainline capacity such as a continuous auxiliary lane between the truck scale on-ramp and Elkhorn Boulevard off-ramp. More restrictive metering for the slip on-ramp from Elkhorn Boulevard could cause queuing that would extend onto the arterial.

During the PM peak hour, LOS F conditions would occur between the Rocklin Road on-ramp and the SR-65 off-ramp under the No Build alternative. The operations results also indicate vehicles from the Douglas Boulevard off-ramp would spillback onto the mainline causing significant slowing back to Taylor Road. All of the build alternatives have LOS E or better operations on WB I-80 during the PM peak period; therefore no project impacts would exist on I-80 WB during the PM peak hour. Figure 39 indicates the build alternatives would provide significantly faster travel times with little congestion or slowing.

SR-65 NB

During the AM peak hour, the No Build alternative would result in LOS F conditions at the I-80 WB on-ramp to NB SR-65. This segment would operate at LOS D or better with all of the build alternatives. Figure 40 indicates some slowing would occur at the Stanford Ranch Road on-ramp in all of the alternatives. The No Taylor and Full Taylor alternatives show more slowing, because a larger percentage of the demand volumes would be able to reach this point in the network. The proposed project would result in an impact at the Stanford Ranch Road on-ramp under the No Taylor alternative. This impact could be mitigated by adding mainline capacity such as an auxiliary lane between Stanford Ranch Road and Pleasant Grove Boulevard.

The PM peak hour results show the same trends as the AM peak hour, however the demand volumes are higher which results in more congestion. The No Build alternative results in LOS F conditions at the I-80 WB on-ramp. Figure 41 indicates there is no other significant slowing in the NB direction north of the project location.

The No Taylor and Full Taylor alternatives both result in LOS F conditions at the Stanford Ranch Road on-ramp. This bottleneck extends back to the Stanford Ranch Road off-ramp during the PM peak hour. It should be noted that the No Taylor and Full Taylor serve more traffic at the I-80/SR-65 interchange, which allows more vehicles to reach downstream facilities and results in a higher density compared to the other alternatives. The traffic operations results also indicate the No

Taylor and Full Taylor alternatives would result in more slowing (LOS E) at the Blue Oaks Boulevard on-ramp and the Whitney Ranch Parkway EB on ramp.

The No Taylor alternative would result in impacts to the segment between the Stanford Ranch Road off-ramp and on-ramp. The Full Taylor alternative would result in impacts from the Stanford Ranch Road off-ramp to Blue Oaks Boulevard. This impact could be mitigated by adding mainline capacity such as an additional lane between Galleria Boulevard and Sunset Boulevard.

SR-65 SB

During the AM peak hour, all of the project alternatives result in LOS F conditions on SB SR-65 at the Twelve Bridges Drive on-ramp. Slowing is also present at the Sunset Boulevard WB on-ramp. The build alternatives result in higher densities and more spillback at these bottlenecks than the No Build alternative. Under the No Build alternative, the demand volumes are lower because of the lower capacity of the I-80/SR-65 interchange. Similarly, the No Taylor and Full Taylor alternatives show increased densities at the Pleasant Grove Boulevard WB on-ramp due to increased demand.

The proposed project would results in impacts at the following locations on SB SR-65 during the AM peak hour under all build alternatives:

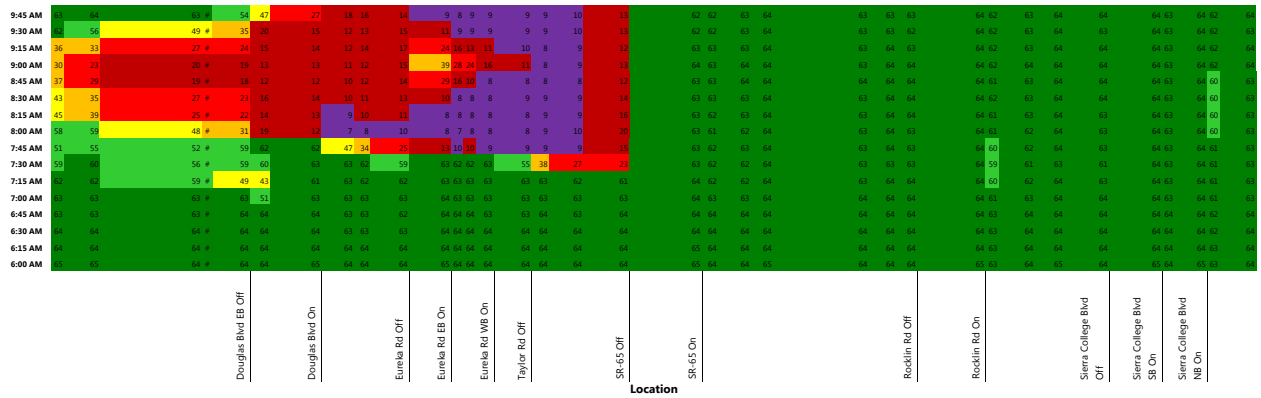
- Between the Ferrari Ranch Road EB on-ramp and the Twelve Bridges Drive on-ramp
- Sunset Boulevard WB on-ramp

The Full Taylor and No Taylor would both have impacts at the basic segment between the Pleasant Grove ramps. The Full Taylor alternative would have an impact between the Sunset Boulevard ramps. The No Taylor alternative would have an impact at the loop on-ramp at Blue Oaks Boulevard. To mitigate the impacts between Ferrari Ranch Road and Twelve Bridges Drive, additional mainline capacity is needed such as an auxiliary lane between Twelve Bridges Drive and Placer Parkway. This improvement would likely create additional impacts to facilities downstream by allowing more vehicles to reach locations that already operate at LOS E or worse, such as the ramps at Sunset Boulevard, Blue Oaks Boulevard, and Pleasant Grove Boulevard. Further, improving mixed-flow bottlenecks may influence demand for future HOV lanes. This suggests that the long-term solution for SR-65 carefully consider where additional mixed-flow lanes versus auxiliary lanes are warranted between Lincoln Boulevard and the project.

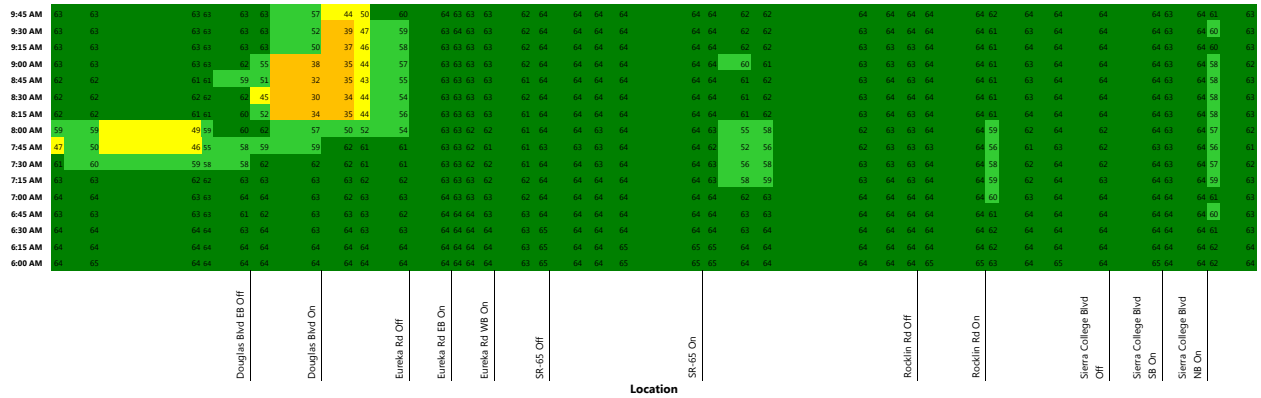
All of the study facilities operate at LOS E or better in the SB direction in the PM peak hour.

FIGURE 36 - I-80 EASTBOUND DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

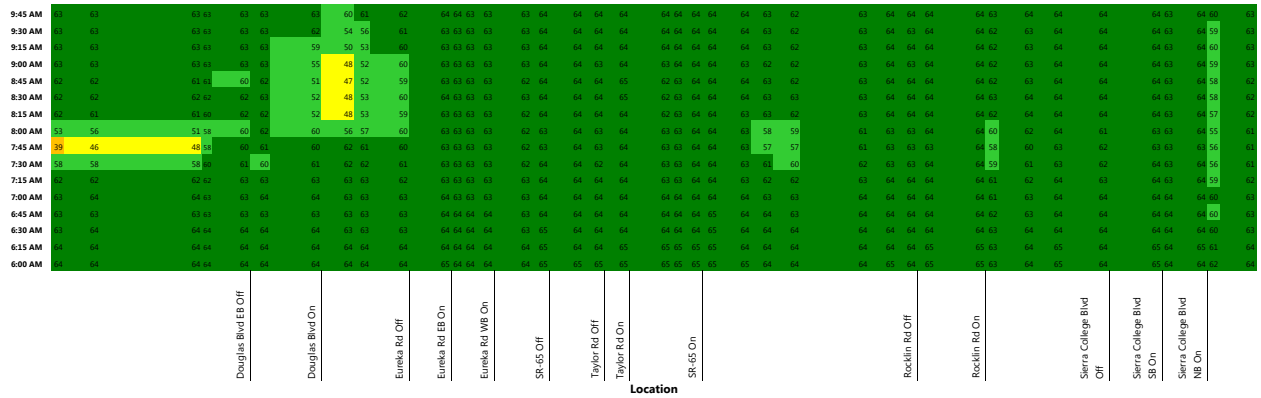
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative

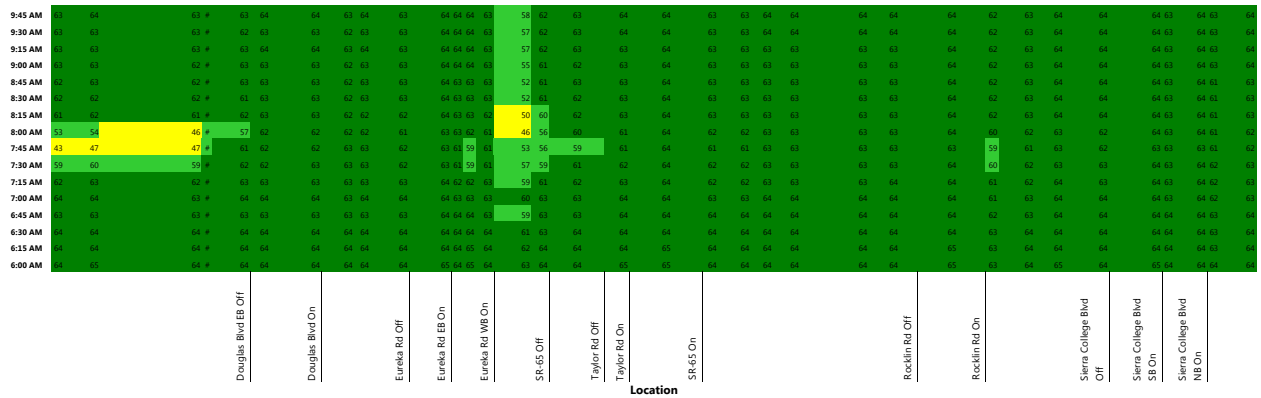
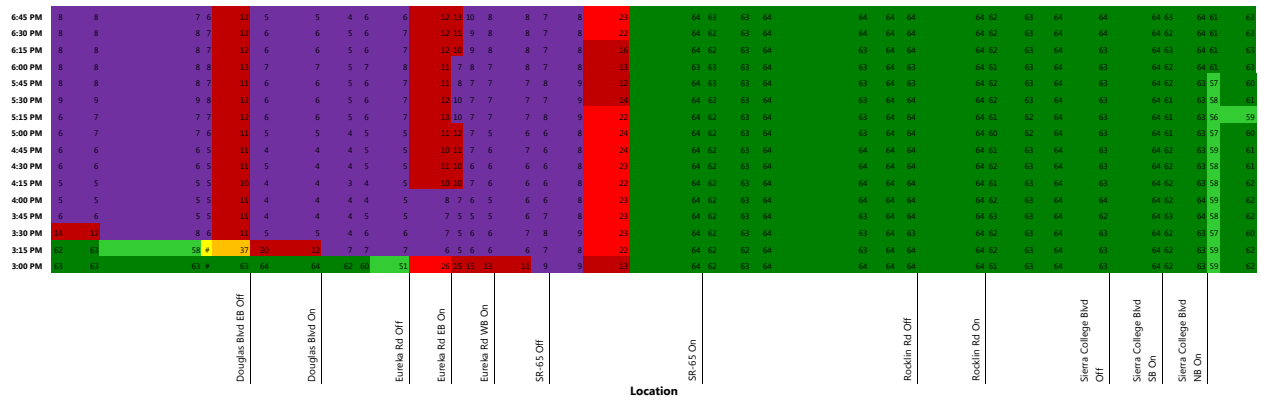


FIGURE 37 - I-80 EASTBOUND DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

No Build Alternative



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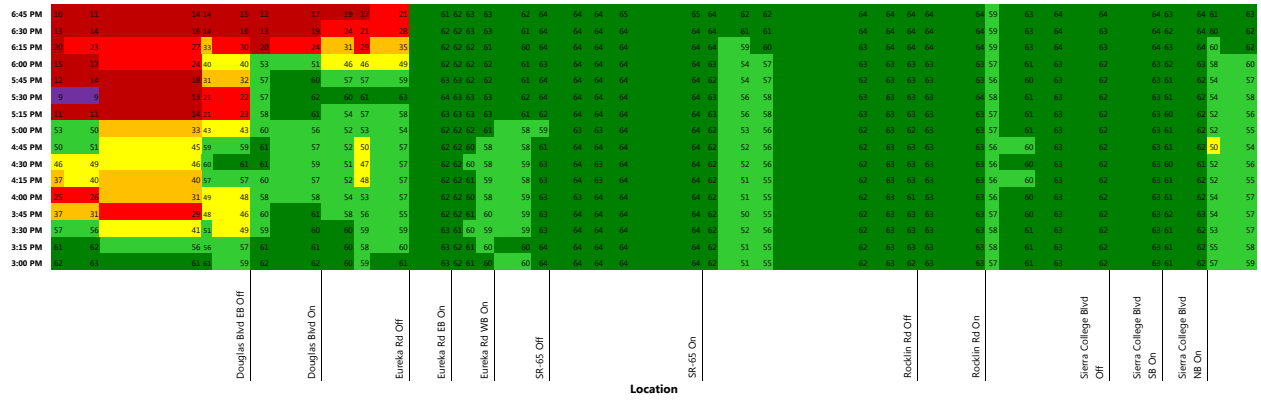
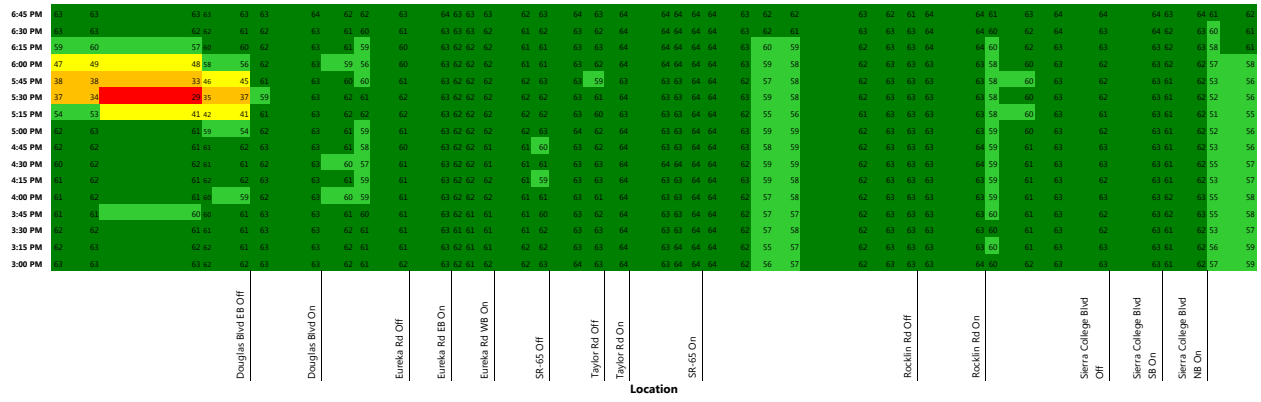


Full Taylor Diamond Alternative



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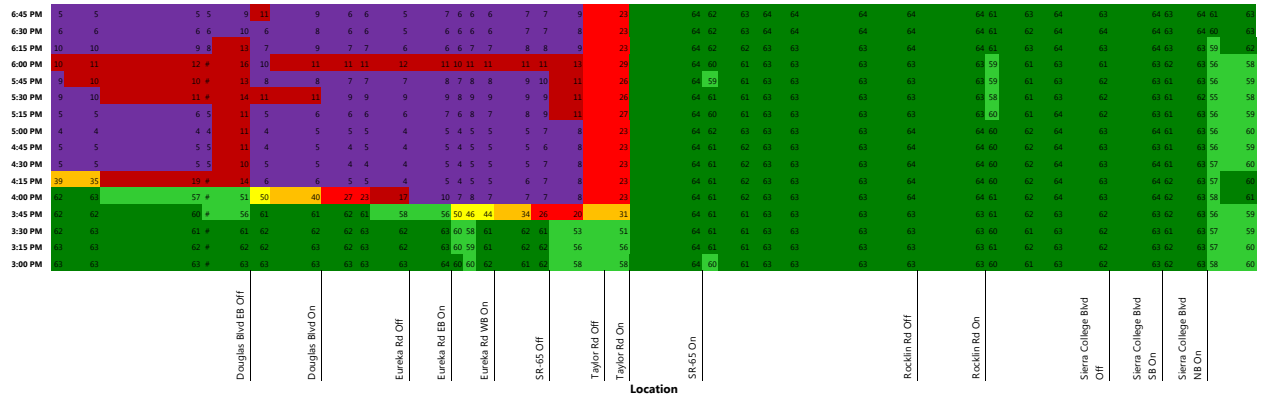
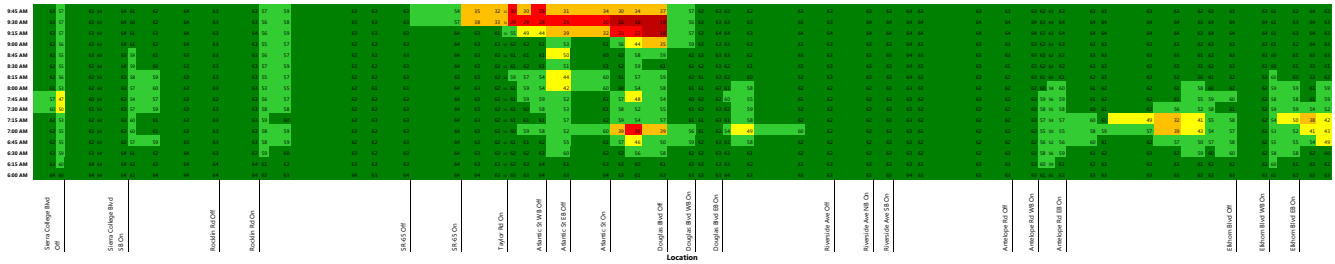
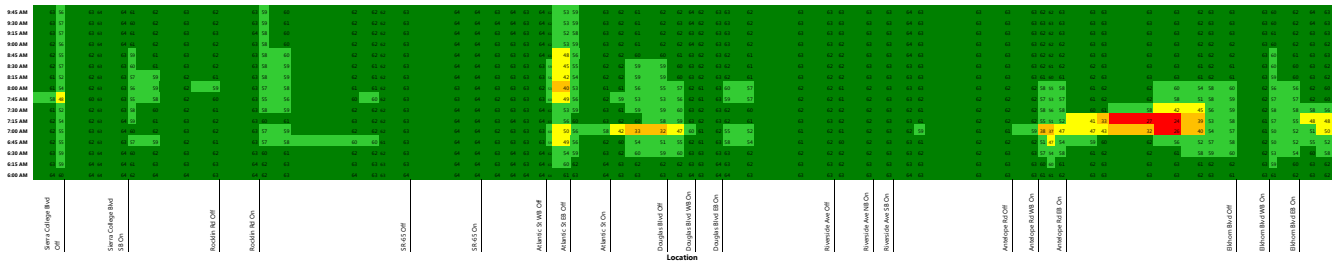


FIGURE 38 - I-80 WESTBOUND DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

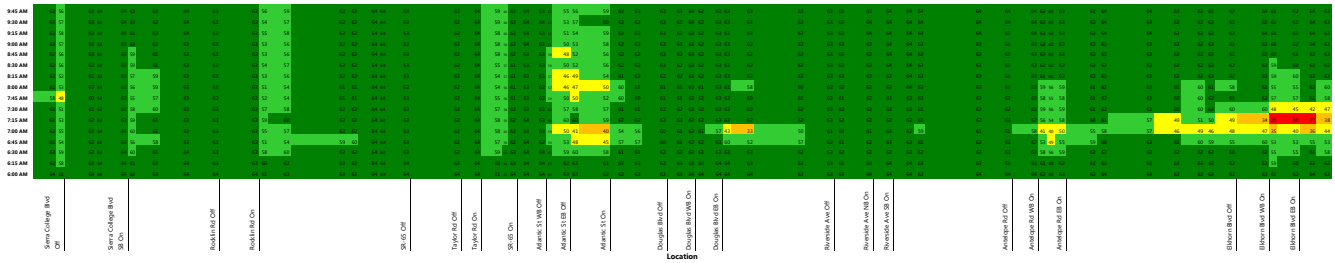
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



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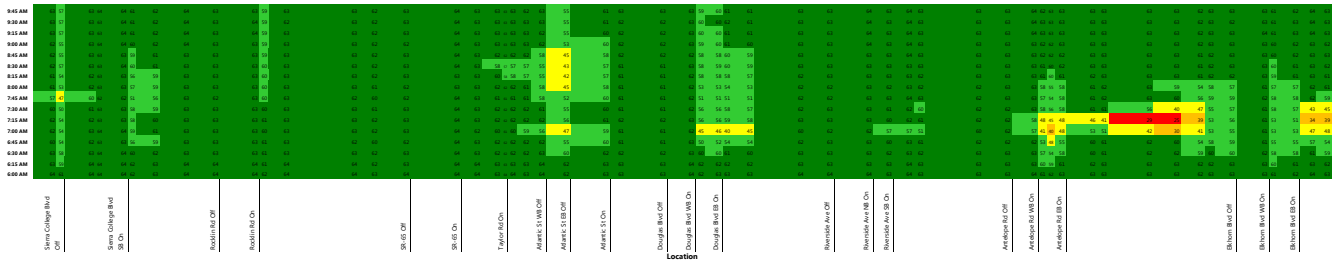
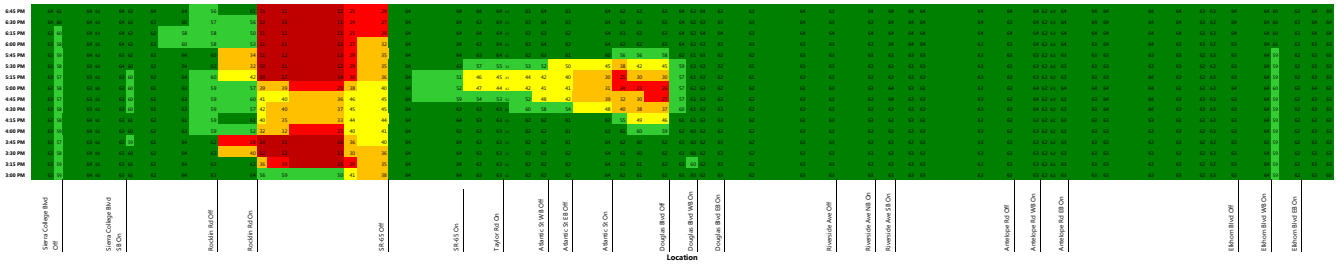


FIGURE 39 - I-80 WESTBOUND DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

No Build Alternative



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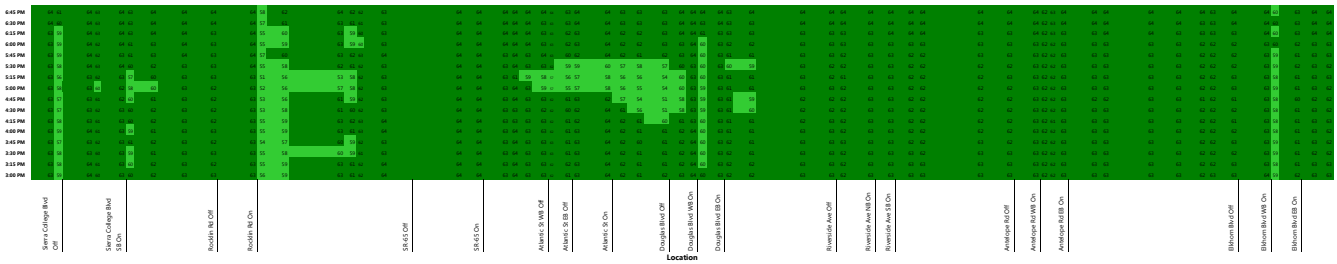
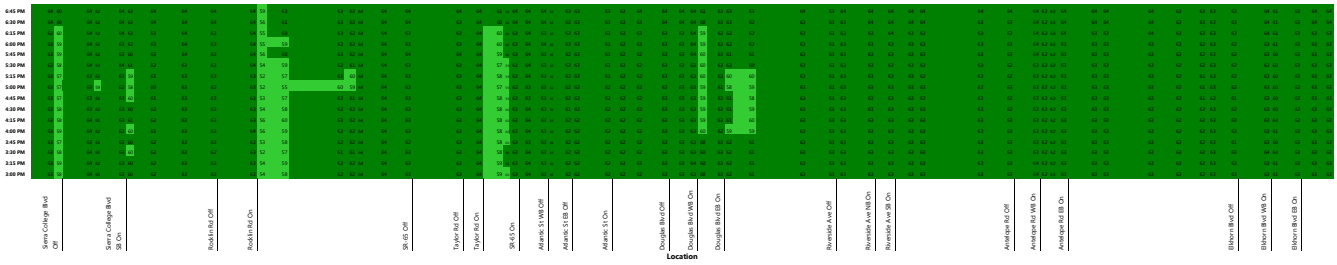


Full Taylor Diamond Alternative



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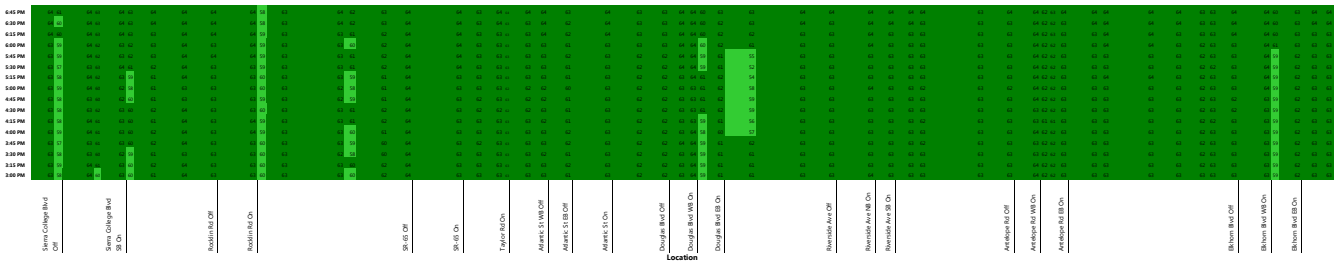
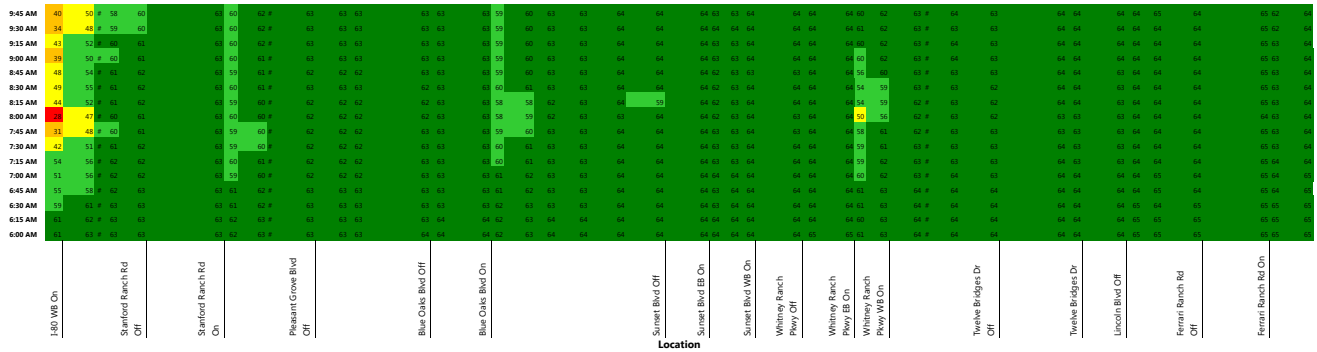


FIGURE 40 - SR 65 NORTHBOUND DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

No Build Alternative



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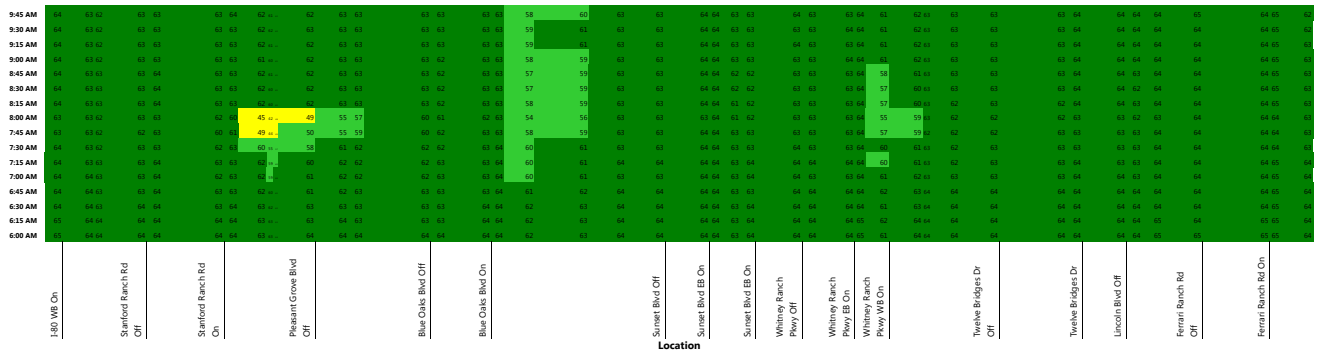
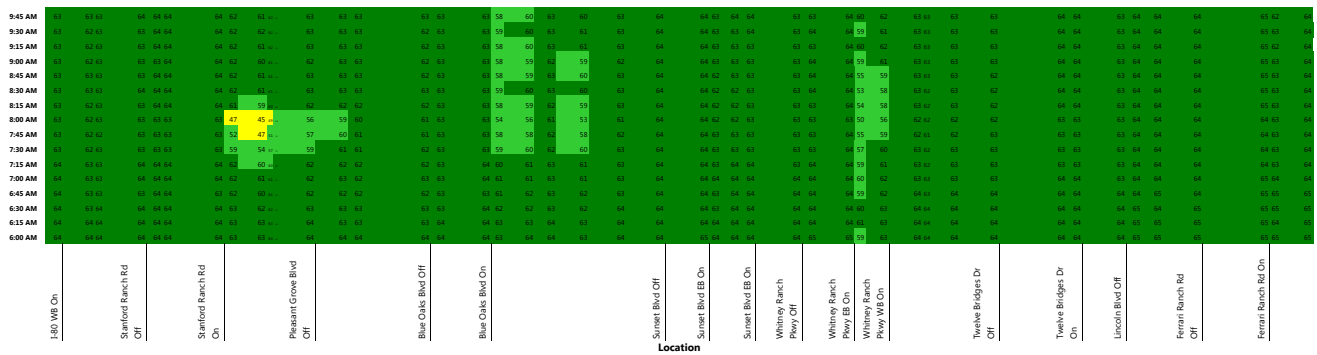


Full Taylor Diamond Alternative



TSM Alternative

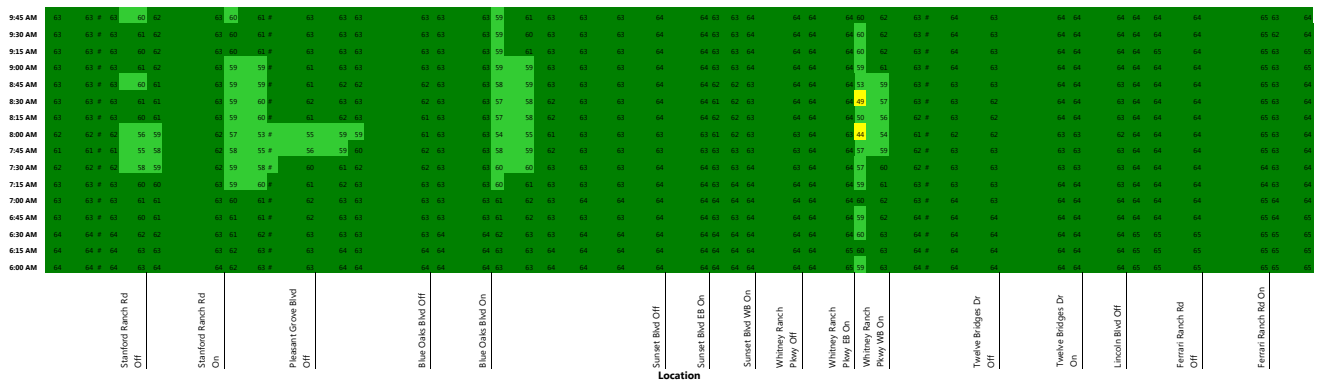
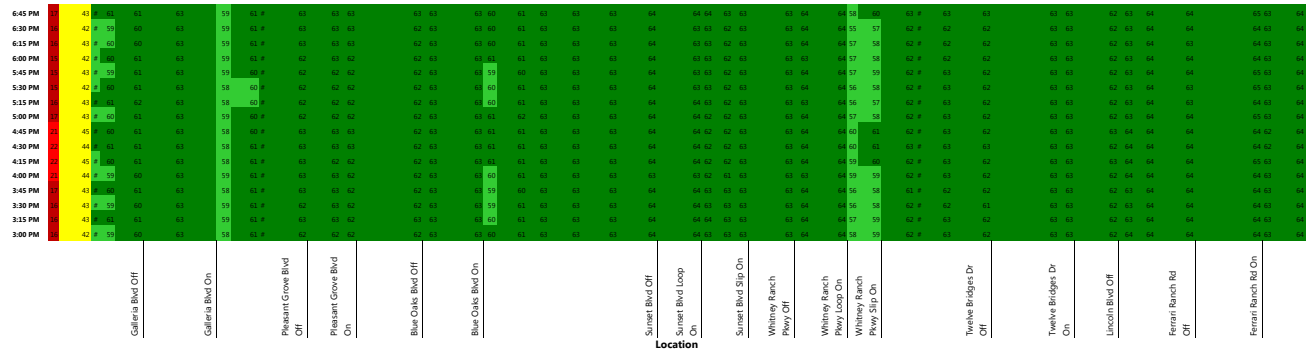
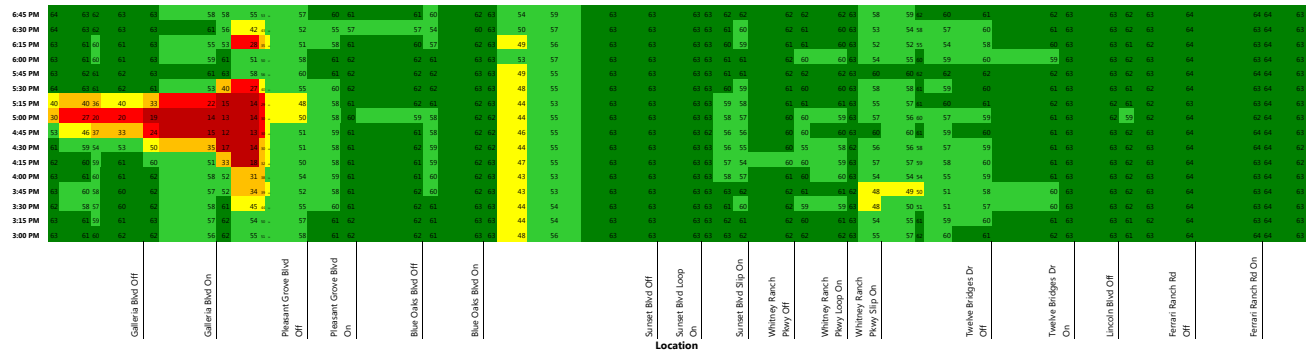


FIGURE 41 - SR 65 NORTHBOUND DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

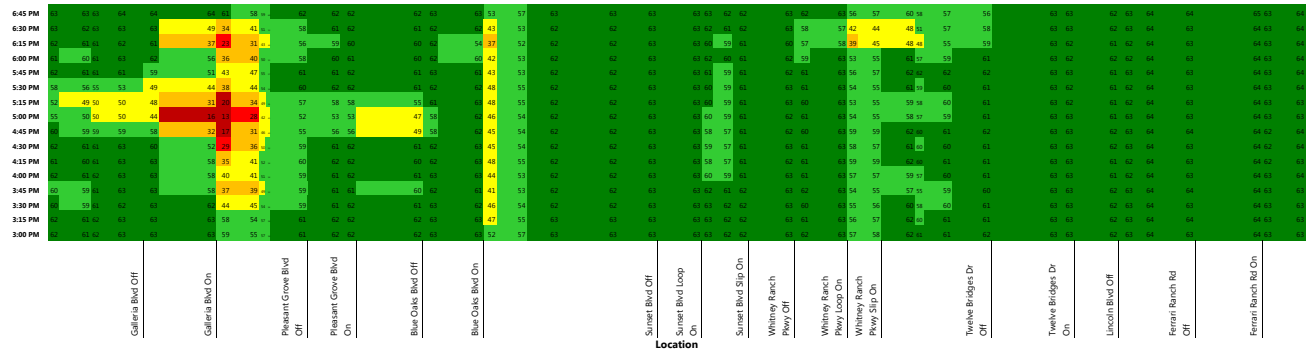
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative

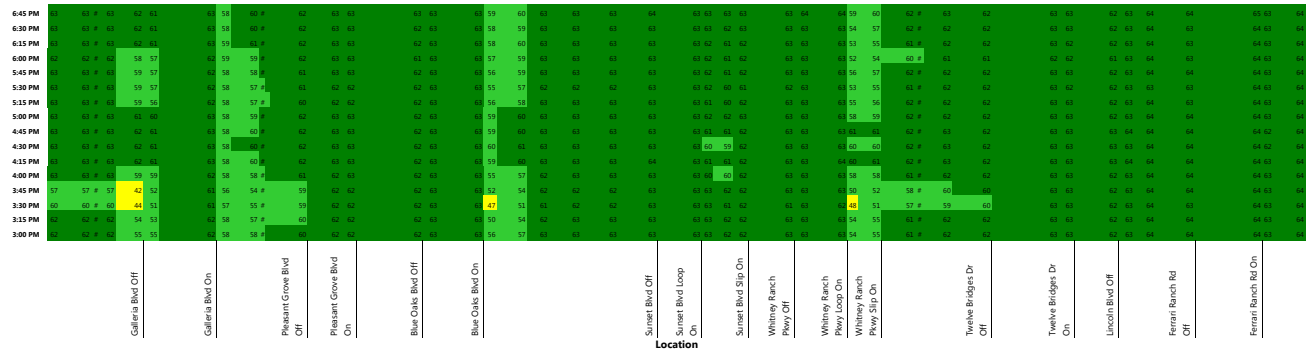
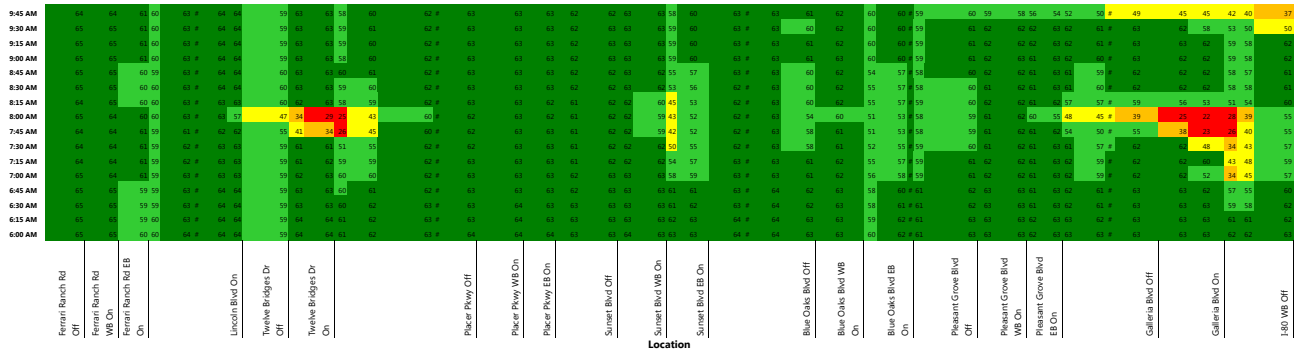
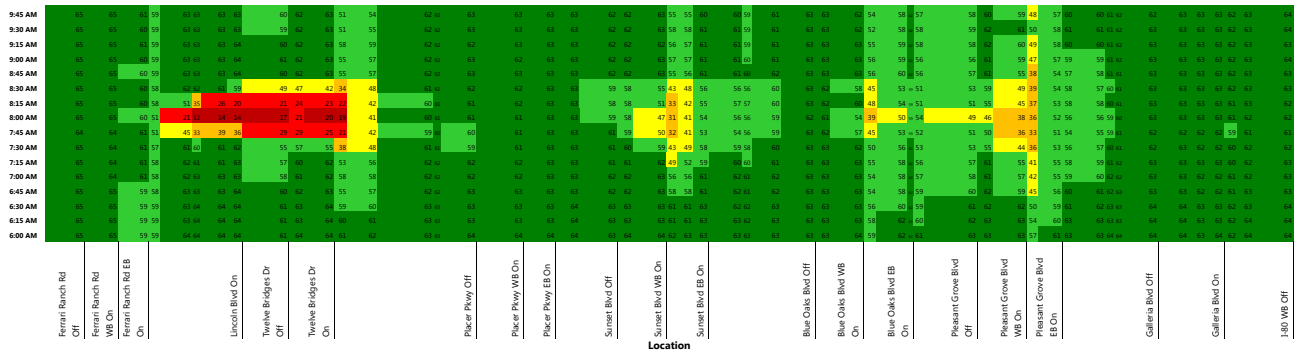


FIGURE 42 - SR 65 SOUTHBOUND DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

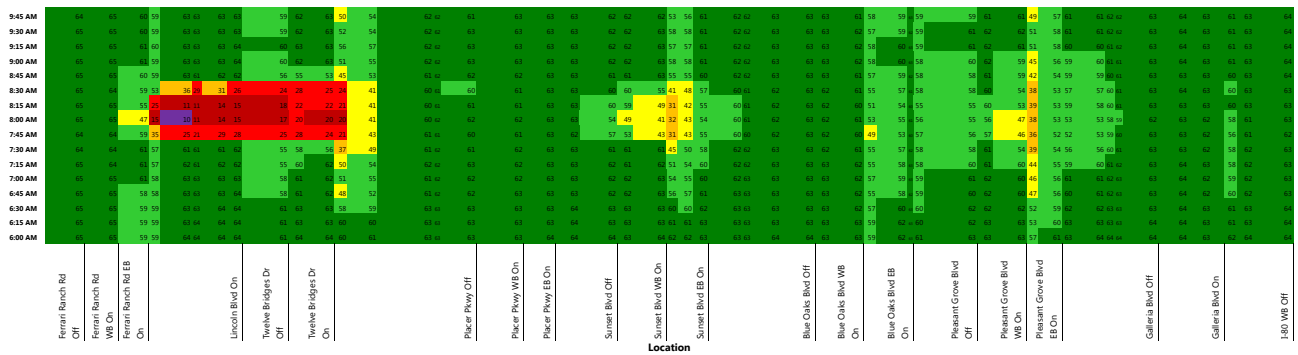
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative

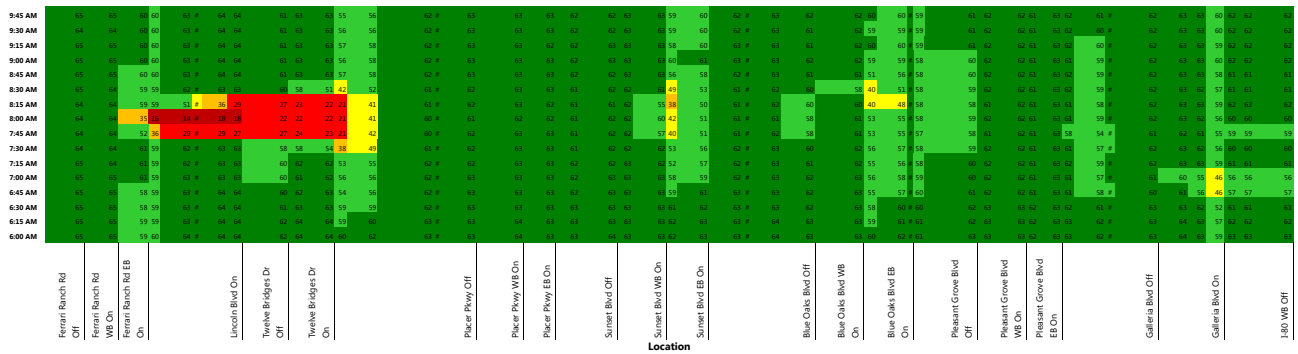
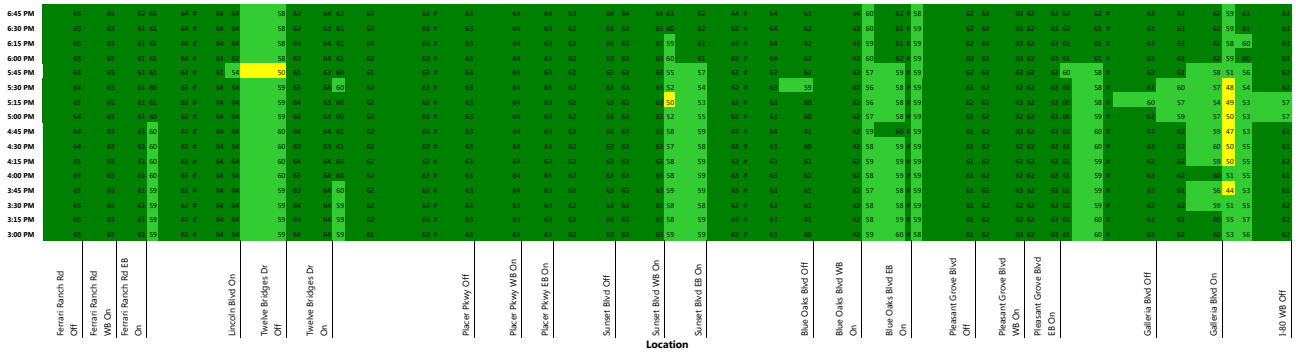
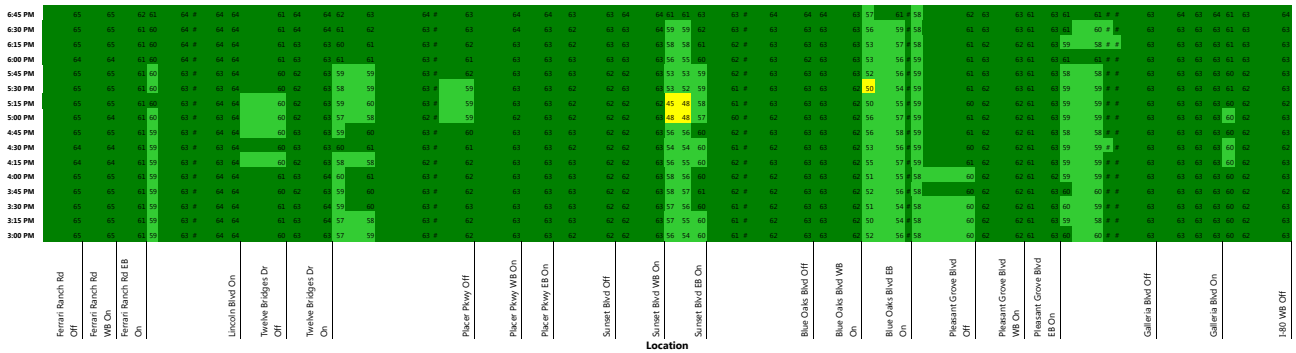


FIGURE 43 - SR 65 SOUTHBOUND DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

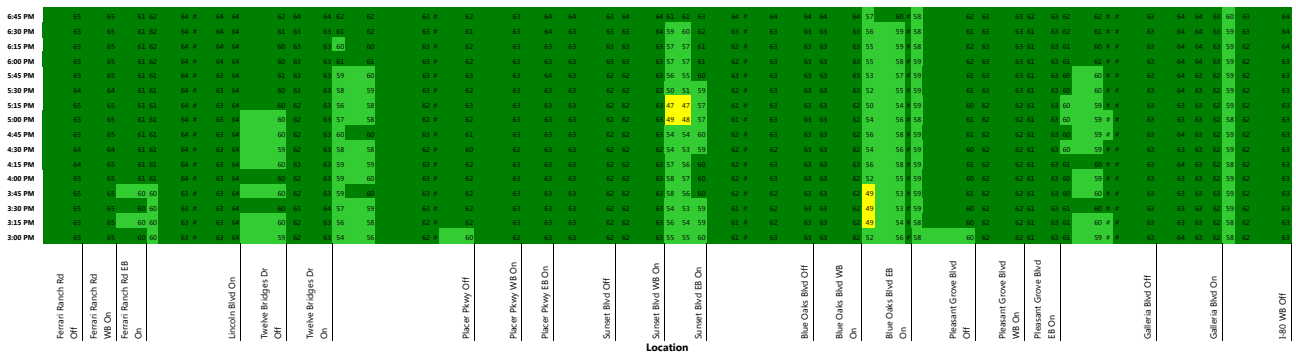
No Build Alternative



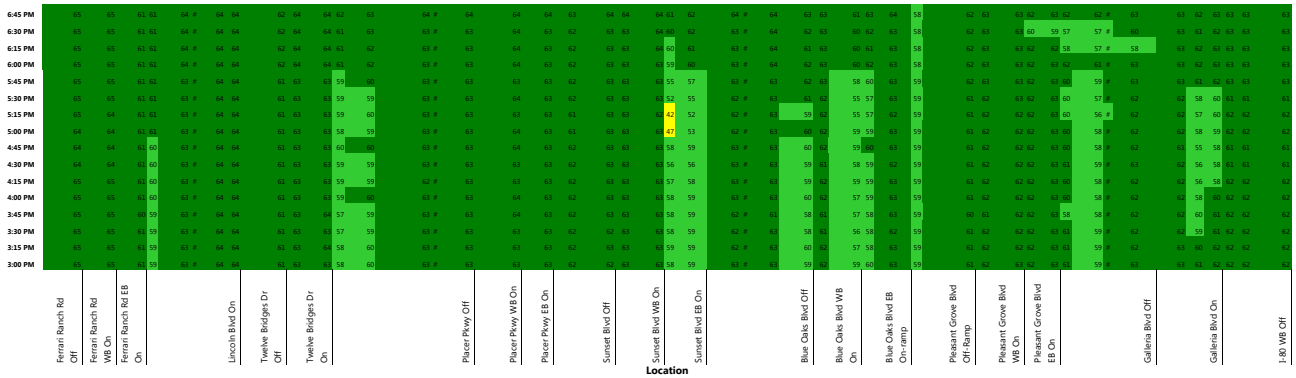
No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative



5.1.2. Arterial Intersection Operations

Tables 19 and 20 show the LOS and average delay at key study intersections under design year conditions during the AM and PM peak hours. Based on the evaluation criteria for this study, the TSM alternative results in three impacts, the No Taylor alternative results in two impacts, and the Full Taylor alternative results in one impact. See the Technical Appendix for all study intersection results.

TABLE 19: SELECTED INTERSECTION OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Intersection	No Build	TSM	No Taylor	Full Taylor
1.Lincoln Blvd / Sterling Pkwy	**F / 88**	C / 28	B / 13	B / 13
2.Twelve Bridges Dr / SR-65 SB Ramps	E / 57	D / 50	C / 22	C / 26
3.Twelve Bridges Dr / SR-65 NB Ramps	D / 51	D / 47	C / 23	C / 32
5. Sunset Blvd/ SR-65 NB Ramps	E / 56	C / 27	B / 13	B / 14
6. Blue Oaks Blvd / Washington Blvd	**F / 136**	**F / 118**	E / 78	**F / 84**
7. Blue Oaks Blvd / SR-65 NB Ramps	**F / 116**	**F / 156**	C / 34	D / 44
10. Stanford Ranch Rd / Five Star Blvd	**F / 151**	C / 25	C / 25	C / 26
11. Stanford Ranch Rd / SR-65 NB Ramps	**F / 127**	B / 18	C / 22	C / 21
12. Galleria Blvd / SR-65 SB Ramps	D / 38	B / 18	B / 19	B / 19
16. Roseville Pkwy / Taylor Rd	**F / 98**	**F / 98**	**E / 70**	D / 40
17. Roseville Pkwy / Sunrise Ave	C / 30	C / 31	E / 56	D / 54
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E / 55	E / 59	D / 45	C / 30
29. Granite Dr / Rocklin Rd	D / 29	**E / 46**	**F / 138**	A / 7
33. Lincoln Blvd / SR-65 NB Off-ramp	**F / 98**	E / 80	B / 12	B / 11
34. Lincoln Blvd / SR-65 SB On-ramp	**F / 93**	**F / 93**	D / 36	B / 17

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2013

TABLE 20: SELECTED INTERSECTION OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Intersection	No Build	TSM	No Taylor	Full Taylor
1. Lincoln Blvd / Sterling Pkwy	**F / 94**	C / 21	B / 16	B / 14
3. Twelve Bridges Dr / SR-65 NB Ramps	E / 77	C / 33	B / 19	C / 22
6. Blue Oaks Blvd / Washington Blvd	**F / >240**	**F / >240**	**F / 213**	**F / 178**
7. Blue Oaks Blvd / SR-65 NB Ramps	**F / 115**	**F / 105**	**F / >240**	**F / >240**
14. Galleria Blvd / Roseville Pkwy	**F / 213**	E / 62	**F / 196**	**F / 191**
16. Roseville Pkwy / Taylor Rd	D / 48	D / 54	D / 48	D / 42
17. Roseville Pkwy / Sunrise Ave	**F / >240**	**F / 217**	**F / 214**	**F / 115**
19. Atlantic St / I-80 WB Ramps	D / 51	B / 16	B / 19	B / 14
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	**F / 92**	E / 74	E / 63[a]	C / 32
21. Eureka Rd / Sunrise Ave	**F / 184**	**F / 144**	**F / 120**	**F / 137**
23. Douglas Blvd / Harding Blvd	**F / >240**	**F / 220**	E / 71	D / 53
24. Douglas Blvd / I-80 WB Ramps	**F / 237**	E / 66	D / 48	B / 13
25. Douglas Blvd / I-80 EB Ramps	**F / 124**	**F / 112**	D / 51	C / 34
26. Douglas Blvd / Sunrise Ave	**F / >240**	**F / >240**	**F / 238**	**F / 227**
29. Rocklin Rd / Granite Dr	**F / >240**	**F / 178**	**F / 112**	**F / 85**
30. Rocklin Rd / I-80 WB Ramps	**F / 99**	**F / 53**	A / 6	B / 14
31. Rocklin Rd / I-80 EB Ramps	E / 36	C / 20	B / 11	B / 11
32. Rocklin Rd / Aguilar Rd	**F / 123**	**F / 144**	**F / 86**	**F / 57**
33. Lincoln Blvd / SR-65 NB Off-ramp	**F / 98**	A / 9	B / 12	A / 8
34. Lincoln Blvd / SR-65 SB On-ramp	**F / 101**	C / 21	C / 28	C / 27

Note: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported.

(a) Actual operation may be worse. LOS E conditions occur within the typical limits of the intersection turn lanes. However, queues extend beyond the intersection limits on the off-ramp approach and extend onto the freeway.

Source: Fehr & Peers, 2013

The following intersections would operate at LOS F during the PM peak hour under all project alternatives:

- Blue Oaks Boulevard / Washington Boulevard
- Blue Oaks Boulevard / SR-65 NB Ramps

- Roseville Parkway / Sunrise Avenue
- Eureka Road / Sunrise Avenue
- Douglas Boulevard / Sunrise Avenue
- Rocklin Road / Granite Drive
- Rocklin Road / Aguilar Road

The analysis results indicate these intersections will need significant capacity enhancements with and without the proposed project to operate within the established LOS thresholds for these locations. Before any improvements are proposed though, the interaction between these locations and the rest of the network should be considered. In some cases, the operation of these intersections meters traffic accessing the freeway. This may be desirable in certain locations such as at Blue Oaks Boulevard/Washington Boulevard at least until sufficient capacity is available on SR-65 to accommodate the demand levels. In other locations, improvements to the freeway system, such as an auxiliary lane, may reduce demand and/or queuing that would improve intersection operations.

All three build alternatives would cause an impact at Blue Oaks Boulevard / SR-65 NB ramps: The TSM alternative during the AM peak hour and the other two alternatives during the PM peak hour. The excessive delay at Blue Oaks Boulevard / SR-65 NB ramps is primarily due to LOS F conditions and spillback from the adjacent Blue Oaks Boulevard / Washington Boulevard intersection. The Blue Oaks Boulevard / SR-65 NB ramps intersection can be improved with longer NB turn pockets, and additional turn lanes. While this improvement could provide modest congestion relief, the interchange will need additional capacity to operate at acceptable levels.

The TSM alternative would also cause impacts at the Douglas Boulevard / Sunrise Avenue and Rocklin Road / Aguilar Road intersections due to an increase in traffic demand caused by the added auxiliary lanes on EB I-80 between Douglas Boulevard and Eureka Road and on WB I-80 between Rocklin Road and SR-65. The auxiliary lanes draw more traffic onto the freeway (through these intersections) and off of parallel facilities, such as Sunrise Avenue and Sierra College Boulevard. While the auxiliary lanes are beneficial for mainline and arterial operations, select intersections would require capacity increases to accommodate the additional demand. The Rocklin Road / Aguilar Road intersection is already being planned for expansion as part of the I-80/Rocklin Road interchange upgrade project. For purposes of the I-80/SR-65 interchange analysis, preliminary design plans were used for the I-80/Rocklin Road project. Final design plans are being based on the traffic demand volumes from the I-80/SR-65 project so that acceptable traffic operations can be provided.

The No Taylor alternative would also create an impact at Rocklin Road / Granite Drive. With the removal of the Taylor Road WB on-ramp to I-80, a portion of the traffic diverts to Rocklin Road to access I-80. The additional traffic volume results in higher delay. Similar to Rocklin Road / Aguilar Road, the final design plans for the I-80/Rocklin Road interchange project are expected to accommodate these higher volumes acceptably.

The No Taylor alternative results in higher demand volumes at the Eureka Road off-ramp in the PM peak period. The analysis results shown in Table 20 indicate the Eureka Road / Taylor Road / I-80 EB Ramps would operate at LOS E under the No Taylor alternative; however the model only captures delay within the footprint of the intersection. The delay results do not account for the delay experienced by drivers in queues that extend much beyond the turn pockets on the NB approach. Exhibit 5 below shows the extent of the queue under the No Taylor alternative. For comparison, Exhibit 6 shows the traffic operations with the Full Taylor alternative.

If the model were to attribute all of this delay to the Eureka Road / Taylor Road / I-80 EB Ramps intersection, it would result in LOS F conditions. For the purposes of this report, this is considered a significant project impact. To mitigate, the off-ramp would need to be widened to two lanes.

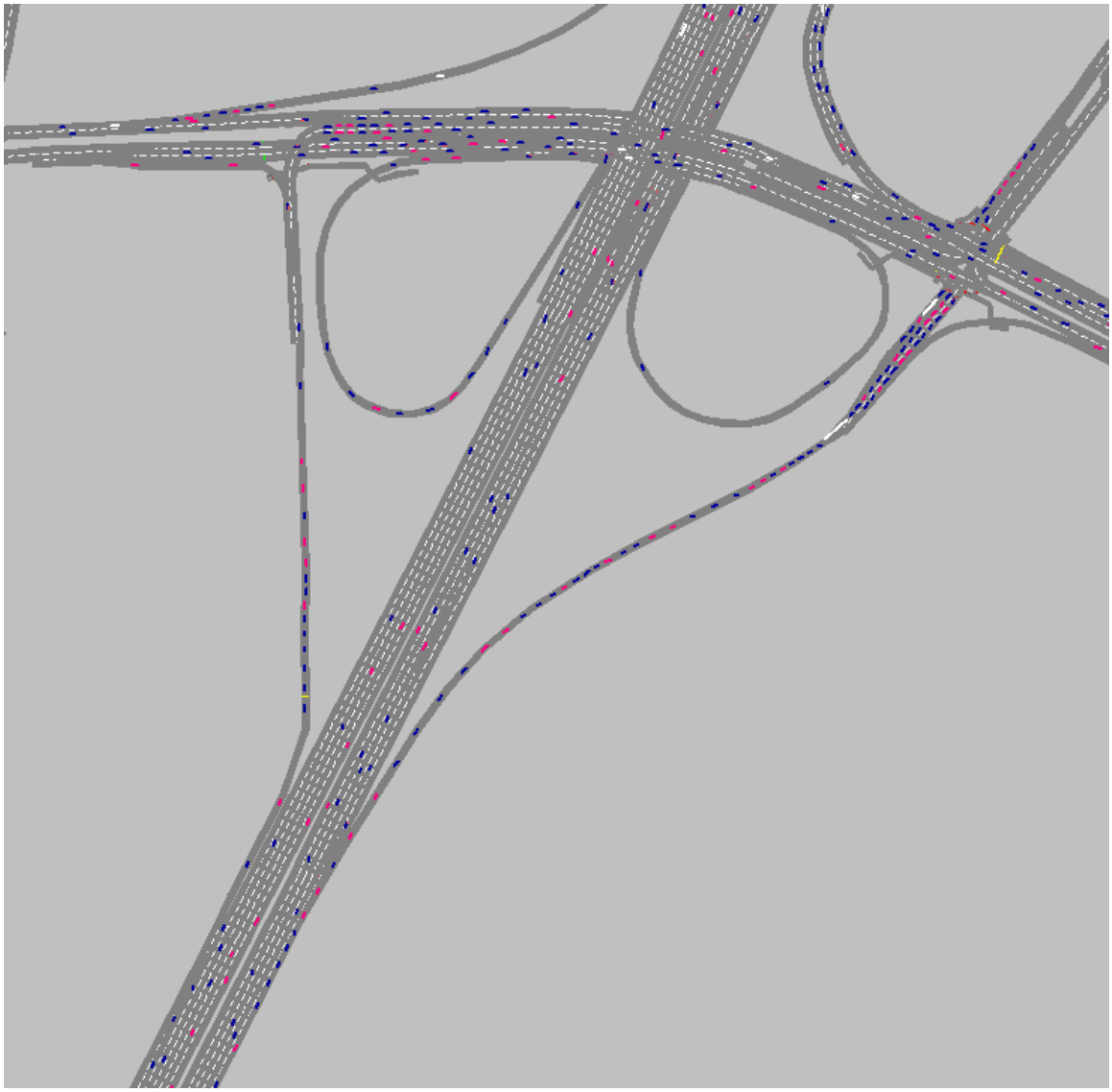


Exhibit 5: EB I-80 Off-ramp to Eureka Road – No Taylor Alternative

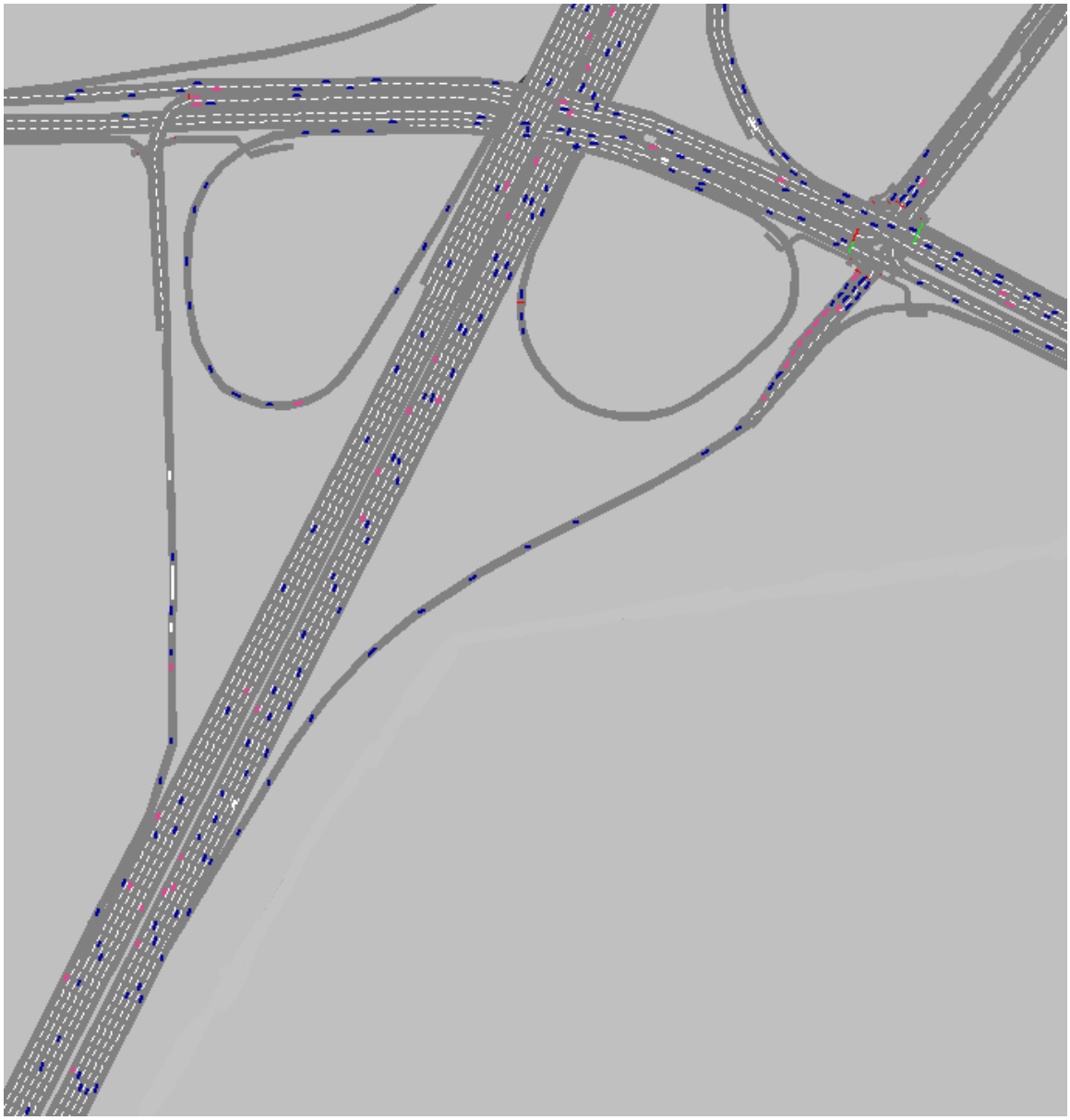


Exhibit 6: EB I-80 Off-ramp to Eureka Road – Full Taylor Alternative

5.2. Construction Year Conditions

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 21 and 22 below, respectively.

TABLE 21: COMPARISON OF OVERALL NETWORK PERFORMANCE BASED ON CONSTRUCTION YEAR AM PEAK PERIOD VISSIM MODEL

Performance Measure		Existing Conditions	Construction Year Conditions			
			No Build	TSM	No Taylor	Full Taylor
Volume Served (% of total demand)		143,450 (100 %)	163,780 (96 %)	168,490 (99 %)	167,200 (99 %)	166,810 (99 %)
VMT		645,270	740,650	777,500	782,060	781,890
PMT		786,260	909,000	955,670	958,490	964,490
VHT		13,760	23,040	17,550	18,360	17,420
VHD (% of VHT)		2,670 (19.4 %)	10,330 (44.8 %)	4,230 (24.1 %)	5,010 (27.3 %)	4,060 (23.3 %)
Delay per Vehicle Served (min)		1.1	3.8	1.5	1.8	1.5
PHD		3,240	12,370	5,010	5,870	4,750
Average Travel Speed		46.9	32.1	44.3	42.6	44.9
Average HOV Speed		48.5	34.4	46.8	46.0	48.4
Travel Time: Blue Oaks Blvd. to Antelope Rd	SOV	9:44	17:10	9:23	11:07	11:18
	HOV	9:27	13:58	8:42	8:16	8:58

Notes: PMT = person miles of travel, PHD = person hours of delay

Source: Fehr & Peers, 2013

TABLE 22: COMPARISON OF OVERALL NETWORK PERFORMANCE BASED ON CONSTRUCTION YEAR PM PEAK PERIOD VISSIM MODEL

Performance Measure		Existing Conditions	Construction Year Conditions			
			No Build	TSM	No Taylor	Full Taylor
Volume Served (% of total demand)		198,170 (101.1 %)	216,610 (91.3 %)	234,640 (99.2 %)	232,010 (98.6 %)	232,440 (99.9 %)
VMT		730,101	805,450	906,070	905,910	915,240
PMT		880,180	998,020	1,117,770	1,116,600	1,128,680
VHT		16,850	37,230	23,500	23,240	22,960
VHD (% of VHT)		3,950 (23.4 %)	23,020 (61.8 %)	7,550 (32.1 %)	7,380 (31.8 %)	6,940 (30.2 %)
Delay per Vehicle Served (min)		1.2	6.4	1.9	1.9	1.8
PHD		4,670	27,150	9,060	8,870	8,240
Average Travel Speed		43.3	21.6	38.6	39.0	39.9
Average HOV Speed		46.9	25.8	40.7	41.1	42.8
Travel Time: Auburn Blvd to Blue Oaks Blvd.	SOV	9:16	35:10	7:43	6:44	6:30
	HOV	9:11	14:07	7:20	6:41	6:17

Notes: PMT = person miles of travel, PHD = person hours of delay

Source: Fehr & Peers, 2013

Reviewing the results in Tables 21 and 22 should consider the following information.

- The Full Taylor alternative serves the largest percentage of the peak period demand volumes. The performance metrics do not fully account for vehicles that could not enter the network during the peak periods.
- The AM and PM peak period results reveal that the Full Taylor alternative serves the most vehicles while having the lowest delay for vehicles and persons, as well as the lowest travel times for SOVs and HOVs during the PM peak hour.
- Overall, the build alternatives improve overall network performance compared to no build conditions.

Specific details about construction year freeway and arterial intersection operations are discussed in more detail in the following sections.

5.2.1. Freeway Operations

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM and 4:30 to 5:30 PM) of the four hour AM and PM peak periods. The AM and PM peak hour results for select locations are reported in Tables 23 and 24, respectively. The remaining results are available in the Technical Appendix. Figures 44 through 51 display the average speed in the mixed-flow lanes throughout the network during the peak periods for each alternative.

I-80 EB

The freeway operations results indicate the No Build alternative would result in LOS F operations on I-80 at the off-ramps to NB SR-65 and Rocklin Road during the AM peak hour. The No Taylor and Full Taylor alternatives would result in LOS F conditions at the Douglas Boulevard on-ramp. This is a project impact and is the result of higher demand volumes for the build alternatives. The TSM alternative also has a higher demand volume, but the auxiliary lane assumed between Douglas Boulevard and Eureka Road provides the capacity needed to achieve LOS C conditions. This auxiliary lane is required for the other build alternatives as mitigation.

During the PM peak hour, the No Build alternative would result in LOS F conditions from the beginning of the analysis area at Auburn Boulevard to the SR-65 off-ramp, with speeds less than 20 mph for the majority of the peak period. The TSM alternative would result in LOS F conditions for the Eureka Road to Taylor Road weave section and at the SR-65 off-ramp. However, Figure 45 indicates that most of the delay for the TSM alternative occurs after the peak hour. The bottleneck begins at the Taylor Road off-ramp and extends to Auburn Boulevard.

The No Taylor and Full Taylor alternatives offer significant decreases in delay on EB I-80 compared to the other alternatives. The No Taylor alternative would result in LOS F conditions between Auburn Boulevard and the Douglas Boulevard WB off-ramp, but it would still be an improvement over No Build conditions. The Full Taylor alternative would result in acceptable operations at all study locations on EB I-80 during the PM peak period. The Taylor Road interchange provides additional access points to I-80, which relieves congestion at the adjacent interchanges. None of the build alternatives result in impacts on I-80 EB in the PM peak hour.

TABLE 23: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**No Build**	**TSM**	**No Taylor**	**Full Taylor**
EB I-80	Douglas Blvd On-ramp	Merge	D / 28	C / 24	**F / 49**	**F / 50**
	Eureka Rd Off-ramp	Diverge	D / 30		D / 33	E / 36
	Eureka Rd to SR-65	Weave	**F / 66[1]**	D / 32[1]	C / 20	B / 19
	Taylor Rd Off-ramp	Diverge			-	B / 17
	SR-65 On-ramp	Merge	B / 20[1]	D / 32[1]	C / 21	B / 19
WB I-80	SR-65 Off-ramp	Diverge	**F / 51**	C / 22	C / 22	C / 21
	Taylor Rd Off-ramp	Diverge	-	-	-	C / 24
	Taylor Rd On-ramp	Merge	**F / 56**	D / 34	-	C / 22
	SR-65 to Atlantic St	Weave	**F / 96[1]**	E / 38[1]	**F / 62**	C / 24
	Atlantic St EB Off-ramp	Diverge	**F / 93**	**F / 49**	**F / 88**	**F / 46**
	Atlantic St On-ramp	Merge	**F / 107**	C / 27	**F / 55**	**F / 52**
	Douglas Blvd Off-ramp	Diverge	**F / 46**		**F / 72**	**F / 71**
	Douglas Blvd WB On-ramp	Merge	**F / 114**	E / 42	**F / 94**	**F / 107**
	Douglas Blvd EB On-ramp	Merge	**F / 71**	**F / 59**	**F / 61**	**F / 64**
	Douglas Blvd to Riverside Ave	Basic	D / 35	D / 32	E / 35	E / 36
	Riverside Ave Off-ramp	Diverge	D / 32	D / 32	D / 34	E / 35
	Truck Scales to Elkhorn Blvd	Basic	E / 41	**F / 57**	**F / 87**	**F / 77**
	Elkhorn Blvd WB On-ramp	Merge	**F / 93**	**F / 96**	**F / 76**	**F / 68**
	Elkhorn Blvd EB On-ramp	Merge	**F / 82**	**F / 82**	**F / 64**	**F / 77**
NB SR-65	I-80 to Stanford Ranch Rd	Weave	**F / 87[1]**	D / 30	C / 22	C / 22
	Stanford Ranch Rd On-ramp	Merge	**F / 63**	D / 33[1]	E / 39	E / 42

TABLE 23: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	No Build	TSM	No Taylor	Full Taylor
SB SR-65	Lincoln Blvd to Twelve Bridges Dr	Weave	**F / 153**	C / 24	C / 26	C / 25
	Twelve Bridges Dr On-ramp	Merge	**F / 164**	E / 41	**F / 50**	**F / 48**
	Sunset Blvd WB On-ramp	Merge	**F / 139**	D / 32	**F / 83**	**F / 86**
	Sunset Blvd EB On-ramp	Merge	**F / 126**	E / 42	**F / 77**	**F / 76**
	Blue Oaks Blvd Off-ramp	Diverge	**F / 139**	D / 32	**F / 51**	**F / 77**
	Blue Oaks Blvd WB On-ramp	Merge	**F / 111**	D / 30	**F / 63**	**F / 83**
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	**F / 96**	D / 29	E / 44	**F / 54**
	Pleasant Grove Blvd WB On-ramp	Merge	**F / 79**	D / 28	D / 30	E / 39
	Pleasant Grove Blvd EB On-ramp	Merge	**F / 58**	E / 35	D / 29	D / 32
	Galleria Blvd Off-ramp	Diverge	D / 34	D / 33	C / 26	C / 26
	Galleria Blvd to I-80	Weave	C / 26	C / 26	C / 24	C / 23

Note: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.

[1] The facility type reported is for the Full Taylor and No Taylor alternatives. For locations where more than one segments exist, the highest density and LOS result is reported. The other results are contained in the Technical Appendix.

Source: Fehr & Peers, 2013

TABLE 24: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**No Build**	**TSM**	**No Taylor**	**Full Taylor**
EB I-80	Auburn Blvd to Douglas Blvd	Basic	**F / 142**	D / 33	**F / 47**	E / 44
	Douglas Blvd EB Off-ramp	Diverge	**F / 103**	C / 24	**F / 49**	D / 34
	Douglas Blvd WB Off-ramp	Diverge	**F / 158**	C / 23	**F / 77**	E / 42
	Douglas Blvd On-ramp	Merge	**F / 165**	D / 30	E / 45	D / 34
	Eureka Rd Off-ramp	Diverge	**F / 131**		E / 42	D / 34
	Eureka Rd EB On-ramp	Merge	**F / 147**	D / 34	D / 33	D / 31
	Eureka Rd to SR-65	Weave	**F / 135[1]**	**F / 51[1]**	C / 24	C / 23
	Taylor Rd Off-ramp	Diverge			-	C / 21
	SR-65 On-ramp	Merge	B / 19[1]	C / 24[1]	B / 19	B / 18
WB I-80	Rocklin Rd On-ramp	Merge	**F / 153**	B / 20	C / 24	C / 23
	Rocklin Rd to SR-65	Basic	**F / 128[1]**	C / 23[1]	C / 24[1]	C / 24[1]
	SR-65 Off-ramp	Diverge	**F / 140**	C / 23	C / 21	B / 20
	Taylor Rd On-ramp	Merge	C / 25	D / 29	-	B / 16
	SR-65 to Atlantic St	Weave	C / 27[1]	D / 31[1]	C / 21	C / 22
	Atlantic St On-ramp	Merge	C / 20	C / 22	**F / 57**	**F / 50**
	Douglas Blvd Off-ramp	Diverge	B / 15		**F / 94**	**F / 96**
	Douglas Blvd WB On-ramp	Merge	D / 29	D / 32	**F / 99**	**F / 101**
	Douglas Blvd EB On-ramp	Merge	D / 33	**F / 52**	**F / 64**	**F / 64**
NB SR-65	I-80 to Stanford Ranch Rd	Weave	**F / 90[1]**	D / 34	C / 26	C / 25
	Stanford Ranch Rd On-ramp	Merge	**F / 83**	D / 34	**F / 46**	E / 44
	Blue Oaks Blvd On-ramp	Merge	C / 22	D / 29	**F / 48**	E / 42

TABLE 24: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	No Build	TSM	No Taylor	Full Taylor
SB SR-65	Sunset Blvd WB On-ramp	Merge	**F / 134**	C / 23	C / 25	C / 25
	Pleasant Grove Blvd EB On-ramp	Merge	**F / 60**	C / 28	C / 27	C / 27
	Galleria Blvd to I-80	Weave	D / 29[1]	C / 24	C / 23	C / 23

Note: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.

[1] The facility type reported is for the Full Taylor and No Taylor alternatives. For locations where more than one segments exist, the highest density and LOS result is reported. The other results are contained in the Technical Appendix.

Source: Fehr & Peers, 2013

I-80 WB

During the AM peak period, traffic congestion would occur from SR-65 to Douglas Boulevard and from Antelope Road to Elkhorn Boulevard. Figure 46 indicates the build alternatives generally have higher levels of congestion between Antelope Road and Elkhorn Boulevard, because the increase in capacity at the I-80/SR-65 interchange allows more vehicles to arrive at those locations during the peak hour.

The TSM alternative results in impacts at the Douglas Boulevard EB on-ramp and all segments from the Riverside Avenue to Antelope Road basic segment to the end of the network at the Elkhorn Boulevard EB on-ramp (excluding the off-ramp to Elkhorn Boulevard). The No Taylor alternative creates impacts at the weave section between SR-65 and Atlantic Street, Atlantic Street to Douglas Boulevard, and from Antelope Road to Elkhorn Boulevard. The Full Taylor alternative creates impacts from Atlantic Street to Douglas Boulevard and from the Truck Scales to Elkhorn Boulevard. To mitigate these impacts, the planned auxiliary lane between Douglas Boulevard and Riverside Avenue should be constructed, along with an additional mixed-flow lane between Antelope Road and the end of the network at Elkhorn Boulevard.

The congestion shown at the Douglas Boulevard slip on-ramp in both the AM and PM peak period speed contour maps for all alternatives, except the TSM alternative, indicates the need for an auxiliary lane between Douglas Boulevard and Riverside Avenue. This improvement is part of the TSM alternative.

During the PM peak hour, LOS F conditions would also occur between the Rocklin Road on-ramp and the SR-65 off-ramp under the No Build alternative due to traffic queued from NB SR-65.

SR-65 NB

During the AM and PM peak hours, the No Build alternative would result in LOS F conditions at the I-80 WB on-ramp and the Stanford Ranch Road on-ramp. The No Taylor alternative would have LOS F conditions at the Stanford Ranch Road on-ramp and the Blue Oaks Boulevard on-ramp in the PM peak hour. The latter location would be a project impact that could be mitigated through more aggressive ramp metering or extending the acceleration lane. All other study facilities on NB SR-65 are projected to operate acceptably.

SR-65 SB

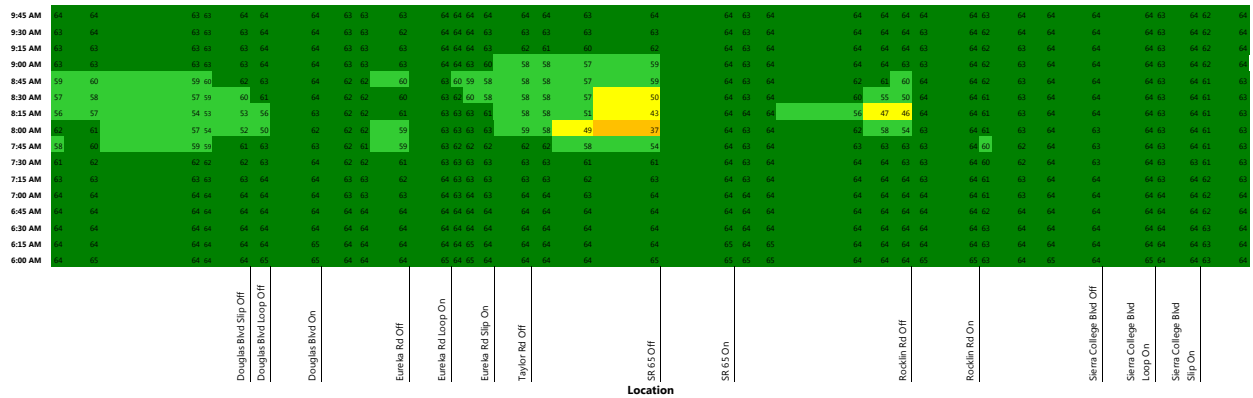
During the AM peak hour, the No Build alternative would result in LOS F operations between Ferrari Ranch Road and Pleasant Grove Boulevard. Figure 50 indicates the travel speed would be less than 20 mph for most of the AM peak period.

The three build alternatives offer significantly less delay and higher travel speeds. The No Taylor and Full Taylor would also operate at LOS F at the Twelve Bridges Drive on-ramp and from Sunset Boulevard to Pleasant Grove Boulevard; however the average densities are less than the No Build alternative. Table 23 indicates the TSM alternative would result in acceptable operations at all study facilities on SB SR-65 during the AM peak hour. The auxiliary lane between Pleasant Grove Boulevard and Galleria Boulevard in the TSM alternative relieves the bottleneck that occurs under the other three alternatives.

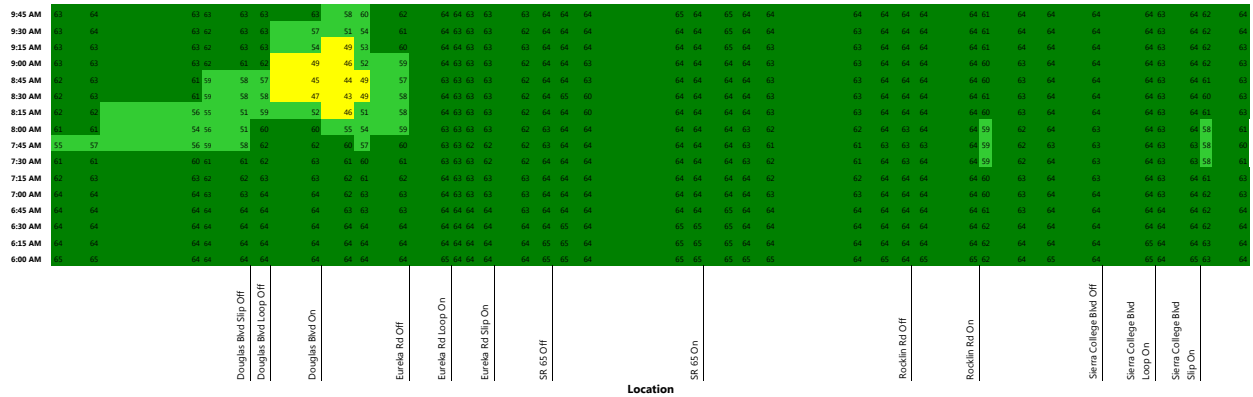
During the PM peak hour, the No Build alternative would have significant delays from Sunset Boulevard to Pleasant Grove Boulevard. The build alternatives would result in acceptable operations at all study facilities on SB SR-65 during the PM peak hour. There are no project impacts under construction year on SR-65 SB.

FIGURE 44 - I-80 EASTBOUND CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

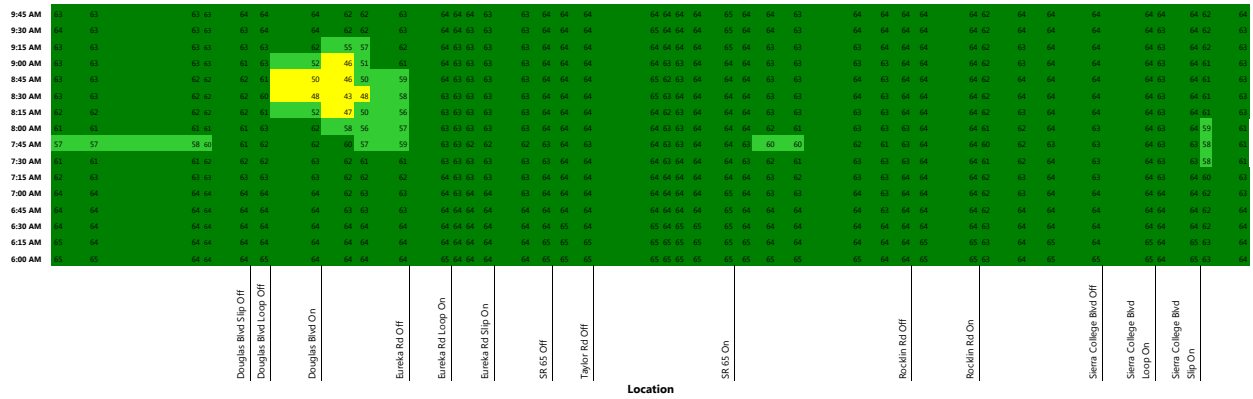
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative

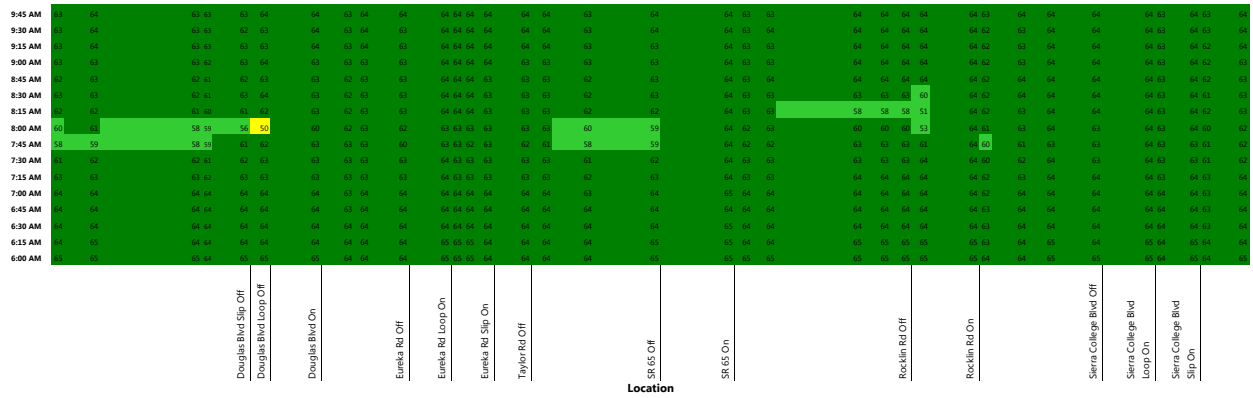
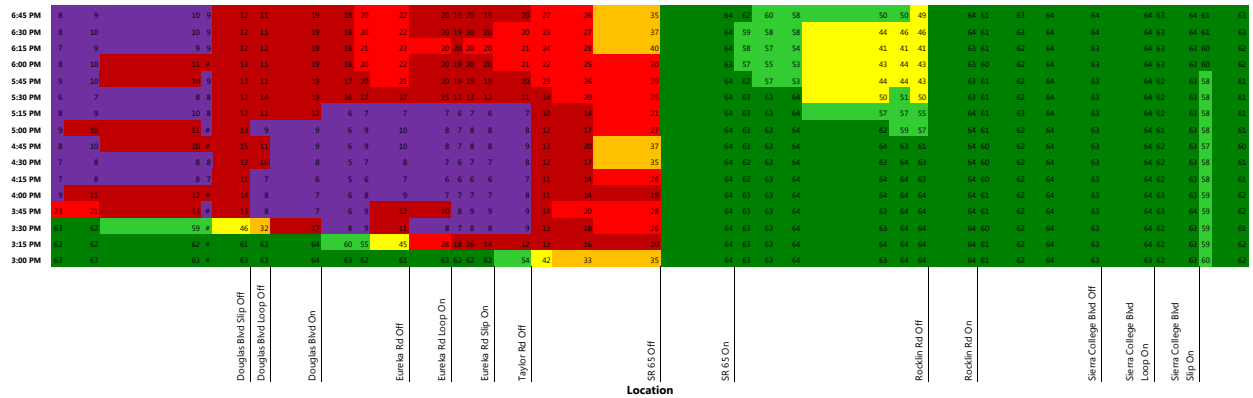
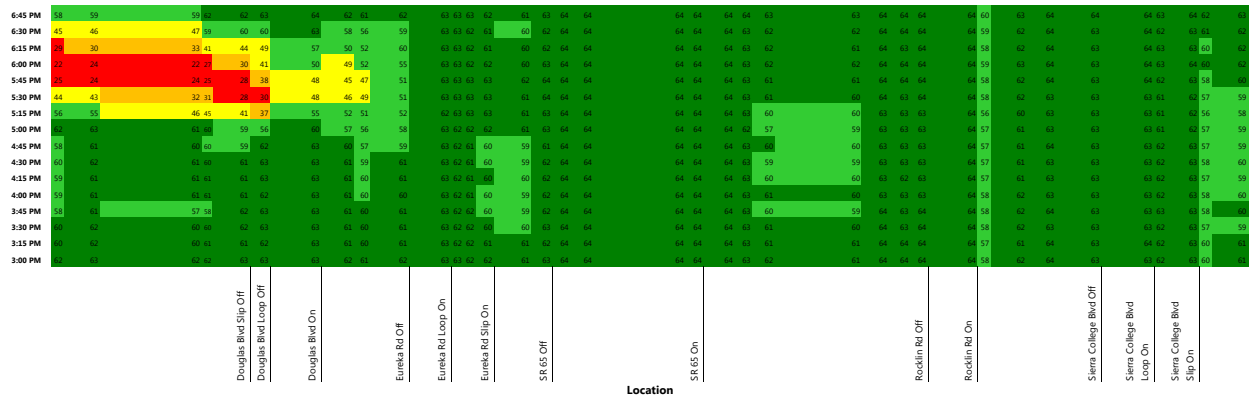


FIGURE 45 - I-80 EASTBOUND CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

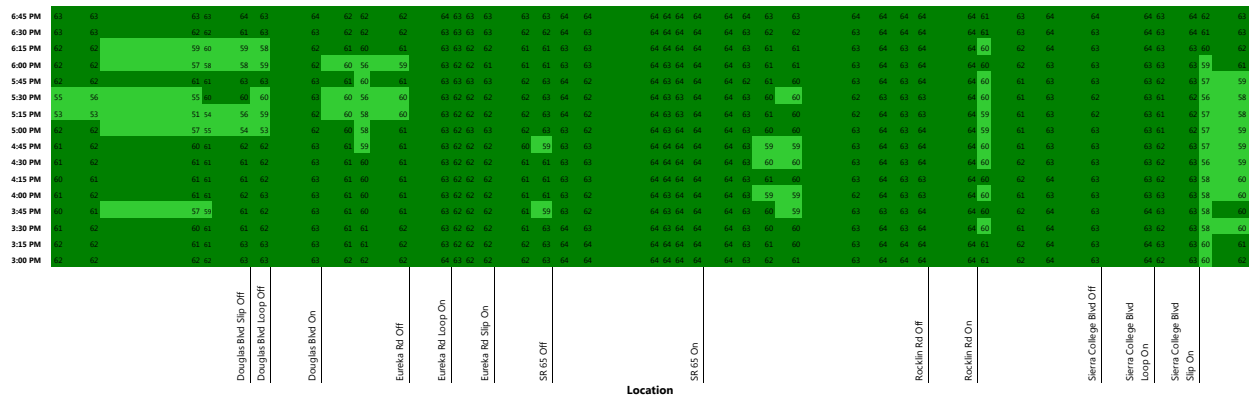
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



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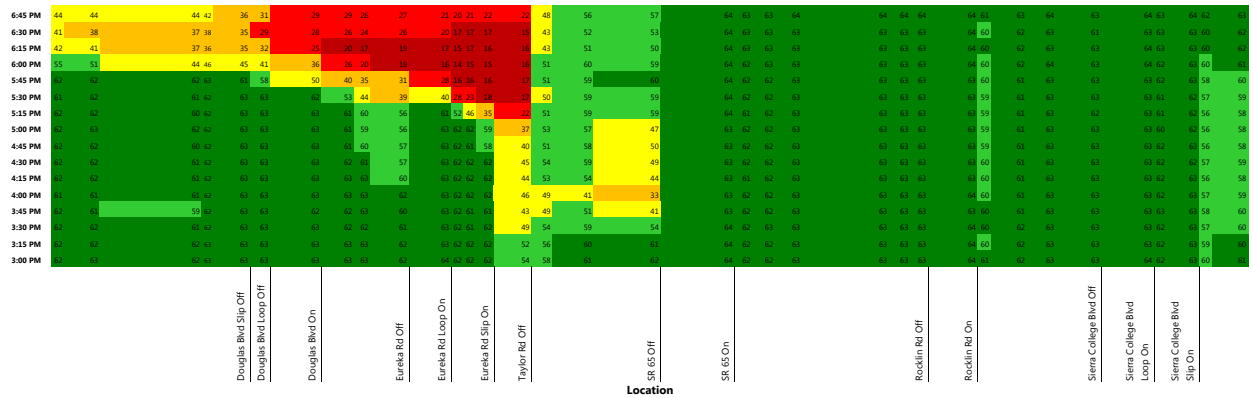
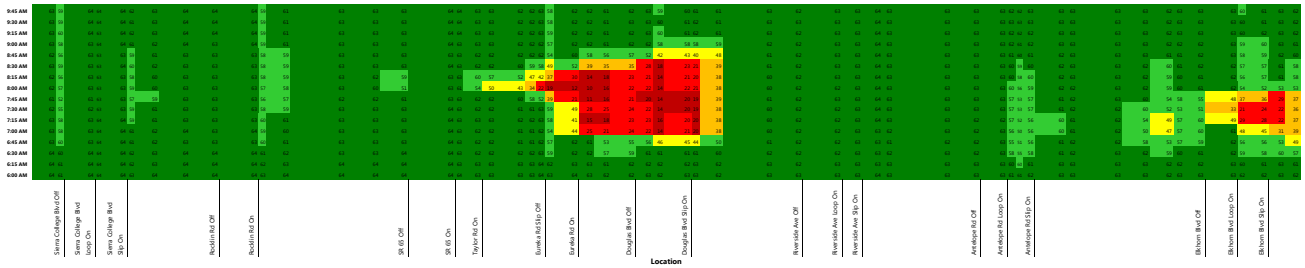
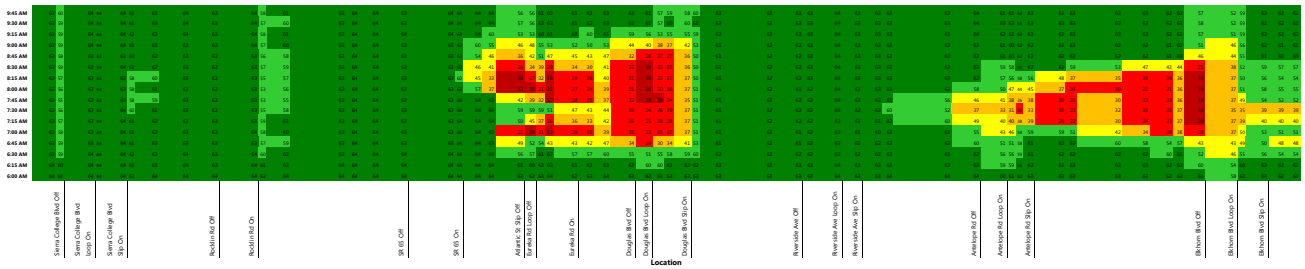


FIGURE 46 - I-80 WESTBOUND CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

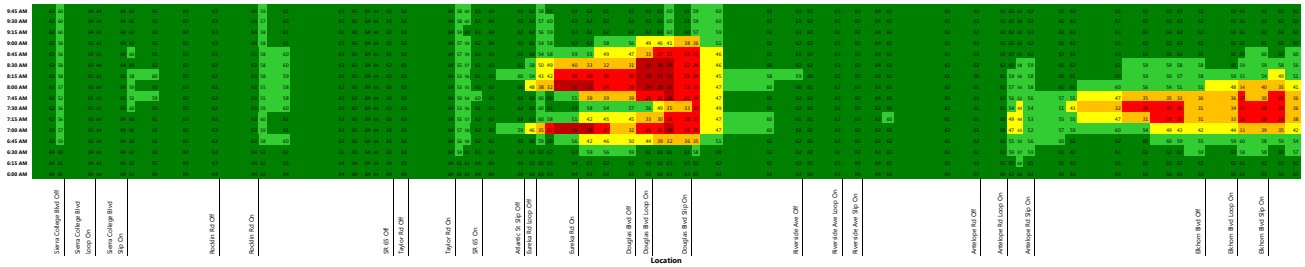
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative

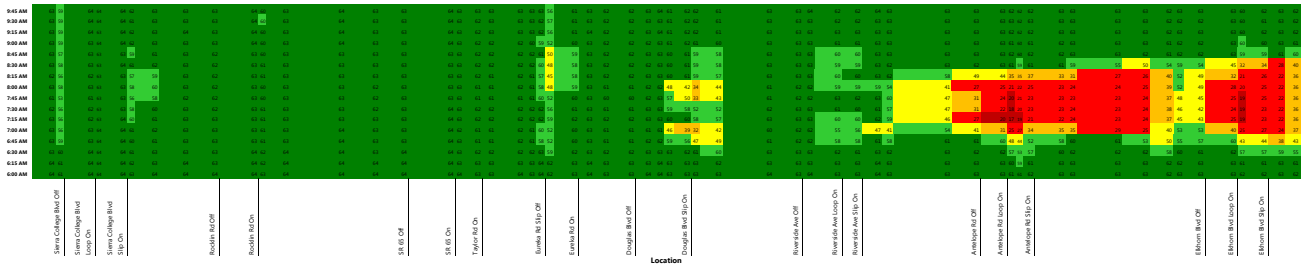
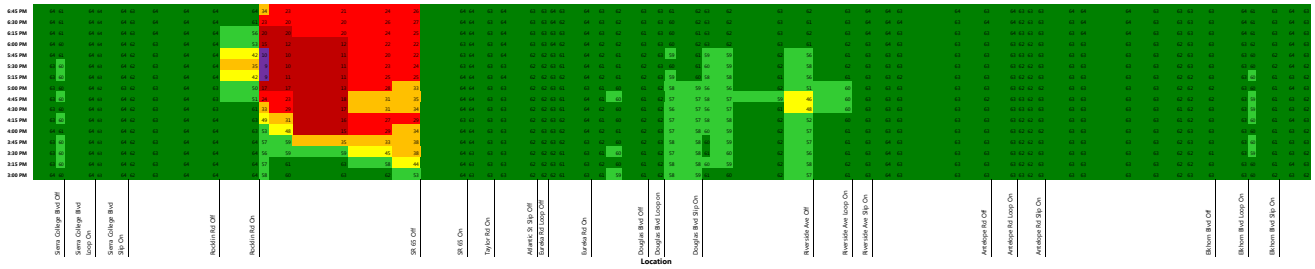
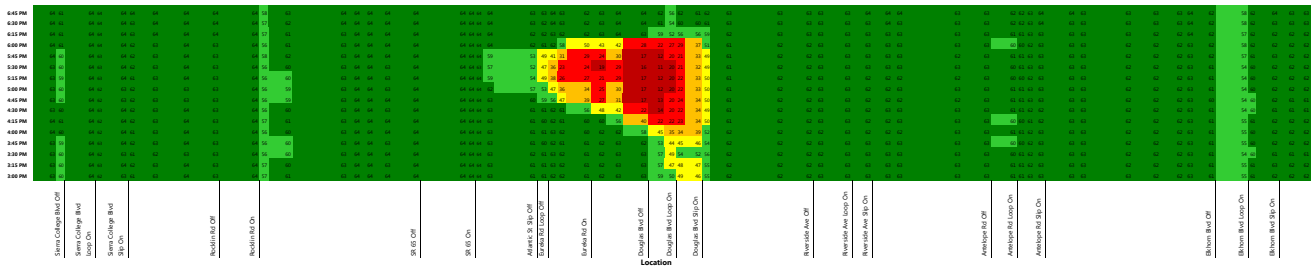


FIGURE 47 - I-80 WESTBOUND CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

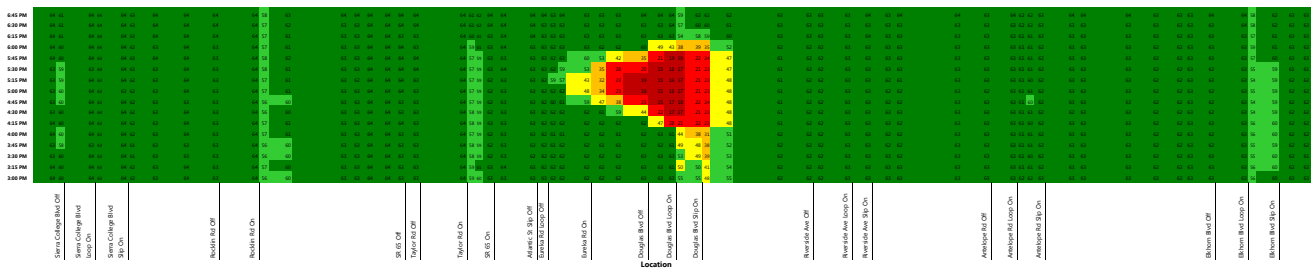
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative

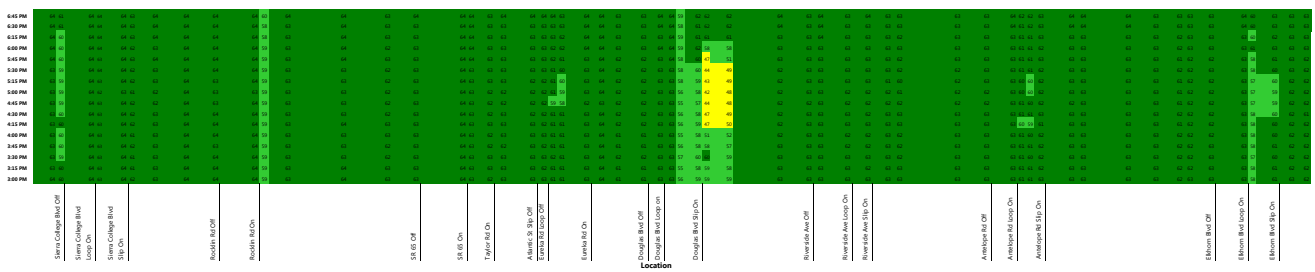
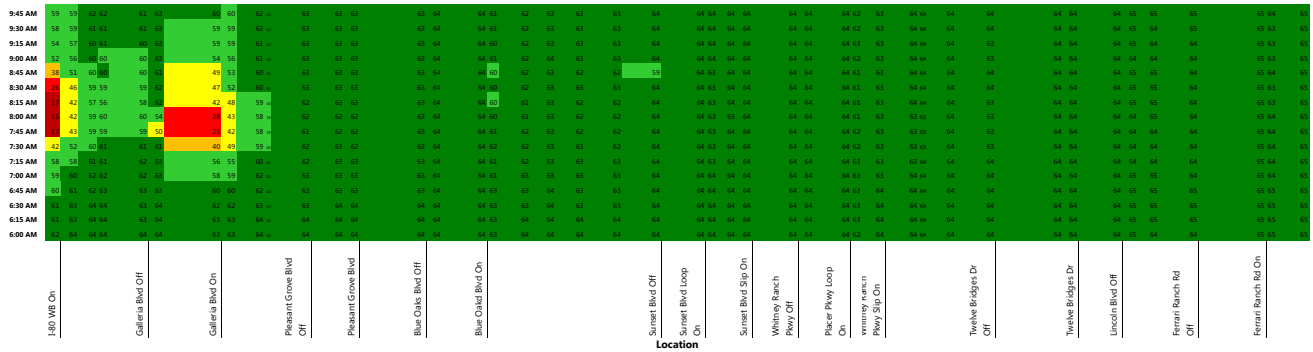
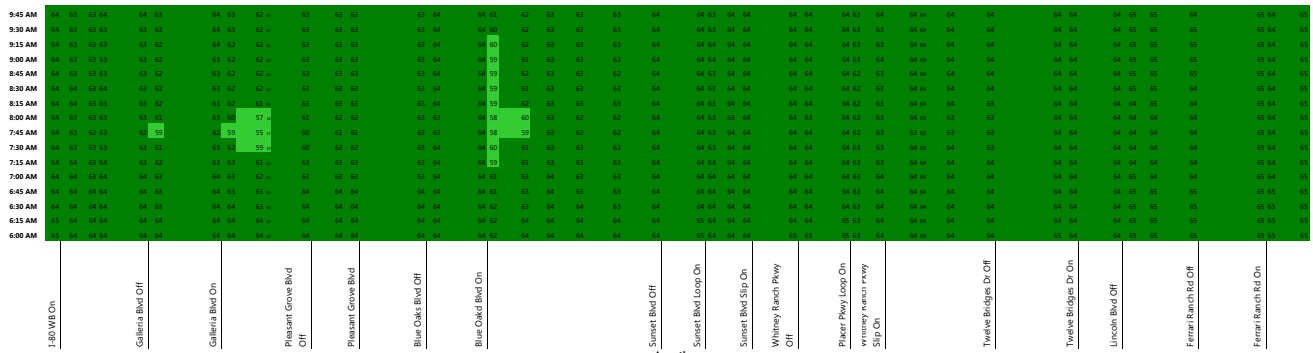


FIGURE 48 - SR 65 NORTHBOUND CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

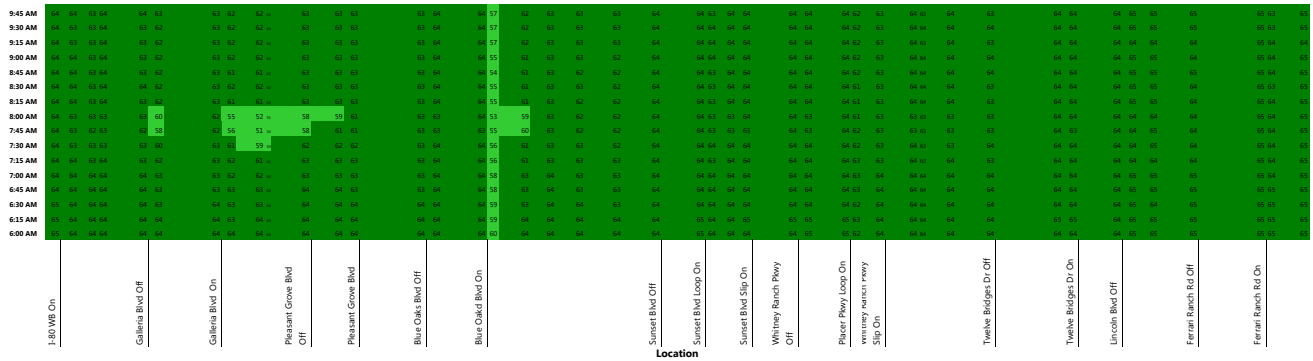
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



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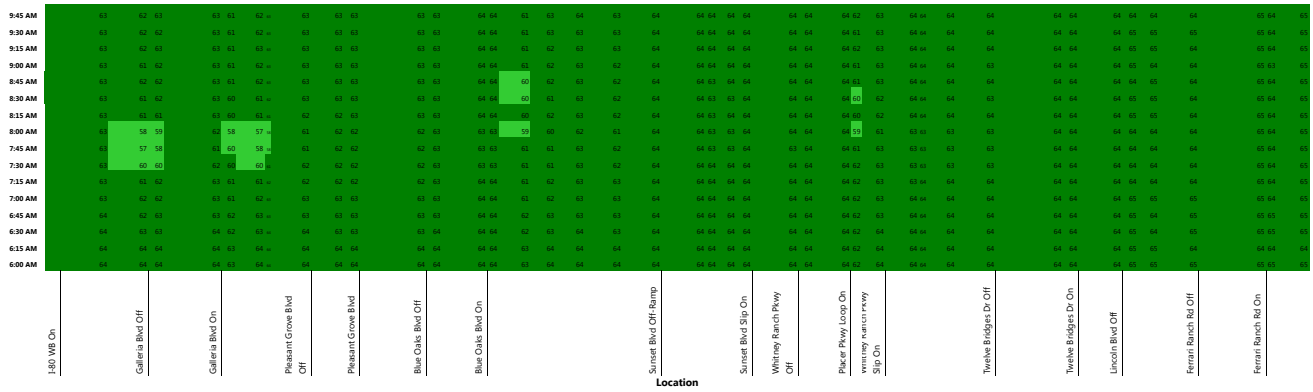
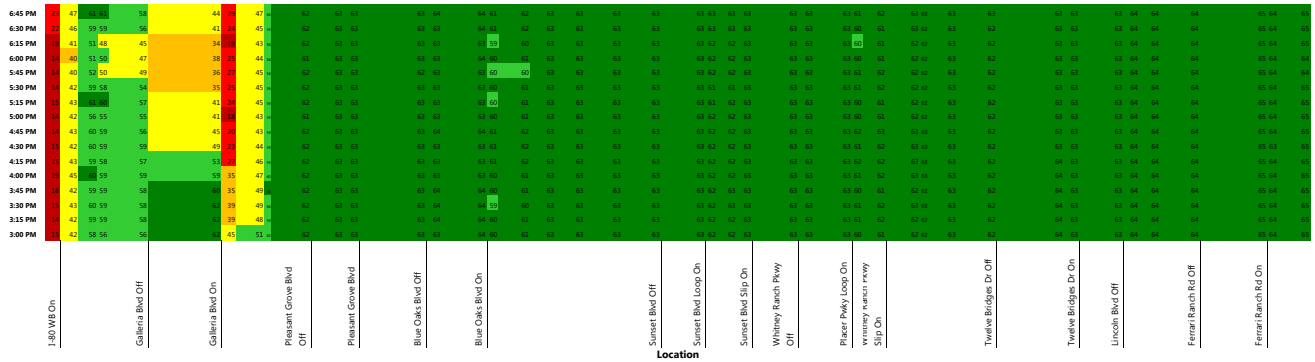


FIGURE 49 - SR 65 NORTHBOUND CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

No Build Alternative



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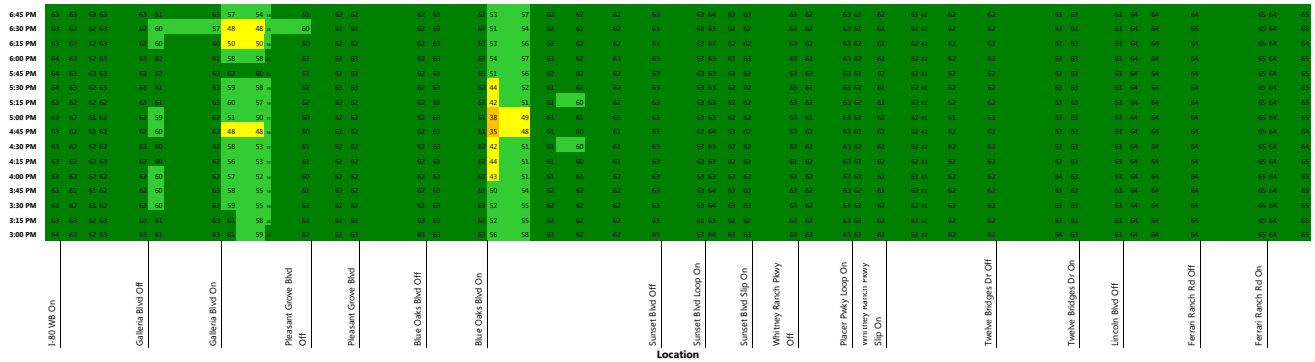
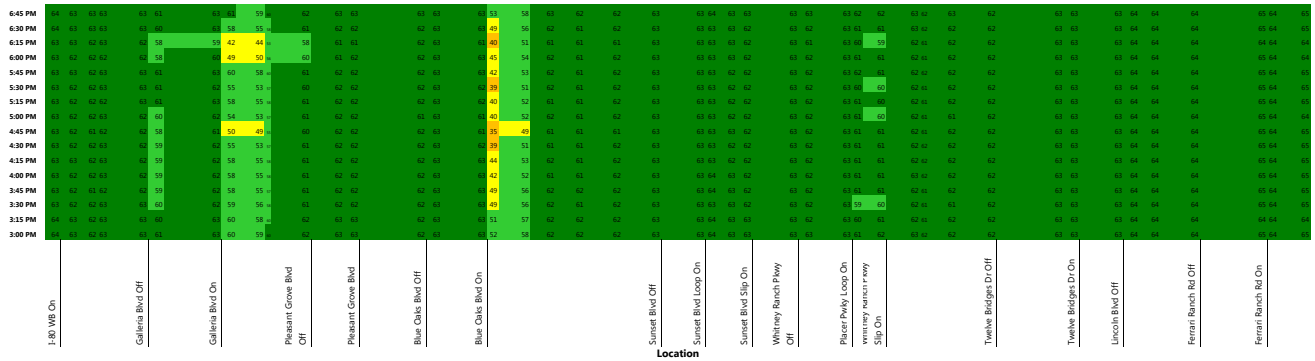


Full Taylor Diamond Alternative



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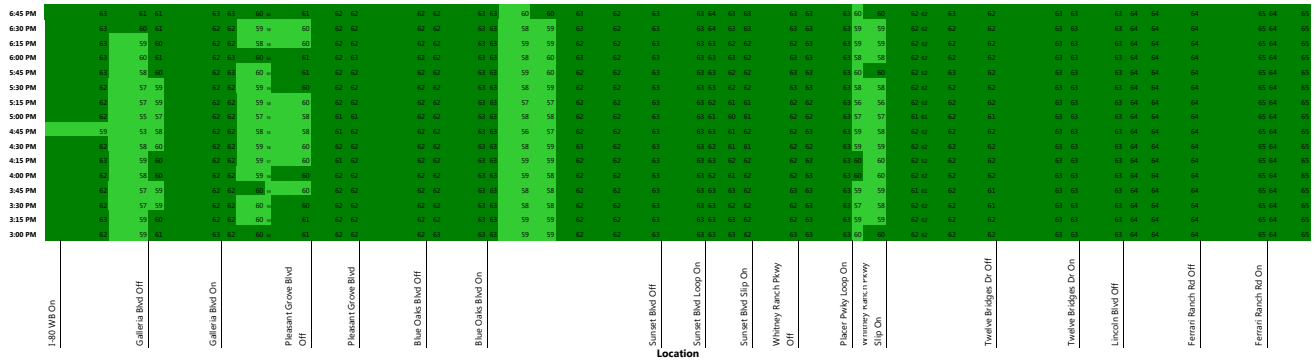
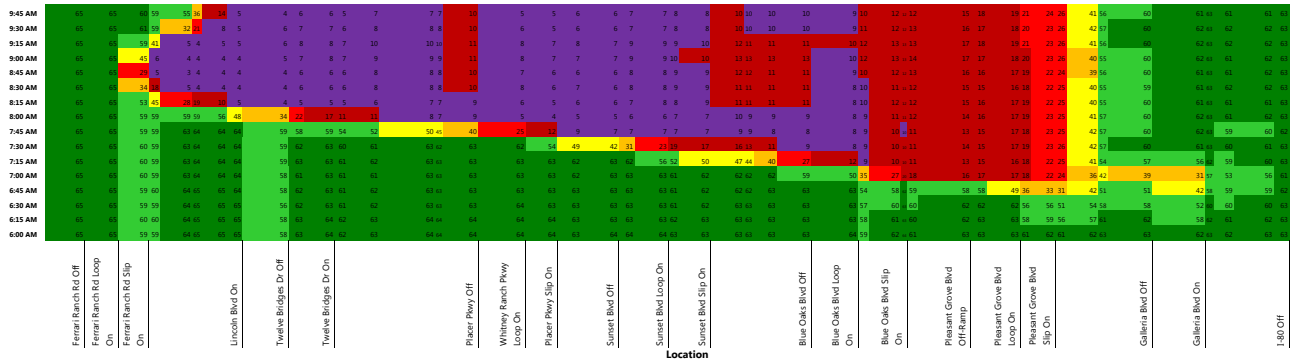
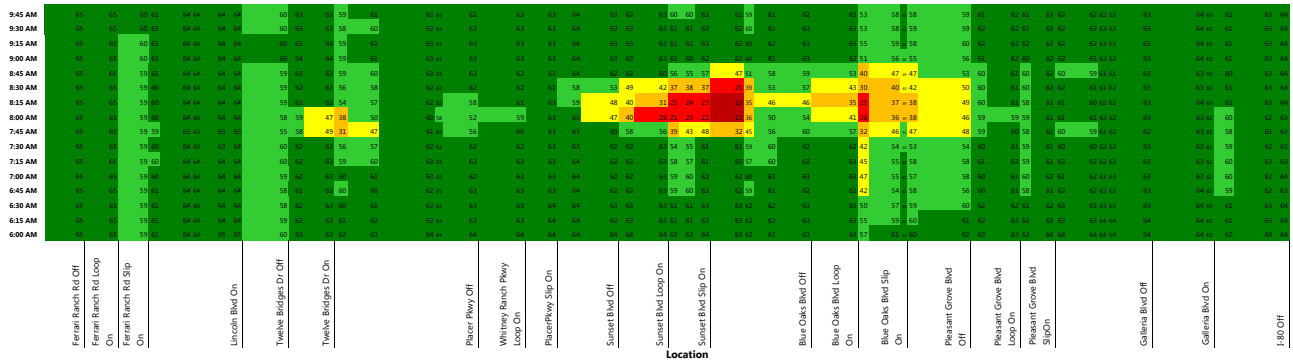


FIGURE 50 - SR 65 SOUTHBOUND CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

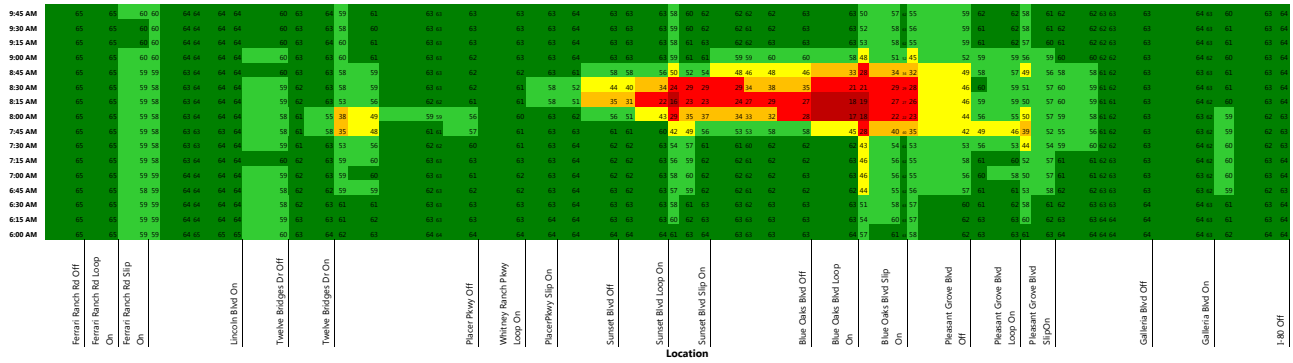
No Build Alternative



No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative

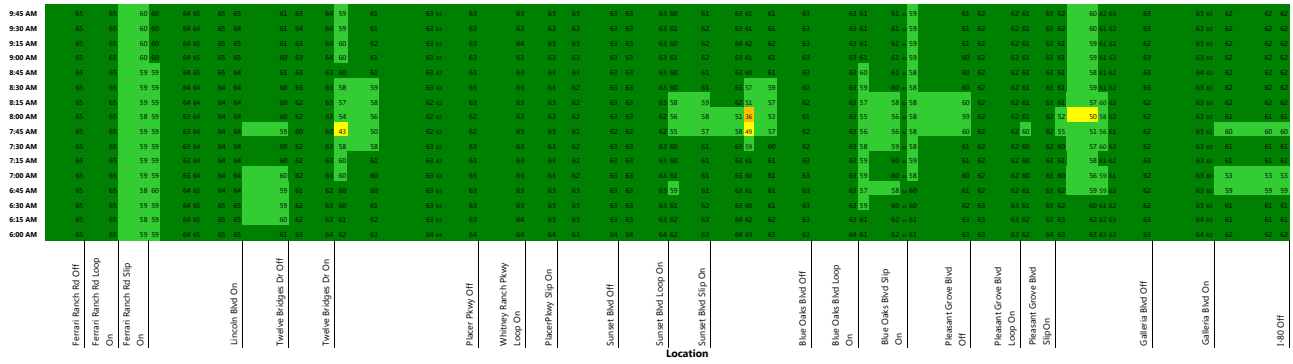
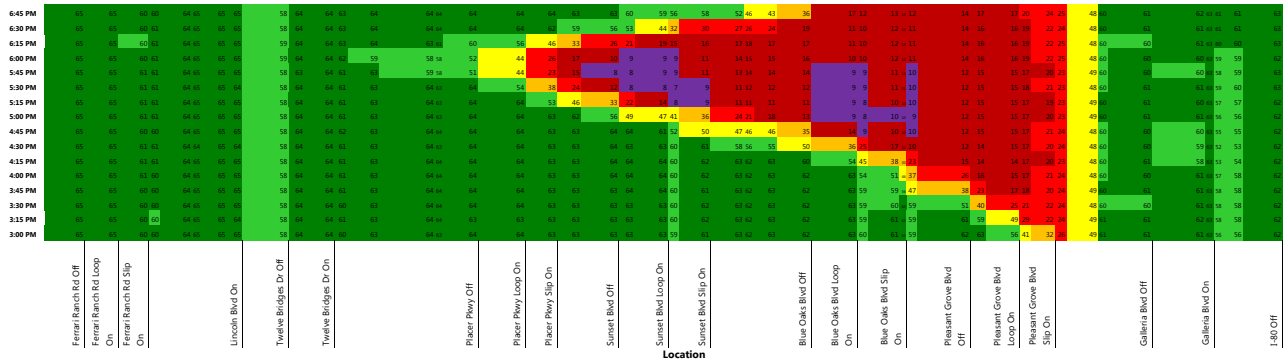
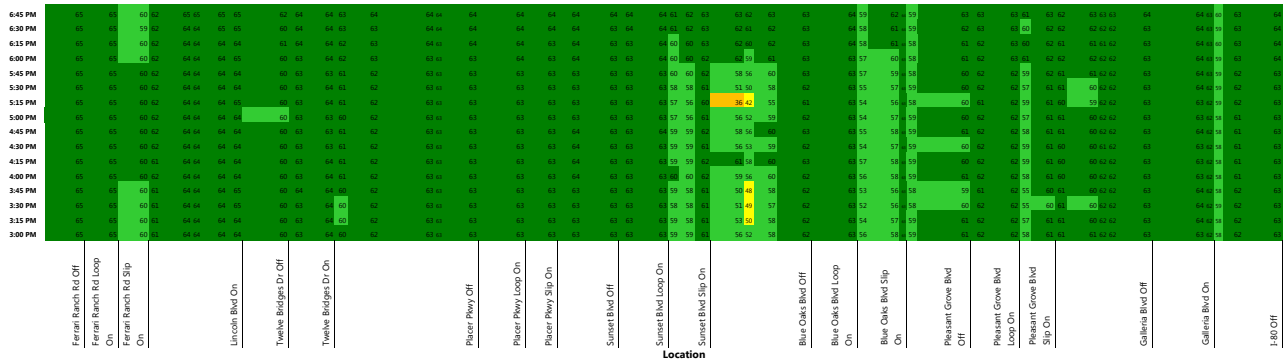


FIGURE 51 - SR 65 SOUTHBOUND CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

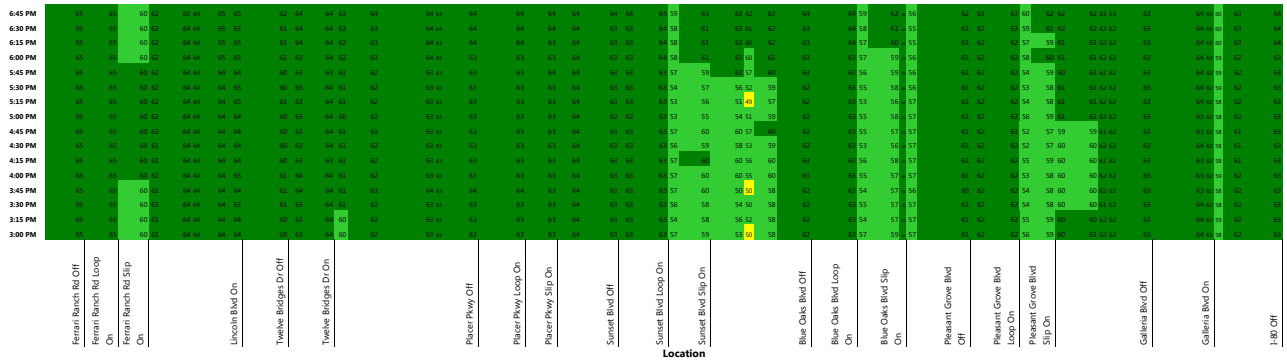
No Build Alternative



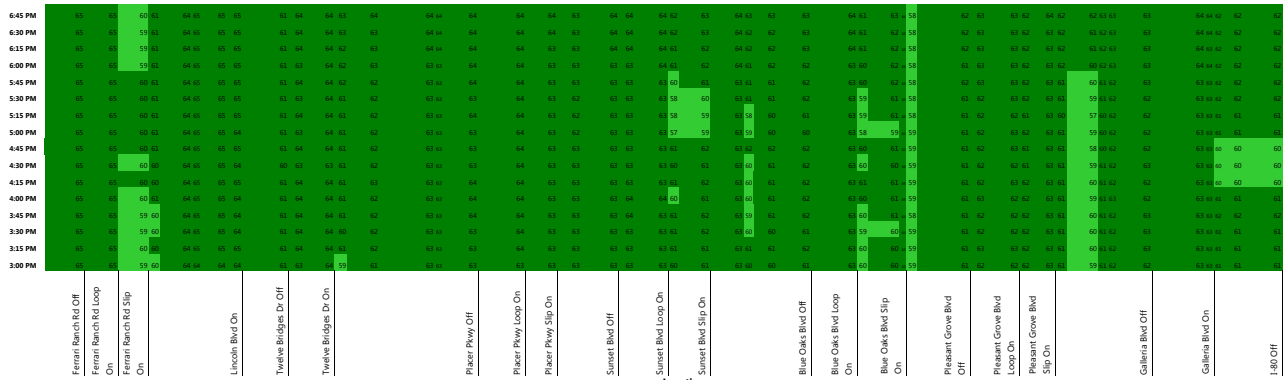
No Taylor Alternative



Full Taylor Diamond Alternative



TSM Alternative



5.2.2. Arterial Intersection Operations

Tables 25 and 26 show the LOS and average delay at key study intersections under design year conditions during the AM and PM peak hours, respectively. Based on the evaluation criteria for this study, the TSM alternative does not result in any intersection impacts, the No Taylor alternative results in four impacts, and the Full Taylor alternative results in one impact. See the Technical Appendix for all study intersection results.

TABLE 25: SELECTED INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Intersection	No Build	TSM	No Taylor	Full Taylor
2. Twelve Bridges Dr / SR-65 SB Ramps	**F / 136**	C / 24	A / 9	C / 24
3. Twelve Bridges Dr / SR-65 NB Ramps	**F / 89**	A / 9	A / 9	B / 20
6. Blue Oaks Blvd / Washington Blvd	**F / 187**	**F / 87**	D / 38	D / 41
14. Roseville Pkwy / Galleria Blvd	D / 36	D / 36	E / 67	D / 41
16. Roseville Pkwy / Taylor Rd	**F / 130**	**E / 66**	**E / 56**	**E / 56**
17. Roseville Pkwy / Sunrise Ave	C / 24	C / 28	E / 69	E / 74
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 22	C / 22	D / 38	C / 25
21. Eureka Rd / Sunrise Ave	C / 25	C / 25	**D / 36**	C / 33
24. Douglas Blvd / I-80 WB Ramps	E / 59	C / 25	C / 22	C / 34
25. Douglas Blvd / I-80 EB Ramps	D / 47	A / 6	B / 11	A / 9
26. Douglas Blvd / Sunrise Ave	C / 30	C / 26	D / 36	D / 38
30. Rocklin Rd / I-80 WB Ramps	D / 37	B / 14	B / 18	B / 18
31. Rocklin Rd / I-80 EB Ramps	**E / 70**	C / 30	C / 25	C / 21
33. Lincoln Blvd / SR-65 NB Off-ramp	**F / 97**	A / 5	A / 2	A / 2
34. Lincoln Blvd / SR-65 SB On-ramp	**F / 229**	B / 13	C / 23	C / 24

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2013

TABLE 26: SELECTED INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

Intersection	No Build	TSM	No Taylor	Full Taylor
1. Lincoln Blvd / Sterling Pkwy	**F / 120**	B / 14	B / 13	B / 13
4. Sunset Blvd / SR-65 SB Ramps	E / 59	A / 6	B / 11	A / 9
5. Sunset Blvd / SR-65 NB Ramps	**F / 113**	B / 11	B / 12	B / 12
6. Blue Oaks Blvd / Washington Blvd	**F / 188**	D / 46	E / 68	E / 77
7. Blue Oaks Blvd / SR-65 NB Ramps	C / 26	B / 13	**F / 105**	E / 56
10. Stanford Ranch Rd / Five Star Blvd	**F / 107**	**F / 95**	**D / 36**	**D / 43**
14. Galleria Blvd / Roseville Pkwy	**F / 227**	E / 56	E / 61	D / 55
15. Roseville Pkwy / Creekside Ridge Dr	**E / 61**	**D / 50**	B / 16	B / 18
16. Roseville Pkwy / Taylor Rd	D / 37	D / 46	D / 51	D / 42
17. Roseville Pkwy / Sunrise Ave	C / 32	D / 40	**F / 134**	E / 62
19. Atlantic St / I-80 WB Ramps	D / 36	C / 25	B / 12	B / 15
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	D / 42	E / 73	D / 53	D / 52
21. Eureka Rd / Sunrise Ave	**D / 49**	**D / 47**	**E / 71**	**E / 63**
23. Douglas Blvd / Harding Blvd	**F / 123**	**F / 113**	D / 37	D / 51
24. Douglas Blvd / I-80 WB Ramps	D / 42	B / 13	D / 49	C / 35
25. Douglas Blvd / I-80 EB Ramps	E / 64	A / 7	D / 41	C / 34
26. Douglas Blvd / Sunrise Ave	**F / 203**	**F / 169**	**E / 74**	**F / 186**
29. Rocklin Rd / Granite Dr	**F / 170**	**F / 105**	**F / 141**	**F / 137**
30. Rocklin Rd / I-80 WB Ramps	**F / 82**	C / 22	C / 24	C / 28
31. Rocklin Rd / I-80 EB Ramps	**F / 115**	C / 28	D / 48	C / 25
32. Rocklin Rd / Aguilar Rd	**F / 229**	C / 25	**F / 142**	B / 16
33. Lincoln Blvd / SR-65 NB Off-ramp	**F / 134**	A / 8	A / 2	A / 2
34. Lincoln Blvd / SR-65 SB On-ramp	**F / 138**	B / 15	C / 29	C / 23

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2013

The following intersections would operate at an unacceptable LOS based on the evaluation criteria under all project alternatives:

- Roseville Parkway / Taylor Road
- Stanford Ranch Road / Five Star Boulevard
- Eureka Road / Sunrise Avenue
- Douglas Boulevard / Sunrise Avenue
- Rocklin Road / Granite Drive

The analysis results indicate these intersections will need significant capacity enhancements with and without the proposed project to operate within the established LOS thresholds for these locations. Before any improvements are proposed though, the interaction between these locations and the rest of the network should be considered. In some cases, the operation of these intersections meters traffic accessing the freeway or contributes to queuing that may extend back onto the freeway. In other locations, improvements to the freeway system, such as an auxiliary lane, may reduce demand and/or queuing that would improve intersection operations.

The TSM alternative would not result in any intersection impacts under construction year conditions. The No Taylor alternative would have impacts at Blue Oaks Boulevard / SR-65 NB Ramps, Roseville Parkway / Sunrise Avenue, and Eureka Road / Sunrise Avenue. The excessive delay at Blue Oaks Boulevard / SR-65 NB ramps is primarily due to LOS F conditions and spillback from the adjacent Blue Oaks Boulevard / Washington Boulevard intersection. As discussed above for the design year, the Blue Oaks Boulevard interchange will require substantial capacity enhancements to accommodate the future traffic demand.

Roseville Parkway / Sunrise Avenue and Eureka Road / Sunrise Avenue experience higher traffic demand under the No Taylor alternative because motorists who are traveling to/from Taylor Road divert to the adjacent interchanges at Eureka Road and Douglas Boulevard to access the freeway. During the PM peak period, traffic under the No Build alternative is constrained from reaching these intersections due to freeway congestion. With the improved freeway operations under the build alternatives, the volume served during the peak hour increases, which leads to higher delays. Additional lanes would be needed at the intersections to accommodate the increase in traffic volume.

Chapter 6. Findings and Conclusions

6.1. Summary of Impacts

The project impacts are summarized below by alternative.

TSM Alternative

- Design Year AM Peak Hour
    - WB I-80: Atlantic Street EB off-ramp, Truck Scales on-ramp, and Elkhorn Boulevard EB on-ramp
    - SB SR-65: Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp and Sunset Boulevard WB on-ramp
    - Intersections: Blue Oaks Boulevard / SR-65 NB Ramps
- Design Year PM Peak Hour
    - EB I-80: Auburn Boulevard on-ramp to Douglas Boulevard WB off-ramp, after the Eureka Road off-ramp to Taylor Road
    - Intersections: Douglas Boulevard / Sunrise Avenue and Rocklin Road / Aguilar Road
- Construction Year AM Peak Hour
    - WB I-80: Riverside Avenue to Elkhorn Boulevard and after the Elkhorn Boulevard off-ramp to Elkhorn Boulevard WB on-ramp
- Construction Year PM Peak Hour
    - WB I-80: Douglas Boulevard EB on-ramp

No Taylor Alternative

- Design Year AM Peak Hour
    - WB I-80: Truck Scales on-ramp to Elkhorn Boulevard
    - NB SR-65: Stanford Ranch Road on-ramp

- SB SR-65: Ferrari Ranch Road to Twelve Bridges Drive on-ramp, Sunset Boulevard WB on-ramp, Blue Oaks Boulevard WB on-ramp, and from Pleasant Grove Boulevard off-ramp to on-ramp
- Intersections: Rocklin Road / Granite Drive

- Design Year PM Peak Hour
  - EB I-80: Douglas Boulevard EB off-ramp
  - NB SR-65: after the Stanford Ranch Road off-ramp to Stanford Ranch Road on-ramp
  - Intersections: Blue Oaks Boulevard / SR-65 NB Ramps
- Construction Year AM Peak Hour
  - EB I-80: Douglas Boulevard on-ramp
  - WB I-80: SR-65 to Atlantic Street, from the lane drop after the Atlantic Street off-ramp to Atlantic Street on-ramp, Douglas Boulevard off-ramp to before the Douglas Boulevard WB on-ramp, and after the Antelope Road off-ramp to before the Elkhorn Boulevard WB on-ramp
  - Intersections: Eureka Road / Sunrise Avenue
- Construction Year PM Peak Hour
  - WB I-80: from the lane drop after the Atlantic Street off-ramp to Douglas Boulevard EB on-ramp
  - NB SR-65: Blue Oaks Boulevard on-ramp
  - Intersections: Blue Oaks Boulevard / SR-65 NB Ramps, Roseville Parkway / Sunrise Avenue, Eureka Road / Sunrise Avenue

<u>Full Taylor Alternative</u>

- Design Year AM Peak Hour
  - WB I-80: Elkhorn Boulevard EB on-ramp

- SB SR-65: Ferrari Ranch Road EB on-ramp to Twelve Bridges Drive on-ramp, after the Sunset Boulevard off-ramp to Sunset Boulevard WB on-ramp, and from Pleasant Grove Boulevard off-ramp to on-ramp

- Design Year PM Peak Hour
  - NB SR-65: after the Stanford Ranch Road off-ramp to Pleasant Grove Boulevard and from after the Pleasant Grove Boulevard off-ramp to Blue Oaks Boulevard
  - Intersections: Blue Oaks Boulevard / SR-65 NB Ramps

- Construction Year AM Peak Hour
  - EB I-80: Douglas Boulevard on-ramp
  - WB I-80: Douglas Boulevard off-ramp to before the Douglas Boulevard WB on-ramp, and after the Truck Scales off-ramp to Elkhorn Boulevard off-ramp

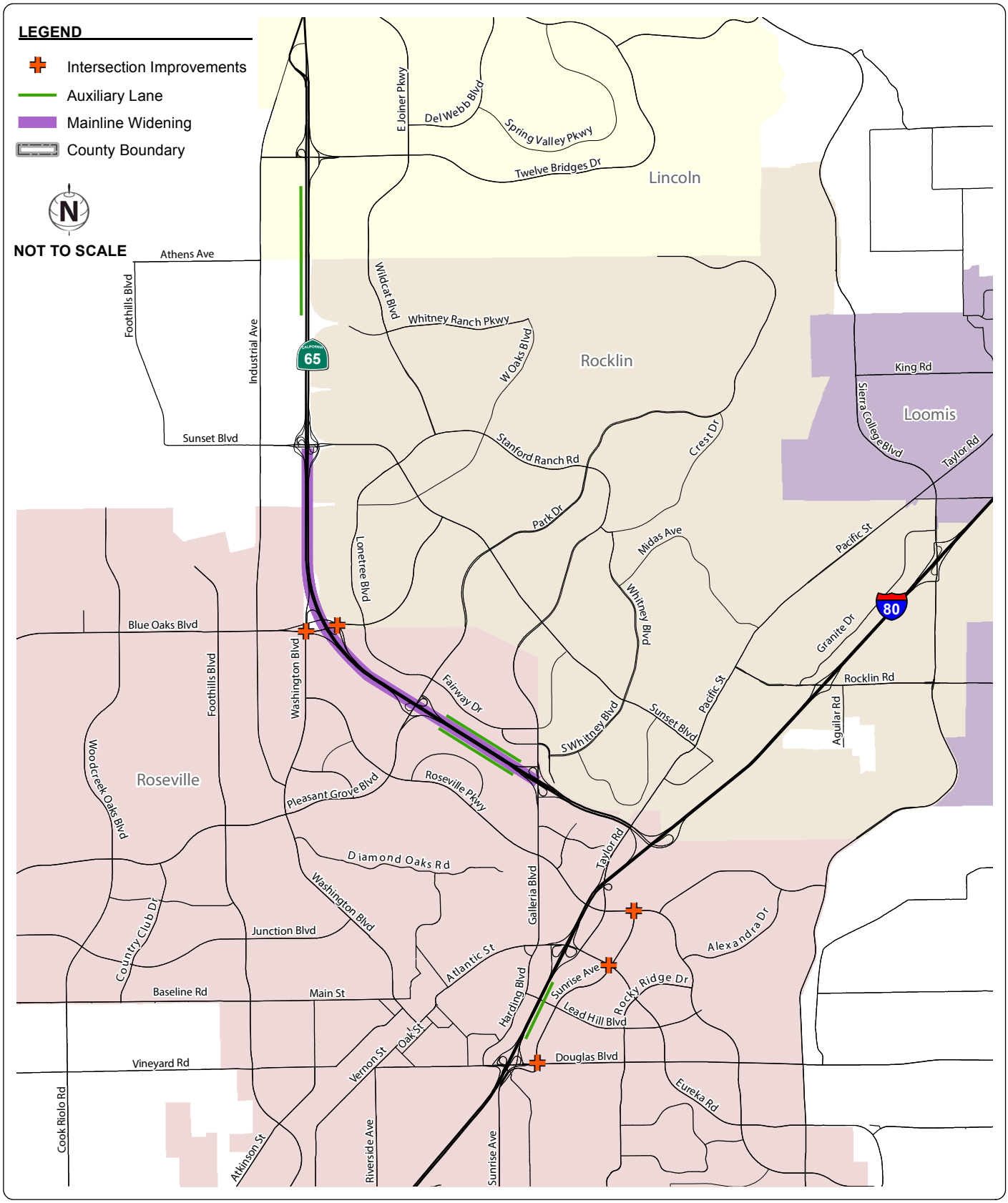
- Construction Year PM Peak Hour
  - WB I-80: Atlantic Street on-ramp to Douglas Boulevard EB on-ramp
  - NB SR-65: Blue Oaks Boulevard on-ramp
  - Intersections: Eureka Road / Sunrise Avenue

6.2. Recommended Project Refinements

The traffic operations results show that even with implementation of the project, bottlenecks will exist on both I-80 and SR-65 under Design Year conditions. While this means that peak hour LOS F conditions would remain, this finding is consistent with the concept LOS for the I-80 and SR-65 corridors. Additionally, peak hour freeway congestion will provide incentives to commuters to carpool, ride transit, and/or adjust trip times such that the transportation system is used more efficiently.

The TSM alternative analysis results demonstrate that auxiliary lanes in key locations can significantly reduce traffic congestion in the peak periods. Auxiliary lanes in the following locations would reduce delays and improve LOS on I-80 and SR-65 under Design Year conditions for all alternatives:

- I-80 EB between Douglas Boulevard and Eureka Road
- SR-65 NB between Galleria Boulevard and Pleasant Grove Boulevard



FEHR PEERS

RECOMMENDED PROJECT REFINEMENTS

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FIGURE 52

- SR-65 SB between Pleasant Grove Boulevard and Galleria Boulevard

The operations results also indicate the need for and auxiliary lane at the following location:

- SR-65 SB between Twelve Bridges Drive and Placer Parkway

The demand volumes on SR-65 establish the need for capacity improvements beyond the planned HOV lanes. The traffic operations results indicate a third mixed-flow lane may be necessary to accommodate the projected growth in Roseville, Rocklin, and Lincoln. The benefit of an additional mixed-flow lane should be carefully weighed against the desired HOV lane operations. The additional mixed-flow lane would decrease congestion in the SR-65 corridor, which would in turn decrease the incentive to carpool.

In addition to mainline improvements, the arterial roadway network will require significant capacity enhancements with and without the proposed project. The study intersections in the following corridors are projected to operate unacceptably under Design Year conditions for all project alternatives.

- Blue Oaks Boulevard
- Sunrise Avenue
- Rocklin Road

The Blue Oaks Boulevard / Washington Boulevard intersection operates at LOS F and causes traffic to spillback into multiple adjacent intersections (such as the Blue Oaks Boulevard / SR-65 NB Ramps intersection) and even onto the SR-65 mainline. The existing interchange does not have sufficient capacity to serve projected growth and is likely to become a serious bottleneck affecting both SR-65 and local arterial operations. Capacity improvement for this interchange and connecting arterials should be studied through the Caltrans project development process to determine the optimal future design that can accommodate the established LOS expectations of Rocklin, Roseville, and Caltrans.

The traffic operations results also indicate that the Sunrise Avenue corridor will experience high levels of delay by 2040 regardless of which project alternative is chosen. All three of the study intersections along the corridor will operate at LOS F: Douglas Boulevard, Eureka Road, and Roseville Parkway. The results demonstrate the need for additional north/south capacity. The auxiliary lane discussed above on EB I-80 between Douglas Boulevard and Eureka Road could help to alleviate congestion on Sunrise Avenue. However, adding an auxiliary lane would cause a shift in travel, such that more vehicles would use Douglas Boulevard and Eureka Road to access I-80. This is evident by the increase in delay at the Douglas Boulevard / Sunrise Avenue intersection

in the TSM alternative. The effects of the auxiliary lane should be carefully examined in a traffic impact study and mitigated as needed.

Lastly, two of the planned roundabouts in the Rocklin Road corridor are projected to operate at LOS F with and without the proposed project. This operations analysis was based on preliminary design plans. The I-80/Rocklin Road project team is still developing the final designs, which will be based on the demand volumes from the I-80/SR-65 project. Therefore, these roundabouts are expected to be designed to provide acceptable traffic operations.

Chapter 7. References

This chapter contains the references cited in the Transportation Analysis Summary Report.

California Department of Transportation, District 3. May 2009. *Interstate 80 and Capital City Freeway Corridor System Management Plan*.

California Department of Transportation, District 3. May 2009. *State Route 65 Corridor Systems Management Plan*.

California Department of Transportation. 2002. *Guidelines for Applying Traffic Microsimulation Modeling Software*.

California Department of Transportation. Traffic Accident Surveillance and Analysis System. January 1, 2008 – December 31, 2010.

California Transportation Commission. 2010. *2010 California Regional Transportation Guidelines*.

Cervero, R. August 2002. *Induced Travel Demand: Research Design, Empirical Evidence, and Normative Policies*.

City of Lincoln. March 2008. *City of Lincoln General Plan*.

City of Rocklin. April 1991. *City of Rocklin General Plan*.

City of Roseville. May 2010. *City of Roseville General Plan*.

Federal Highway Administration, 2004. *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software*.

Sacramento Area Council of Governments. 2011. *2035 Metropolitan Transportation Plan / Sustainable Communities Strategy*.

Transportation Research Board. 2011. *Highway Capacity Manual*.

I-80/SR 65 Interchange Improvements

Traffic Focus Meeting Minutes

Technical Traffic Team Meeting – July 30, 2013 Summary

Attendees
Jim Calkins, Caltrans,
Christine Zdunkiewicz, Caltrans
Mike Smith, Caltrans (by phone)
Keith Mack, Caltrans
Leo Heuston, CH2MHill
Lauren Proctor, CH2MHill
Ron Milam, Fehr & Peers,
David Stanek, Fehr & Peers,
Katie Jackson, Fehr & Peers

General Observations

Fehr & Peers started the meeting with an overview of the modeling and analysis process. This included walking through the steps to develop, calibrate, and validate the various models as well as to obtain project develop team (PDT) approval on key inputs or estimates used in the modeling process. Attendees agreed that the process followed a state of the practice approach to addressing a complex project in a congested area. Fehr & Peers also asked if any new data or evidence was available that would justify specific model input changes. Attendees agreed that none was available.

At this stage in the process, the comments being raised are largely due to the traffic operations analysis showing acceptable performance despite portions of the project not meeting desired design thresholds. It was recognized that the design thresholds have been established based on multiple objectives that include traffic operations as well as safety. So, even if traffic operations are projected to perform well, the analysis does not provide a complete picture about potential safety concerns. This is where consistency with design thresholds helps to fill out the picture.

Based on the comments, the weaving section lengths being shorter than the design thresholds appeared to raise the biggest concerns. Fehr & Peers explained that the acceptable traffic operations in the weave sections, especially in the eastbound (EB) direction between Eureka Road and SR-65 was largely due to a limited number of lane changes projected to occur in the weave section. For example, 70 percent of the PM peak hour trips entering the EB I-80 from the Eureka slip on-ramp are destined for SR-65 NB. Only about 420 vehicles are making lane changes to access EB I-80. This is a direct result of the socioeconomic projections that show little growth to east and substantial growth the north and northwest in Rocklin, Roseville and Lincoln. Since the traffic operations outcome in this weave section is dependent on the socioeconomic forecasts and resulting travel patterns, Fehr & Peers recommended that sensitivity analysis be performed to understand how different future scenarios could affect weave section operations.

Fehr & Peers reported on research they have been conducting with Robert Bain, a toll and revenue forecasting expert from England, about the uncertainty in future year forecasts. Robert's research suggests that a 25+ year forecast could have an error range of plus or minus 40 percent. During the meeting, Fehr & Peers tested this level of change in the weaving input volumes using the Leisch weaving analysis method. The results remained acceptable. This test was just one of a few that Caltrans suggested should be conducted to understand how different splits in weaving traffic volumes could affect traffic operations. Fehr & Peers agreed to perform the following tests.

- Use the Leisch method to test 40 percent and 100 percent increases in the weaving volumes for EB and WB weaving sections between Eureka/Atlantic and SR-65. This analysis will focus on the AM peak hour for the WB direction and PM peak hour for the EB direction. The total freeway mainline volume for this analysis will rely on the 'demand' forecasts and not potentially constrained volumes that could occur due to upstream bottlenecks.

In addition to these tests, Fehr & Peers will also complete the following investigation and model refinements. Note that some of these refinements were already previously agreed to for purposes of finalizing the transportation analysis report.

- Test the removal of the WB slip off-ramp to Atlantic Street. This test will be based on AM peak hour volumes for the No Taylor Alternative. Fehr & Peers will assess the effect on the WB weaving section between SR-65 and Atlantic Street as well as the effect on the ramp terminal intersection operations including off-ramp queuing from the signal and impacts to the adjacent intersections.

- Revise truck routing in the VISSIM model to ensure trucks remain on prescribed routes.

- Revise the I-80/Rocklin Road interchange to maintain the current tight diamond configuration with minor modifications to account for future signal coordination and ramp widening associated with increased storage. This change will be subject to PDT approval.

- Revised the EB off-ramp to Eureka Road to include two-lanes with a continuous auxiliary lane to the Douglas Boulevard on-ramp for the No Taylor alternative.

- Update the VISSIM post-processor to report off-ramp queue lengths.

- Add the optional EB exit lane (fourth through lane) at the NB SR-65 off-ramp for the Full Taylor alternative.

The final discussion item was an overview of two new alternatives created by the design team. Both had merits in that they increased the weaving section lengths. Some comments on potential refinements were shared, but both alternatives are still very early in the design process and it's not clear whether any additional alternatives will be formerly added to the process. If they are, Fehr & Peers would need to prepare a formal analysis for inclusion in the transportation analysis report. Based on the new designs largely increasing weaving lengths, the general consensus was that traffic operations would likely improve and the decision to move forward with these concepts would be based on what is preferred from a design and safety perspective rather than traffic operations.

David Stanek

From: David Stanek
Sent: Wednesday, September 18, 2013 1:20 PM
To: Leo.Heuston@CH2M.com; lmcneel-caird@pctpa.net; Calkins, Jim W@DOT (jim.calkins@dot.ca.gov); D Michael Smith (d.michael.smith@dot.ca.gov); Lauren.Proctor@ch2m.com; William Mack (william_mack@dot.ca.gov)
Cc: Ronald Milam; Chris.Benson@CH2M.com; Christine Zdunkiewicz (christine_zdunkiewicz@dot.ca.gov); cynthia_d_smith@dot.ca.gov; Katie Jackson
Subject: I-80/SR-65 Traffic Focus Meeting 9-11 Notes

Thanks to everyone that participated in the traffic team meeting on Wednesday, September 11. Here is our summary of the meeting outcomes.

1. The purpose of the meeting was to discuss the outstanding traffic comments and vet the responses provided by the project team. CH2M HILL provided a master list of comments for the group to discuss. The two outstanding comments were the initial focus of the meeting. These comments are Item No. 14 and Item No. 21 in the attached summary table.

2. For Item No. 14, final input from Caltrans forecasting had not been received prior to the meeting. Initial indications suggested the forecasts were acceptable. The group discussed what potential changes could occur in the forecasts and agreed that the main concern was what would happen if the weaving volumes changed in the I-80 EB weaving section between Eureka and SR-65. In response, Dave Stanek discussed the weaving sensitivity analysis for this location. The results showed that the current forecasts included 73 percent of the on-ramp traffic from Eureka destined for NB SR-65. This percentage matches expectation given the current split and where growth is planned to occur. This volume would have to reduce to 37 percent for LOS F conditions to occur in the weaving section. **Based on the discussion, Caltrans agreed that the current forecasts are acceptable**.

   During the discussion of this item, Dave Stanek reviewed all of the weaving sensitivity tests (see attached spreadsheet containing sensitivity results). In four of the five cases (all based on the No Taylor Alternative), the proposed design allowed for higher traffic volumes or different weaving volume distributions before LOS F would occur. The one exception occurred on EB I-80 between Douglas and Eureka. Even with the two-lane off-ramp at Eureka and continuous auxiliary lane extending back to Douglas, this weaving section had LOS F conditions according to the Leisch method. Dave pointed out that the Leisch method is conservative in that it uses freeway capacity estimates of 1,900 vehicles per lane instead of the higher 2010 HCM value of 2,400 although truck percentage and other geometric features are not accounted for in the Leisch Method. Further, the Leisch Method is a deterministic method that does account for driver behavior or vehicle performance. **As such, the VISSIM results are a more accurate representation of expected results**.

3. For Item No. 21, the VISSIM sensitivity tests showed that the EB I-80 weaving section between Douglas and Eureka operates acceptably using current driver behavior settings or using more aggressive drivers for the No Taylor Alternative with the two-lane off-ramp to Eureka. If less familiar or less aggressive driver inputs are used, then vehicle queuing occurs in the right-hand freeway lanes as vehicles move over early in anticipation of exiting to NB SR-65. **The group agreed to keep the current driver behavior settings for the analysis but to include all of the sensitivity tests in the technical appendix of the traffic report**.

   Other observations from the VISSIM tests revealed that the two-lane EB off-ramp to Eureka Road may require changes in signal timings on Eureka Road or dual left-turn lanes on the off-ramp approach to reduce off-ramp queuing. The two-lane off-ramp is only proposed to be constructed as part of the No Taylor Alternative and the new Braided Ramp Alternative. **As noted in the summary comment table, the two-lane off-ramp will be analyzed as a sensitivity test for Full Taylor Alternative so its effect on traffic operations can be documented in the traffic report.**

4. Dave Stanek also shared the results of the sensitivity tests for eliminating the WB slip off-ramp to Atlantic Street. The freeway mainline and ramp junctions would continue to operate acceptably and the ramp terminal intersection could accommodate the change in traffic volumes without causing queuing or other problems on the loop off-ramp. **The group discussed that the project does not include this change in any of the build alternatives but none of the designs would preclude it in the future if was deemed necessary.**

5. Jim Calkins asked about metering of the WB I-80 off-ramp to NB SR-65. The group acknowledged that metering the WB I-80 off-ramp to NB SR-65 could be done now and would help reduce the queuing that occurs on EB I-80 during the p.m. peak period. **However, the ramp meter is not needed in the future with the proposed project based on the traffic operations analysis for 2040. Caltrans confirmed that metering the WB I-80 off-ramp to NB SR 65 does not need to be included in the I-80/SR 65 project alternatives.**

If you have any comments or suggestions, please let me know.

Thanks,
Dave

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Traffic and Design Review Comment and Response Summary

ITEM NO.	BY	DATE	Ref Doc	COMMENT	BY	DATE	RESPONSE/CLARIFICATION	DATE	RESOLUTION
Responses and comments to Traffic Report and Design Review7/22/13									
1	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	1) The lack of weave turbulence in year 2040 on EB I-80 approaching Rt-65 does not seem realistic. A more realistic traffic model provides the tools needed to assess the alternatives.	F&P	8/1/2013	Based on the 7.30.13 meeting with Caltrans, no new data or evidence is available that indicates the 'lack of weave turbulence' is not realistic. The comment was largely due to the weaving length being shorter than the desired design threshold and wanting to understand why this did not have a greater influence on traffic operations. A review of the weaving volumes suggests that the model results match expectations since actual weaving movements are limited. Most of the traffic entering the freeway from the EB Eureka on-ramps is destined for NB SR-65 (i.e., 70%) so drivers do not require a lane change. Hence, actual weaving movements involving lane changes are limited through this freeway section. Despite the acceptable traffic operations, traffic safety may still be a concern. The interchange spacing design guidance is based on both operations and safety concerns. Longer weave lengths are preferable to help reduce speed differentials and allow sufficient reaction time for lane changes. The proposed design attempts to balance operations, safety, right-of-way take, and environmental impacts. The simulation model shows that drivers exhibiting behavior similar to current conditions would likely navigate the proposed weaving section without creating operational problems, but this model cannot predict collision probability		See item 14 (comment 1) below. No additional response here.
2	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	2) The lack of weave turbulence could be due to modeling assumptions and these assumptions should be changes to reflect more realistic/accurate conditions (higher traffic load).	F&P	8/1/2013	A sensitivity test of the simulation model with less aggressive driver behavior shows the potential for congestion at the Eureka Rd overcrossing. Vehicles would overload the rightmost lane between the Eureka Rd off-ramp and loop on-ramp resulting in congestion. However, this may not be realistic since drivers would adjust over time to wait to make the lane change until farther downstream. It also may not be realistic since the simulation model was calibrated to current driver behavior. If congestion increases in the future, drivers would likely become more aggressive. Therefore, we also tested what happens with more aggressive drivers and the results were similar to the base case. Minimizing the potential for congestion in the weave area can be best accomplished by increasing the weaving length or removing lane change movements.		See Item 18 (comment 5) below. No additional response here.
3	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	3) This can be done by including the follow improvements to EB I-80 and eliminating upstream bottlenecks that constrict EB I-80 traffic from reaching Rt-65. (see comments 4, 5 and 6 for improvements suggested)	F&P	8/1/2013	The Leisch Method analysis of the demand volumes – not the constrained volumes that the simulation model uses – also do not show an operational constraint. Even increasing the weaving volumes by 40 percent did not create operational deficiencies, but additional sensitivity tests will be conducted • Use the Leisch method to test 40 percent and 100 percent increases in the weaving volumes for EB and WB weaving sections between Eureka/Atlantic and SR-65. This analysis will focus on the AM peak hour for the WB direction and PM peak hour for the EB direction. The total freeway mainline volume for this analysis will rely on the 'demand' forecasts and not potentially constrained volumes that could occur due to upstream bottlenecks.		See item 15 (comment 2) below. No additional response here.
4	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	4) The 2040 traffic model should include auxiliary lanes in both directions on I-80 between Auburn/Riverside and Douglas. These lanes were proposed by Placer County and are a realistic and probable improvement. The model needs to show the addition load they would send to Rt-65 on EB I-80.	F&P	8/1/2013	An additional lane in the eastbound direction between Riverside Ave and Douglas Blvd is not a proposed project (although the westbound lane is).		Complete. During the 7/30/13 meeting, Caltrans Ops representatives confirmed that it should not be added to the model unless it is a planned project
5	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	5) The 2040 traffic model should include two lanes for the Eureka off-ramp on EB I-80. Improvements to this off-ramp have been proposed in the past and are a realistic and probable improvement. The model needs to show if the bottleneck would be eliminated and any additional addition load it would send to Rt-65.	F&P	8/1/2013	The most recent model [for the No Taylor Alternative] (July 2013) includes the two-lane off-ramp to Eureka Rd. The results continue to show acceptable operations in the eastbound weave section between Eureka Rd and SR-65. This refinement to the model will be reflected in the final report.		See Item 21 (comment 8) below. No additional response here.

Traffic and Design Review Comment and Response Summary

ITEM NO.	BY	DATE	Ref Doc	COMMENT	BY	DATE	RESPONSE/CLARIFICATION	DATE	RESOLUTION
6	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	6) The revised model should also be able to show the new impacts with and without the Taylor Road Interchange.	F&P	8/1/2013	To date, we have only tested the Design Year No Taylor PM model, but the other models will be revised.	8/16/2013	Agreed.
7	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	7) The lack of traffic volume using the EB I-80 Eureka on-ramp vs. the new Taylor Road Interchange seems skewed and should be revised. Too much traffic is using Taylor Road.	F&P	8/1/2013	In the Design Year PM peak hour, the on-ramp volume at Eureka Rd under the No Taylor Alternative is 310 vehicles at the loop on-ramp and 1,420 vehicles at the slip on-ramp. The Full Taylor Alternative has 150 vehicles at the new Taylor Rd on-ramp. The Eureka Rd on-ramp volumes decrease only by 40 (to 300 and 1,380, respectively) compared to the No Taylor Alternative. The remaining 110 vehicles are predicted to use other routes under the No Taylor Alternative due to the different access. If the Eureka Rd on-ramp volumes were higher in the Full Taylor Alternative (i.e., held constant from the No Taylor Alternative), the EB weaving section between Eureka and SR-65 would still operate acceptably. As part of the sensitivity tests described above, we'll also test a scenario where the on-ramp volumes are increased above the No Taylor Alternative level.	8/16/2013	Agreed.
8	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	8) The HOV lane volumes seem high and a lower HOV percentage rate in the model would increase volumes in mixed flow lanes. This should be considered.	F&P	8/1/2013	During the meeting, we reviewed the HOV volumes and percentages of mainline traffic. Caltrans confirmed that the percentages were all towards the lower end of the range when compared to other corridors in District 3. Since all of the forecasts were developed following a state of the practice methodology and were reviewed and approved by the PDT, this final check affirms that the forecasts are acceptable.	8/16/2013	Agreed 11) Under the direct responses to previous Caltrans comments, dated July 22, 2013, response #8: As per the July 30 meeting, Caltrans has agreed that an HOV percentage of 22 % on I-80 and SR65 mainline is a valid assumption.
9	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	(9) The model can assume driver behavior on EB I-80. Adjust the reaction times so that more traffic stays in median lanes for a longer distance before merging over to exit Rt-65. Currently, they are merging to the right lane too soon in an unrealistic fashion.	F&P	8/1/2013	The test shows that changing lanes to the right too soon will cause congestion back at Eureka Rd. We also tested what happens if drivers waiting too long will cause problems, too. In either case, the behavior of current drivers is the basis for the VISSIM modeling and is our current best estimate of how future drivers would respond to the geometric changes.	8/16/2013	OK, Noted.
10	Caltrans	7/22/2013	2/22/13 Draft Traffic Report	The 3-lane loop connector is still off the table.	CH2M HILL	8/1/2013	The 3-lane loop discussed in the 7/23/13 Design and Traffic Review meeting will be eliminated from consideration	8/1/2013	Agreed.
11	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	*Additional items regarding the 2040 VISSIM model:* 1) There are now 11 lanes under the existing Taylor Road structure on I-80. The concept plans show 14 lanes. The model shows 14 lanes. There are currently 12 lanes under the Roseville Pkwy structure. The concept plans show 14 lanes, plus barrier, plus median, and the model shows 14 lanes. Widening of the existing structure has not been discussed. Structures has not voiced an opinion regarding any potential widening. There are existing objects in the vicinity of Roseville Pkwy and Taylor Road that may restrict potential widening of both structures. These items include the existing columns under the structures, the railroad, the water park, the Larkspur Hotel complex, and the towers that lie adjacent to EB I-80. If the assumed number of lanes under the structures in the model are not realistic, then the upstream operations are not being properly represented, i.e. potential bottlenecks.	F&P	8/1/2013	The final traffic analysis will include the revisions to the alternatives.	8/16/2013	Agreed.

Traffic and Design Review Comment and Response Summary

ITEM NO.	BY	DATE	Ref Doc	COMMENT	BY	DATE	RESPONSE/CLARIFICATION	DATE	RESOLUTION
12	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	*Additional items regarding the 2040 VISSIM model:* 2) On NB SR65, in advance of the Stanford Ranch Road off-ramp, the plans show a drop lane. Therefore, 5 lanes drop to 4 lanes, then continue on with an optional through, 2 lane off-ramp at Stanford Ranch, with three lanes continuing on under the structure. This is not a desirable design. Further review is needed to determine how the drop lane would affect weaving and upstream operations.	F&P	8/1/2013	The traffic analysis to date has shown that the dropping of lanes on northbound SR-65 under design year conditions results in a bottleneck at the Pleasant Grove Blvd overcrossing. Construction year conditions results show minor bottlenecks at Stanford Ranch Road on-ramp and Blue Oaks Blvd on-ramp. To provide improved traffic operations, additional mainline capacity is needed between Galleria and Blue Oaks at a minimum. The PDT previously discussed this need as being addressed by the upcoming SR-65 widening project If changes are made to this project design or assumed separate projects, they can be incorporated in the final traffic analysis.	8/16/2013	Agreed.
13	Caltrans	7/22/2013	2/22/13 Draft Traffic Report Review	*Additional items regarding the 2040 VISSIM model:* 3) In the a.m. peak hour, the queuing shown on the Douglas Road EB on-ramp appears unrealistic. The queuing continues back into the tunnel. This may be due to incorrect coding, or wrong assumptions regarding gap acceptance or driver behavior.	F&P	8/1/2013	The coding of the Douglas Blvd eastbound on-ramp will be reviewed and adjusted as needed.	8/16/2013	Agreed.
					CT	8/28/2013	Clarification to original comment: Regarding the EB Douglas Road on-ramp, in the a.m. peak VISSIM model, there appeared to be excessive queuing (back to tunnel). The gap acceptance or driver behavior may have to be modified in the model to achieve more reasonable results.	8/30/2013	Complete. This observation was noted in the traffic team meeting and was due to the current VISSIM coding. The coding was updated in the revised No Taylor model that includes the two-lane off-ramp to Eureka Road.
Responses and comments to 7/23/13 meeting minutes and intial 7/22/13 comments/responses									
14	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	1) Under General Observations, third paragraph: Fehr and Peers has made the forecast assumption that 70% of the trips entering I-80 from Eureka Road slip on-ramp are destined for NB SR65, Roseville. Caltrans would like to verify how this assumption was made in regard to the SACMET model and how this assumption relates to the figure 2-4 trip distribution percentage (47/53%) for EB pm peak hour trips on I-80 and SR65, dated years 2008 and 2035, found in the I-80/SR65 Interchange (PA&ED) Concept Screening and Concept Development Report. Please provide the necessary data to verify this assumption.	F&P	8/22/2013	The forecasts do not involve assumptions. The forecasts are the result of applying the SACMET and VISUM models. Both models rely on capacity constrained equilibrium assignment methods to determine specific paths for trips between origins and destinations. This means that the path choices between origins and destinations are dependent on the level of congestion in the network. The 70 percent value noted above does apply to the trip entering EB I-80 from Eureka Road that are destined for NB SR-65. The 47/53 percent split is for a different location. This split refers to the trips on EB I-80 just prior to the loop off-ramp to NB SR-65. At this point in the network, 47 percent of p.m. peak hour trips on EB I-80 in 2008 were measured traveling to NB SR-65 with the remaining 53 percent continuing EB on I-80. In 2035, 53 percent of p.m. peak hour trips on EB I-80 are forecast to travel to NB SR-65 with the remaining 47 percent continuing EB on I-80. This forecast was discussed in detail with the PDT and is aligned with the future land use growth patterns in the area, which favor locations north and west of the I-80/SR-65 interchange.	8/28/2013	*PENDING.* Travel Forecasting is continuing to review the response to comment #1, below, regarding the 70 % value for trips coming from EB Eureka Road, and destined for NB SR65. Please continue with the sensitivity tests.

ITEM NO.	BY	DATE	Ref Doc	COMMENT	BY	DATE	RESPONSE/CLARIFICATION	DATE	RESOLUTION
15	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	2) Under General Observations, fourth paragraph, first bullet: as per the July 30 Traffic Team Meeting, We concur that the Leisch method sensitivity tests are to include various splits for trip destination from the Eureka slip on-ramp to NB SR65 and EB I-80, i.e, a 65/35, 55/45%, 50/50% and 70/30%. Regarding the splits at the EB weaving section, please also include a sensitivity test to include both EB (not required by the Department from Riverside/Auburn to Douglas) and WB continuous auxiliary lanes between Eureka/Atlantic and Auburn/Riverside.	F&P	8/22/2013	*See Item 3 (comment 3) above.* We propose to conduct the following sensitivity tests. Please note the suggested changes in Test 2 directly related to this comment. Test 1 - Remove the WB slip off-ramp to Atlantic Street. This test will be based on AM peak hour volumes for the No Taylor Alternative. Fehr & Peers will assess the effect on the WB weaving section between SR-65 and Atlantic Street using the Leisch method plus test the effect on the ramp terminal intersection operations using SYNCHRO including off-ramp queuing from the signal and impacts to the adjacent intersections. Test 2 – Find the weaving volume combination using the Leisch method that causes LOS F conditions for the following weaving sections for the No Taylor a) EB I-80 between Douglas Blvd and Eureka Rd b) EB I-80 between Eureka Rd and SR-65 c) WB I-80 between SR-65 and Atlantic Street d) WB I-80 between Douglas Blvd and Riverside Dr Test 3 – Modify the No Taylor VISSIM model to include the two-lane off-ramp at Eureka and what happens with less aggressive and more aggressive drivers through the Eureka to SR-65 weaving section (this modeling is already complete – just documentation needed).	8/23/2013	*Clarification for Test 2:* Fehr & Peers will compare two different volume combinations for the sensitivity test of the EB I-80 weaving section between Eureka and NB SR-65. Split 1 = Test higher EB mainline volume with current on-ramp split of 70 percent to NB SR-65. Split 2 = Test change in on-ramp split with more vehicles from Eureka Road destined towards EB I-80. Fehr & Peers will include the sensitivity test information in the technical appendix for the Transportation Analysis Report. In addition to these tests, Fehr & Peers will also complete the following investigation and model refinements. Note that some of these refinements were already previously agreed to for purposes of finalizing the transportation analysis report. · Test the removal of the WB slip off-ramp to Atlantic Street. This test will be based on AM peak hour volumes for the No Taylor Alternative. Fehr & Peers will assess the effect on the WB weaving section between SR-65 and Atlantic Street as well as the effect on the ramp terminal intersection operations including off-ramp queuing from the signal and impacts to the adjacent intersections. · Revise truck routing in the VISSIM model to ensure trucks remain on prescribed routes. · Revise the I-80/Rocklin Road interchange to maintain the current tight diamond configuration with minor modifications to account for future signal coordination and ramp widening associated with increased storage. This change will be subject to PDT approval. · Revised the EB off-ramp to Eureka Road to include two-lanes with a continuous auxiliary lane to the Douglas Boulevard on-ramp for the No Taylor alternative. · Update the VISSIM post-processor to report off-ramp queue lengths. · Add the optional EB exit lane (fourth through lane) at the NB SR-65 off-ramp for the Full Taylor alternative.

Traffic and Design Review Comment and Response Summary

ITEM NO.	BY	DATE	Ref Doc	COMMENT	BY	DATE	RESPONSE/CLARIFICATION	DATE	RESOLUTION
16	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	3) Under General Observations, fifth paragraph, third bullet: Regarding model refinements, please add ramp metering adjustments, as discussed in the meeting.	F&P	8/22/2013	If necessary, the WB on-ramp at Rocklin Road will include ramp metering adjustments to avoid queuing that could extend back onto Rocklin Road. This flexibility in operation may be needed to avoid queues extending into the roundabouts if they become the preferred alternative.	8/23/2013	Complete. Fehr & Peers will document the WB AM peak hour throughput volume at Elkhorn/Greenback for each project alternative. This is intended to provide a gauge for how upstream improvements may affect downstream conditions. PCTPA requested that this information be provided at the limits of the project in both directions for I-80
17	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	4) Under General Observations, fifth paragraph, fifth bullet: We concur that the VISSIM Model is to be revised to include a two lane EB slip off-ramp at I-80/Eureka Road interchange with an auxiliary lane from the EB Eureka Road off-ramp back to the Douglas Blvd. EB on-ramp for all alternatives for year 2040.	F&P	8/22/2013	Previously, we were directed to add the two-lane off-ramp for the No Taylor alternative only. This comment requires this change for ALL alternatives. Please confirm this new direction.		See Item 21 (comment 8) below. No additional response here.
18	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	5) Under the direct responses to previous Caltrans comments, dated July 22, 2013, response #1: In the current 2040 VISSIM Model that was sent to Caltrans for review, the vehicles are diverging to the right too soon to exit EB I-80 onto Taylor Road and NB SR65. Realistically some drivers will diverge later than others. As was discussed in the meeting, please adjust the model to show results of "queue jumping" driver behavior. It is agreed that longer weave lengths, within Caltrans standard are preferable for acceptable operations.	F&P	8/22/2013	…[T}he VISSIM model was calibrated to current driver behavior and we conducted sensitivity tests (Test 3) with both less and more aggressive drivers that were shared during the traffic meeting. Less aggressive drivers created more of a problem as would be expected. When drivers are more aggressive they take advantage of gaps faster and they have less headway between vehicles. While this behavior could lead to more collisions due to factors such as high speed differentials, it tended to improve traffic operations in simulations without any collisions. …[W]e will document the results of both tests. Please confirm if the test information should be included in the final transportation analysis report. Since the main issue seems related to safety in the weaving sections that do not meet design standards, we could consider utilizing the FHWA Surrogate Safety Assessment Model (SSAM). This model can use simulation model output to help identify collision potential associated with the project design. More details about this model are available at this link. http://www.fhwa.dot.gov/publications/research/safety/08049/		Noted. Fehr and Peers to provide information to Caltrans for their independet check into SSAM.
19	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	6) Under the direct responses to previous Caltrans comments, dated July 22, 2013, response #2: Driver aggressiveness approaching the Eureka slip off-ramp on EB I-80 should be modeled using various aggression levels. As noted during the meeting, different assumptions produce different outcomes. Please increase the amount of familiar drivers, which would be an adjustment in regard to the above comment #4.	F&P	8/22/2013	See response to Item 18 (comment 5).		No other response here.
20	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	7) Under the direct responses to previous Caltrans comments, dated July 22, 2013, response #3: During the meeting, as sensitivity tests were being conducted regarding the Leisch method, the full demand on I-80, with the 1400 foot weave length, and certain percentage splits, resulted in LOS F. We concur that further sensitivity tests are to include the various splits as outlined in above comment # 2, as well as the additional adjustments regarding "familiar" drivers, as per comment #5.	F&P	8/22/2013	See response to Item 15 (comment 2) and item 18 (comment 5) above.		No other response here.

Traffic and Design Review Comment and Response Summary

ITEM NO.	BY	DATE	Ref Doc	COMMENT	BY	DATE	RESPONSE/CLARIFICATION	DATE	RESOLUTION
21	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	8) Under the direct responses to previous Caltrans comments, dated July 22, 2013, response #5: The addition to the model of the two lane Eureka off-ramp with auxiliary lane (Douglas to Eureka) is to be included for all alternatives.	F&P CT	8/22/2013 8/28/2013	Repeat comment. See Item 5 (comment 5) and Item 17 (comment 4) above. *Clarification to original comment:* Please add to the **sensitivity test** #3, to modify the two current "with Taylor" VISSIM models (as well as "no Taylor") to include the **two** lane EB off-ramp at Eureka Road, with the auxiliary lane back to Douglas Road, to determine the downstream effects on EB I-80 between Eureka Road and SR65.	8/23/2013 8/30/2013	Caltrans will review the need to include the two-lane EB off-ramp at Eureka for the project alternatives. The current direction is to include the two-lane off-ramp for the No Taylor and new CD alternative only. Due to the time and cost involved, testing a two-lane Eureka Rd off-ramp in the Vissim models for the "Full Taylor" alternatives will not be done at this time. However, we will conduct this sensitivity test as part of finalizing the traffic analysis. The results of this test will be included in the traffic report.
22	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	9) Under the direct responses to previous Caltrans comments, dated July 22, 2013, response #6: Agreed.	F&P	8/16/2013	No response required. See Item 6 (comment 6).		Complete.
23	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	10) Under the direct responses to previous Caltrans comments, dated July 22, 2013, response #7: Agreed. In addition, it is important to understand the distribution of the trips. Were the assumptions and predictions made in regard to response # 7 based upon a trip distribution analysis?	F&P	8/22/2013	The VISUM and VISSIM models are integrated such that the demand volumes in origin-destination format and the paths are transferred to VISSIM. This approach ensures that weaving patterns are maintained in the VISSIM assignment. As discussed in the meeting (and in response to comment 1 above), the weaving patterns are reasonable when compared against current patterns and projected land use growth. Most growth is planned to occur in the SR-65 corridor or areas west of SR-65. The growth will contribute to increased peak hour volumes in the EB I-80 weaving section between Eureka Road and SR-65. However, most of the volume entering EB I-80 from Eureka Road will not be weaving since it is destined for NB SR-65. These vehicles will not have to make a lane change so weaving turbulence is less than might be expected in a typical weaving section.		Agreed.
24	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	11) Under the direct responses to previous Caltrans comments, dated July 22, 2013, response #8: As per the July 30 meeting, Caltrans has agreed that an HOV percentage of 22 % on I-80 and SR65 mainline is a valid assumption.	F&P	8/16/2013	No response required. See Item 8 (comment 8).		Complete.
25	Caltrans	8/16/2013	2/22/13 Draft Traffic Report Review	12) Response #9: noted.	F&P	8/16/2013	No response required. See Item 9 (comment 9).		Complete.

I-80/SR 65 Interchange Improvements: Caltrans/FHWA Traffic Focus Meeting #4

ATTENDEES:

Luke McNeel-Caird/PCTPA
Scott Gandler/City of Roseville
Rich Moorehead/Placer County
Ray Leftwich/City of Lincoln
Cesar Perez/FHWA
Keith Mack/Caltrans
Christine Zdunkiewicz/Caltrans
Mike Smith/Caltrans
Cynthia Smith/Caltrans (tele)
Heidi Sykes/Caltrans HQ
Jim Deluca/Caltrans HQ
Rod Murphy/Caltrans
Chris Benson/CH2M HILL
Lauren Proctor/CH2M HILL
Ron Milam/Fehr & Peers
Dave Stanek/Fehr & Peers

COPY TO: File

PREPARED BY: Lauren Proctor/CH2M HILL, Ron Milam/Fehr & Peers

DATE: Tuesday, October 29, 2013

The purpose of this meeting summary is to highlight the major items discussed on Tuesday, October 29, 2013 at the Caltrans/FHWA Traffic Focus Meeting. For any comments or questions regarding information contained within this summary, please contact Lauren Proctor at lauren.proctor@ch2m.com or phone at (916) 286.0332.

Presentation of CD Concept Traffic Volume Forecasts

Ron and Dave presented the design and construction year forecasts for the new CD Alternative. The forecasts were generated using the meso-scale VISUM model following the same methodology used for the other alternatives. The CD roadway was modeled at a free flow speed of 55 mph.

Dave noted that one unique observation about the forecasts is that approximately 150 AM and 200 PM peak hour trips used the CD road from EB I-80 to NB SR-65 instead of staying on the mainline. The technical group was asked whether to keep the forecasts 'as is' or to shift the cut-through trips back to the mainline. No change was recommended.

Ron noted that some differences in the volumes compared to the No Taylor alternative were due to the previous VISUM modeling not including a two-lane off-ramp with a continuous auxiliary lane back to Douglas Boulevard. Ron explained that VISUM model for the No Taylor alternative would be updated as part of preparing the final transportation analysis report.

Ron also noted that some of the construction year volumes are higher than design year because of the construction year network congestion, especially along SR 65.

The CD Alternative will replace the Half Taylor Alternative in the traffic report.

Preliminary CD Alternative Traffic Operations Assessment

Ron and Dave noted that per lane volumes did not exceed capacities on the freeway, ramp, or CD links. The next check was the CD weaving section between the Eureka Road slip on-ramp and the Taylor Road off-ramp. A Leisch weaving analysis was conducted for this location. Given the unique geometrics of this weave and the limitations of the Leisch methodology, Dave explained the assumptions that were made for the analysis. The results indicated that the proposed design with the Eureka Road slip on-ramp entering from the left would operate best with LOS D or better. A sensitivity test was conducted with the slip on-ramp

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moved to the right side. This configuration performed worse, including LOS F conditions during the PM peak hour. Based on these results, the proposed design is recommended from a traffic operations perspective. Jim Deluca said the right side slip option should be developed to show that it works.

Jim Calkins said consideration should be given to include conduit for potential future ramp metering for the Eureka/Atlantic on-ramps onto the CD link in case they are needed in the future.

Cesar Perez had questions about the calibration of the traffic model. Dave Stanek said the forecast model is based on traffic counts, the regional travel demand forecasting model, and the adjustment process described in the draft traffic report and traffic forecasting memo. Cesar Perez noted that travel time comparisons for select origin-destination (OD) pairs may be desirable to help explain the benefits of the project, particularly for paths that would be served by Taylor Rd ramps. Ron and Dave noted that travel times can be extracted from the VISSIM model if the PDT agrees that this information is needed.

CD Alternative Tests

During the meeting, refinements to the CD Alternative were tested using the VISUM model. The first two tests included adding a left-turn movement to the EB Taylor loop off-ramp and shifting the WB Taylor on-ramp upstream before the SB SR-65 connector ramp. The final test was removal of the EB Taylor loop off-ramp to create a modified version of the No Taylor Alternative. The first two tests showed little change to the traffic forecasts or traffic operations with the exception of lengthening the weaving distance on WB I-80. However, a traffic signal would be needed on Taylor Road at the entrance to the WB on-ramp, which would increase delays and emissions. Likewise, the Taylor Road EB off-ramp would likely warrant a signal that would increase delays on Taylor Road to allow the left-turn movement. Neither modification to the CD Alternative was recommended based solely on the traffic assessment.

Removal of the Taylor Rd EB off-ramp created more discussion about whether this is a modification to the CD Alternative or a 'better' No Taylor Alternative. Traffic volumes change as expected, but a more detailed VISSIM analysis would be needed to determine how increases in traffic volumes at the Eureka Road and Douglas Boulevard off-ramps would affect mainline operations. Keith Mack clarified Caltrans' comment that they would like to use the CD-like configuration to physically prevent the weave movement on eastbound I-80 between Eureka Rd and SR-65 under the No Taylor Alternative. Due to increased costs, it might be better to investigate this in addition to the current No Taylor Alternative. Everyone was agreeable to the CD Alternative as is.

Ron Milam raised a question about the Purpose and Need Statement agreed upon by the PDT related to the No Taylor Alternative. If needed, a separate time will be identified to discuss previous development of the Purpose and Need Statement.

There was a discussion about whether the other ramps can handle the traffic for the added movements in the Full Taylor Alternative. Ron said that Douglas Blvd cannot handle additional traffic since congestion occurs in all alternatives at this interchange during the PM peak hour. Improvements will also need to be made to the intersections along Taylor Road and could impact existing right of way. The Full Taylor Alternative distributes traffic more evenly.

Final Transportation Analysis Report and Next Steps

Ron noted that once all geometric refinements have been made to the project alternatives, Fehr & Peers could then update the VISUM and VISSIM models and prepare the final transportation analysis. Heidi Sykes asked about the barrier treatment on EB I-80 to prevent Eureka Road on-ramp traffic from trying to access the HOV lanes. Chris Benson explained that the barrier would likely be striping due to right-of-way constraints. Heidi asked if any vehicles are assumed to violate the striping barrier. Dave explained that the current VISSIM model does not allow any violators but that it could be modified. Ron noted that the SACMET model includes estimates of SOV violators using HOV lanes and that a similar percentage of traffic could be assumed to violate the striping barrier. Once a buffer design, if any, is determined, the need to add violators to the VISSIM model will be assessed.

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CH2M HILL will investigate modifying the No Taylor Alternative to have physical separation in the eastbound direction similar to the CD Alternative.

Luke McNeel-Caird outlined the five alternatives that PCTPA intends to move forward: Full Taylor, No Taylor (w/ EB Eureka braided ramps), Collector-Distributor, TSM, and No-Build. Refinements to these alternatives, based on discussions to date, will be reviewed at the next design focus meeting to be held the week of 11/11/13.

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MEETING MINUTES

Date: February 20, 2014, 1:30 PM

I-80/SR 65 Interchange – Traffic Focus Meeting

Attendees

Andrew Gaber
Chris Zdunkiewicz
Cynthia Smith
Dave Stanek
Keith Mack
Lauren Proctor
Leo Heuston
Luke McNeel-Caird
Mike Smith
Rhon Herndon
Ron Milam
Sam Jordan
Scott Gandler

Meeting Summary

Topic	Discussion
1. Design year traffic volume forecasts are complete.	- **Action: Fehr & Peers will distribute traffic volume graphics to traffic focus meeting distribution list.** - **Action: Fehr & Peers will send SACMET and VISUM files to Cynthia Smith.**
2. Construction year forecasts are under development.	- **Action: Fehr & Peers will distribute traffic volume graphics to traffic focus meeting distribution list when complete.**
3. The assumption of one-lane westbound on-ramps at Douglas Blvd and Atlantic St was questioned.	- Current plans (MTP 2035) do not include these improvements, so no change will be made to the Vissim model.
4. New design year forecasts and interchange alternative at Rocklin Road result in higher WB I-80 peak period volumes. The volumes warrant the addition of a continuous WB auxiliary lane	- This condition will be acknowledged in the traffic report but any mainline improvements in this freeway section will be considered after the alternative for the I-80/Rocklin Road

between Rocklin Road and SR 65.	interchange has been determined.
5. New design year forecasts show bottlenecks forming on WB I-80 downstream of SR 65 for both No Taylor and CD alternatives. The group revisited the question of whether the SB SR 65 connector should be only two lanes or include a meter.	- No change to the previous discussion in the traffic report. The three-lane connector should be environmentally cleared. The three-lane connector would not preclude future metering, if needed.
6. The Taylor Road westbound on-ramp design (CD Alternative) is not yet final. The options include a merge with a short taper or relocated the on-ramp upstream of the SR 65 southbound on-ramp. The design also needs to consider whether the I-80 WB lane drop at Atlantic Street/Eureka Road occurs at the loop ramp or just beyond the interchange.	- The project team has proposed a merge for the WB Taylor on-ramp at the existing ramp location and a WB I-80 lane drop just beyond the interchange. **Action: Caltrans will review the proposed design and provide a timeline for a final recommendation on the Taylor Road on-ramp and I-80 WB lane drop at Eureka Road.** This recommendation is necessary to finalize the traffic operations analysis. - **Action: Fehr & Peers will update the VISSIM model once a final design is confirmed.**
7. The project design includes a two-lane off-ramp to Stanford Ranch Road/Galleria Boulevard. This off-ramp includes a two-lane branch exit to Stanford Ranch Road and a one-lane branch exit to Galleria Boulevard.	- **Action: Fehr & Peers will update the VISSIM model to match the proposed design.**
8. Modifying the design for the EB I-80 Taylor Road off-ramp would reduce the need for a five lane Taylor Road bridge over I-80. The design would be modified to include a yield or stop approach with a 15-degree maximum entrance angle. Taylor Road will have a median to prevent left-turn movements from the off-ramp.	- **Action: F&P will verify the traffic queue on the ramp will not impact the CD road.** - **Action: CH2M HILL will adjust the Alt 2 design accordingly.** - **Action: Fehr & Peers will update the VISSIM model to match the proposed design.**
9. The traffic report is being revised to reflect the updated forecasts and VISSIM operations analysis. The main changes affect the build alternatives. One option for modifying the report is to add a new chapter on the refined build alternatives analysis. A second option is to update the forecasting and operations analysis for the build alternatives in the current report.	- Fehr & Peers will use the second option to revise the report subject to confirmation from Caltrans. The No Build and TSM alternatives do not meet purpose and need and the additional time and effort that would be required to update these alternatives would not change this finding.

The following is the list of items awaiting Caltrans decision/concurrence:

1. NB SR 65 HOV Terminus

- Proposed design will show 2+1 continuous lanes conforming to the assumed future SR 65 Widening project. There will not be an HOV lane drop.

2. Physical barrier along SR 65 from system interchange to just past Galleria Blvd/Stanford Ranch Road (Not discussed during the meeting)

    - Proposed design uses signing and striping to prohibit weaving between the HOV and general purpose lanes. A physical barrier would add significant cost and potential R/W issues to the project.

3. WB I-80 lane drop

    - Proposed design provides an optional exit at the Eureka Rd loop off-ramp followed by a lane drop on mainline to increase weaving length and reduce number of lane changes required within the critical weave section. Previous discussions with CT in the design focus meetings established the current design (see item 6 above).

4. WB Taylor On-Ramp (Alternative 2)

    - Proposed design positions the WB Taylor on-ramp in its existing location with a merge into the 6+1 facility. Another option to consider is to relocate the Taylor Road on-ramp upstream of the SR 65 on-ramp (see item 6 above).

5. EB Taylor Loop Off-Ramp (Alternative 2)

    - The existing loop off ramp alignment to EB Taylor road requires an additional lane on the Taylor Rd OC. CH2M HILL is proposing an alternate design to eliminate the need for the additional lane on the structure. The proposed design for the EB I-80 Taylor Road off-ramp would be modified to include a yield or stop approach at Taylor Rd with a 15-degree maximum entrance angle. Taylor Road will have a median to prevent left-turn movements from the off-ramp (see item 8 above).

I-80/SR 65 Interchange Improvements

High Occupancy Vehicle Report

Placer County, CA

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

October 2014

Caltrans

PLACER COUNTY
TRANSPORTATION
PLANNING AGENCY

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Chapter 1. Introduction

This high occupancy vehicle (HOV) report was prepared for the Interstate 80 (I-80)/State Route 65 (SR 65) interchange improvements project in Placer County, California. The purpose of this report is to summarize the results and findings of the traffic operation analysis. The information presented in this report is based on the *I-80/SR 65 Interchange Improvements Traffic Analysis Report (TAR)* (Fehr & Peers, August 2014), which contains further details on traffic forecasts and operation analysis.

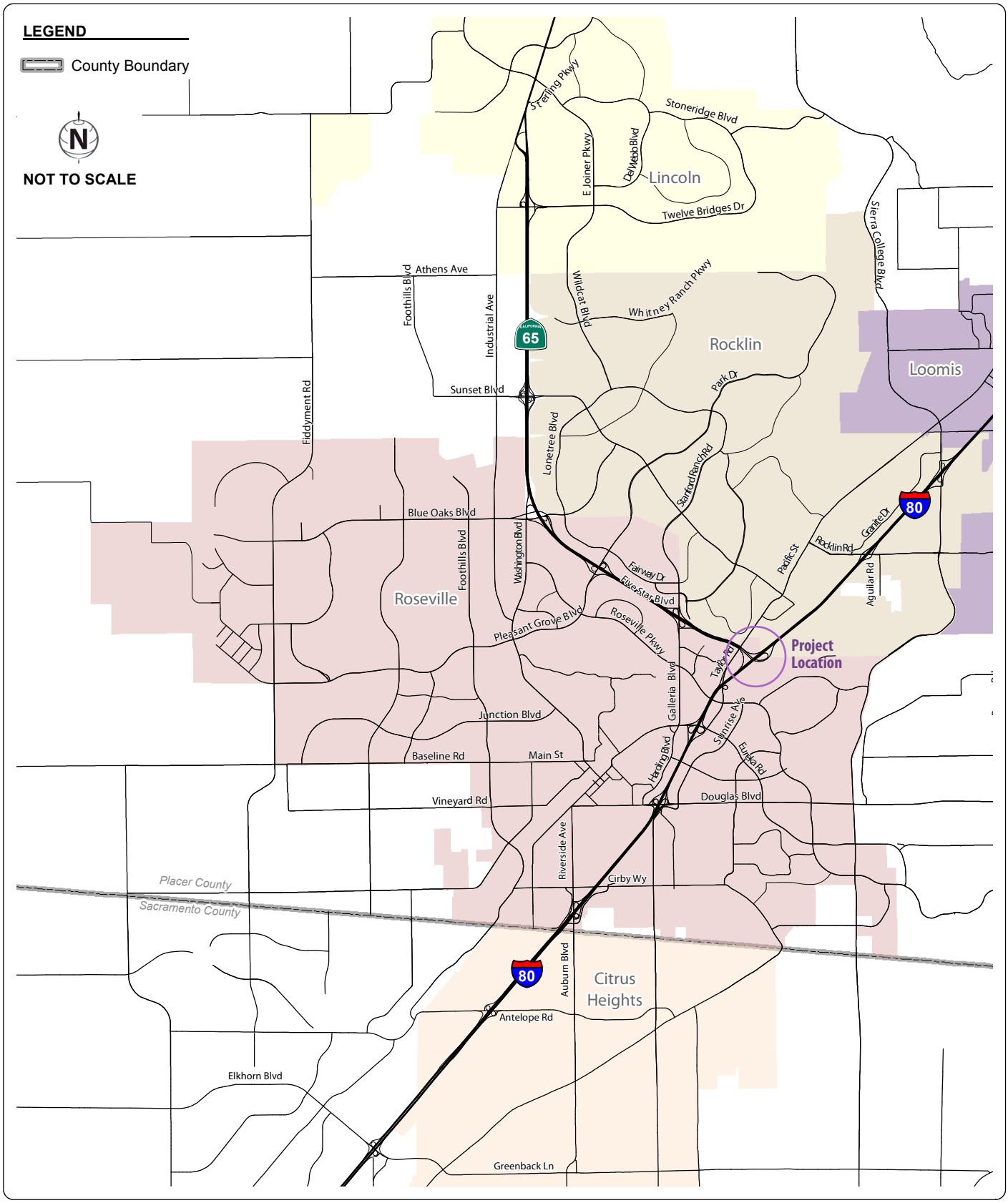
1.1 Project Description

The proposed project is to reconstruct the I-80/SR 65 freeway-to-freeway interchange by adding new direct connectors and improving capacity at existing connectors. Figure 1 shows the project vicinity and location map. The project would increase capacity at the interchange with the following improvements.

- Replace the eastbound I-80 to northbound SR 65 two-lane loop off-ramp with a three-lane direct flyover ramp.
- Construct new median direct connectors from eastbound I-80 to northbound SR 65 and from southbound SR 65 to westbound I-80. The median connectors would be restricted to HOVs – vehicles with two or more occupants, motorcycles, or registered "Clean Air Vehicles" – during the AM and PM peak periods (weekdays 6:00 to 10:00 AM and 3:00 to 7:00 PM) to conform to HOV lane operation elsewhere in the Sacramento region. During off-peak times, the HOV lane would be available to all vehicles (except commercial trucks, which are restricted to the outside lanes).
- Widen the southbound SR 65 connector to westbound I-80 to three lanes, widen the southbound SR 65 connector to eastbound I-80 to two lanes, and widen the westbound I-80 connector to northbound SR 65 to two lanes.
- Taylor Road would be widened to four lanes from Roseville Parkway to the Rocklin city limits.

The following five project alternatives have been considered and evaluated during the PA/ED phase (detailed project descriptions are included in Chapter 3).

Alternative 1	Taylor Road Full Access Interchange
Alternative 2	Collector-Distributor System Ramps
Alternative 3	Taylor Road Interchange Eliminated
Alternative 4	Transportation System Management (TSM)
Alternative 5	No Build



FEHR PEERS

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PROJECT VICINITY

FIGURE 1

1.2 Project Purpose and Need

The current purpose and need statement for the I-80/SR 65 interchange improvements project is provided below.

The purpose and objectives of the project are listed below:

- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to reduce no-build traffic congestion.
- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to comply with current Caltrans and local agency design standards for safer and more efficient traffic operations while maintaining and, if feasible, improving the current level of community access, at a minimum.
- Consider all travel modes and users in developing project alternatives.

The project is needed for the following reasons:

- Recurring morning and evening peak-period demand exceeds the current design capacity of the I-80/SR 65 interchange and adjacent transportation facilities, creating traffic operations and safety issues. These issues result in high delays, wasted fuel, and excessive air pollution and greenhouse gas emissions, all of which will be exacerbated by traffic from future population and employment growth.
- Interchange design features do not comply with current Caltrans design standards for safe and efficient traffic operations and limit existing community access to nearby uses.
- Travel choices are limited in the project area because the transportation network does not include facilities for all modes and users consistent with the complete streets policies of Caltrans and local agencies.

1.3 Analysis Methodologies

The transportation analysis for the I-80/SR 65 Interchange project used an integrated modeling approach that has three different levels of detail: macro, meso, and micro. At the macro level, the regional travel forecasting model (SACMET) was used to forecast peak period origin-destination (OD) traffic volume flows between traffic analysis zones both internal and external to the study area. At the meso level, the peak period OD flows were divided into four one-hour trip tables and disaggregated into three modes – single occupant vehicle (SOV), HOV, and truck – and then assigned to the sub-area roadway network using the VISUM software. The assignment process was based on congested travel times that reflect roadway link speeds and capacity. At the micro level, the traffic volumes were converted to individual vehicles that were assigned to the operational study area using the VISSIM software that contains detailed inputs governing traffic controls (signal timings), geometrics (lane configurations), and driver behavior.

Chapter 2. Existing Conditions Analysis

This chapter describes the study area, existing traffic volumes, traffic operation analysis results, and a review of accident data.

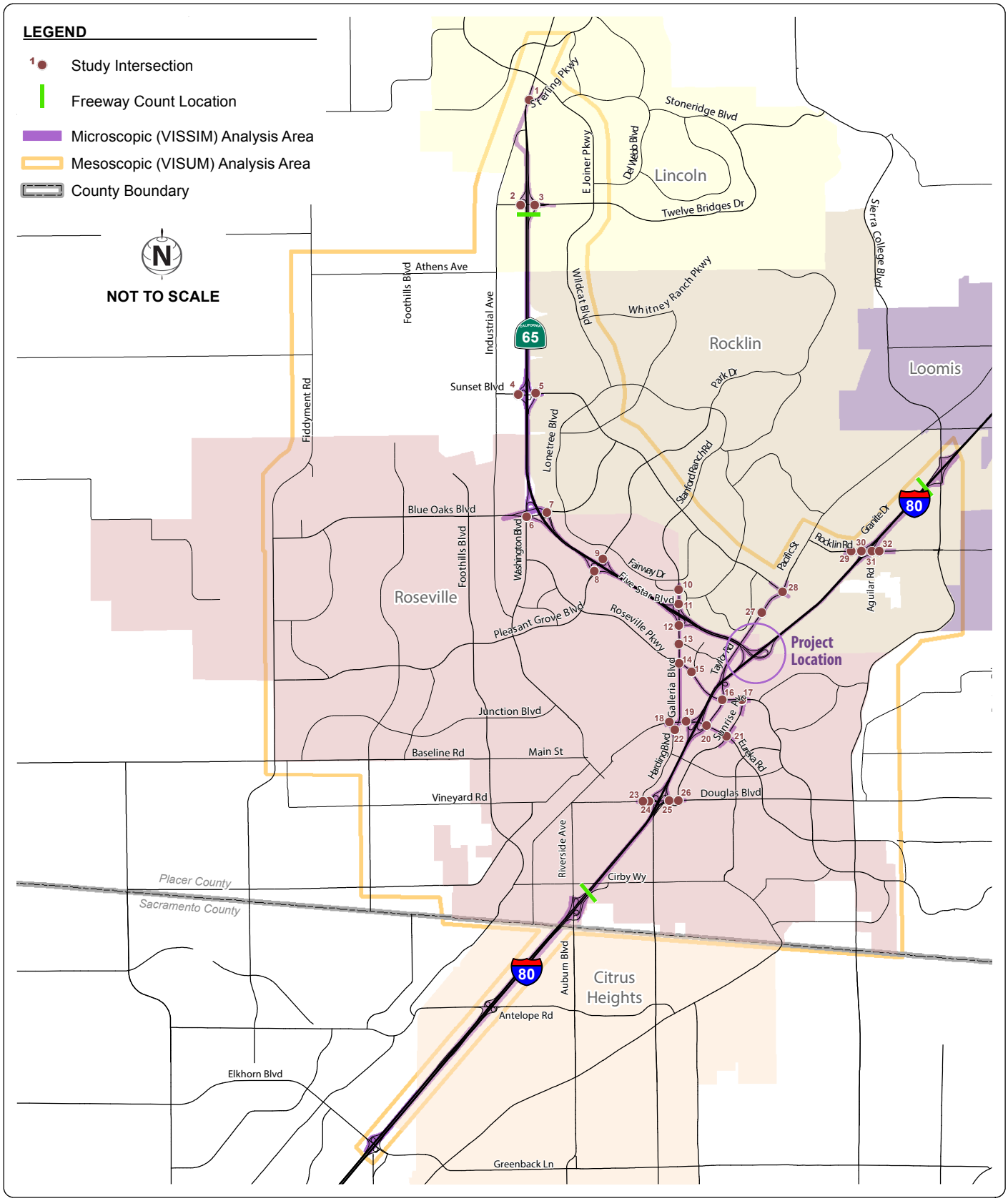
2.1 Study Area

The project study area (Figure 2) for preparation of TAR during the PA/ED phase extends beyond the immediate vicinity of the I-80/SR 65 interchange to capture the influence of potential changes at the I-80/ SR 65 interchange.

The freeway segments include eastbound I-80 from Auburn Boulevard/Riverside Avenue to Sierra College Boulevard, westbound I-80 from Sierra College Boulevard to Elkhorn Boulevard/Greenback Lane, and both directions of SR 65 from I-80 to Lincoln Boulevard. On westbound I-80, the study area includes four additional interchanges to the west due to the narrowing of the freeway in the westbound direction between Douglas Boulevard and Riverside Avenue, and a bottleneck at Elkhorn Boulevard/Greenback Lane. On SR 65, the study area extends into the City of Lincoln so that the model can be used for the analysis of future projects.

I-80 is a national east-west route that connects California to Nevada and points east, and this interregional route serves as an important corridor for freight trucks. Regionally, I-80 serves as an important recreational route for travel to and from the Reno/Lake Tahoe and San Francisco Bay areas. In the Sacramento area, I-80 is a vital commuter route for residents traveling into the City of Sacramento from northeast Sacramento County and the growing southern Placer County cities of Roseville, Rocklin, and Lincoln. Sacramento-area commuters traveling to and from the San Francisco Bay area also use I-80. In Placer County, I-80 begins at the Sacramento/Placer County Line as a ten-lane freeway, extends to the City of Roseville with six or eight lanes, and continues easterly to the City of Rocklin as a six-lane freeway.

SR 65 begins at the I-80 junction and is an important interregional route that serves both local and regional traffic. The route serves as a major connector for both automobile and truck traffic originating from the I-80 corridor in the Roseville/Rocklin area to the SR 70/99 corridor in the Marysville/Yuba City area. SR 65 is a vital economic link from residential areas to shopping and employment centers in southern Placer County. It is also an important route for transporting aggregate, lumber, and other commodities. With the recently experienced rapid growth in commercial, industrial, and residential development in Placer County, SR 65 has shown increased traffic congestion during the peak periods.



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STUDY AREA
FIGURE 2

In the project study area, eastbound I-80 starts as a five-lane facility (four general purpose lanes plus one HOV lane), drops one general purpose lane at the eastbound I-80 to northbound SR 65 connector, ends the HOV lane designation 0.9 miles east of SR 65, and drops another lane prior to Rocklin Road with three general purpose lanes continuing to travel eastbound. In the westbound direction, I-80 starts with three general purpose lanes east of SR 65, widens to a five-lane facility (four general purpose lanes plus one HOV lane) prior to reaching the SR 65 interchange, drops one general purpose lane at the westbound I-80 to northbound SR 65 connector, adds two general purpose lanes at the southbound SR 65 to westbound I-80 connector, and drops one general purpose lane at the Atlantic Street off-ramp to continue west with a five-lane freeway (four general purpose lanes plus one HOV lane).

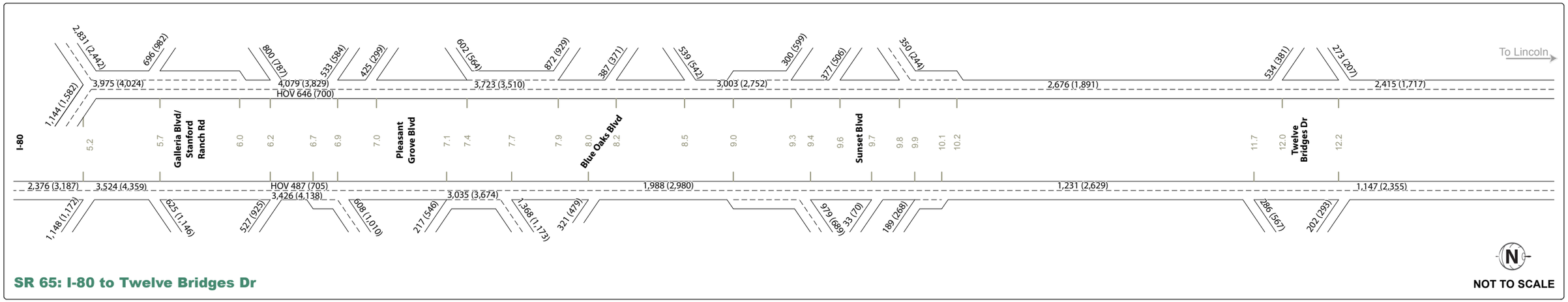
2.2 Existing Traffic Volumes

Freeway and intersection traffic counts were collected in 15-minute intervals for the 6 to 10 AM and 3 to 7 PM peak periods during January and February 2012. At intersections, cars, trucks, bicycles, and pedestrians were counted by turning movement. For freeways, traffic counts include vehicle classification by number of occupants for passenger cars and vehicle type. Table 1 contains the hourly HOV and truck percentages at the freeway gateway locations from the traffic counts. These HOV percentages are based on the HOV volume in all lanes of traffic and, therefore, represent the volume of traffic that is eligible to use the HOV lane. The AM and PM peak hour freeway mainline and ramp traffic volumes for 2012 conditions are shown in Figure 3.

TABLE 1: HOURLY HOV AND TRUCK PERCENTAGE

Hour	Eastbound I-80 at Riverside Ave		Westbound I-80 at Sierra College Blvd		Southbound SR 65 at Twelve Bridges Dr	
	HOV	Truck	HOV	Truck	HOV	Truck
6 to 7 AM	12.4%	7.9%	11.6%	3.8%	13.1%	1.8%
7 to 8 AM	13.7%	3.7%	10.7%	3.8%	10.5%	1.4%
8 to 9 AM	15.6%	4.0%	13.9%	5.2%	14.8%	1.1%
9 to 10 AM	18.3%	5.3%	18.1%	5.9%	19.0%	2.2%
3 to 4 PM	20.0%	3.2%	24.3%	7.5%	31.1%	1.7%
4 to 5 PM	19.2%	2.6%	24.5%	5.1%	26.6%	0.9%
5 to 6 PM	13.9%	2.2%	18.8%	5.1%	31.0%	1.0%
6 to 7 PM	12.7%	2.8%	17.1%	5.2%	29.5%	1.5%

Source: Fehr & Peers, 2014



SR 65: I-80 to Twelve Bridges Dr

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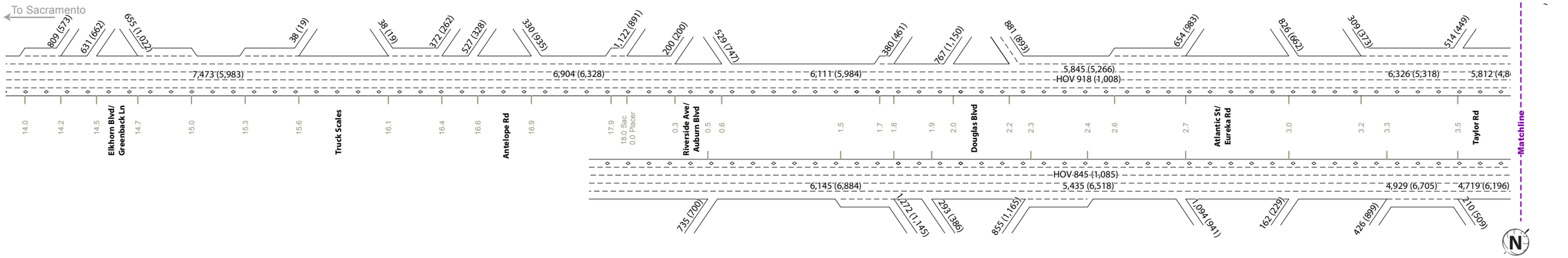

I-80: Elkhorn Blvd to Taylor Rd

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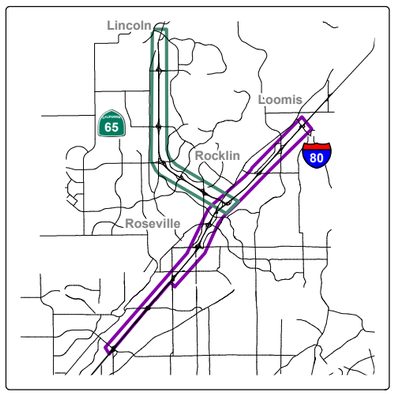


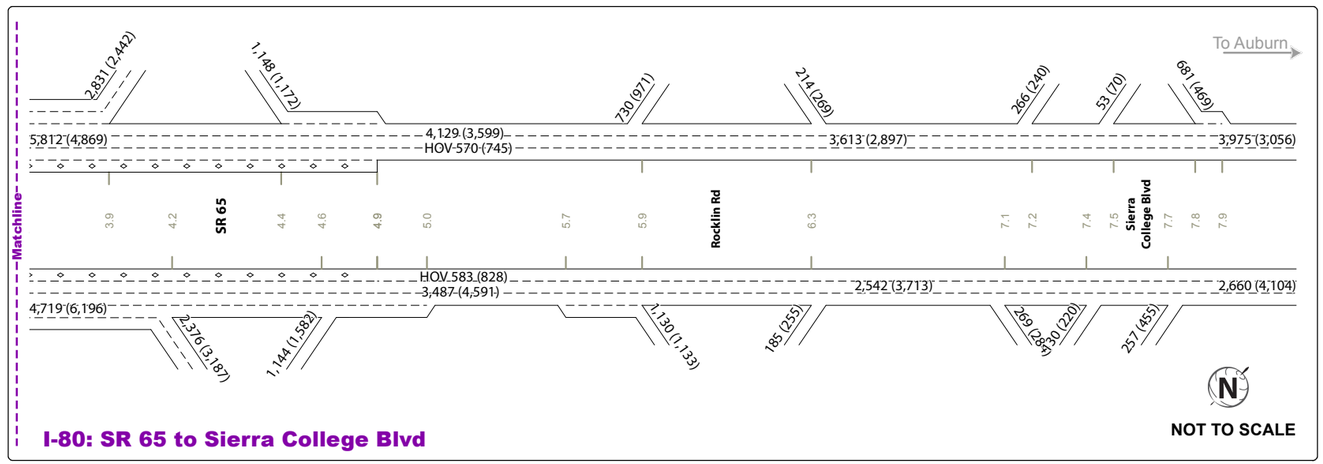
LEGEND

AM (PM) Peak Hour Traffic Volume

HOV AM (PM) Peak Hour HOV Volume

10.1 Postmile

NOTE: Traffic volumes collected in February 2012.



I-80: SR 65 to Sierra College Blvd

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PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

FIGURE 3

In addition to existing traffic volumes, two other types of traffic data were also collected to use for the traffic operations analysis, which includes the travel time surveys and cell phone data.

Travel time surveys were conducted during the same day of the mainline counts using global positioning system (GPS) units. The following routes were traveled for a minimum of every 15 minutes during the AM and PM peak periods. Travel time data was used to validate the VISSIM traffic simulation model to existing conditions observed on the field.

- Southbound SR 65 at Blue Oaks Boulevard to westbound I-80 at Elkhorn Boulevard
- Eastbound I-80 at Elkhorn Boulevard to northbound SR 65 at Blue Oaks Boulevard
- Westbound I-80 from Sierra College Boulevard to Elkhorn Boulevard
- Eastbound I-80 from Elkhorn Boulevard to Sierra College Boulevard

Cell phone data was also collected in October 2010 to estimate a seed matrix to develop an origin-destination matrix for use in the traffic operations analysis model. In previous studies, the base year travel demand forecasting (TDF) model has been used to generate the seed matrix. The TDF model is based on a limited sample of household surveys that rely on self-reporting. Cell phone sighting data are actual records of travel patterns of (anonymous) cell phone owners. The cell phone data is both a larger sample size and provides hourly travel patterns (the TDF model is only peak hour or peak period data). Using VISUM's origin-destination estimator, a separate matrix was developed for each hour within the four-hour AM and PM peak periods. These matrices were divided into single-occupant vehicle (SOV), HOV, and truck modes based on the mode split in the travel demand forecasting (SACMET) base year model. The resulting matrices were used to route traffic through the study area network.

2.3 Traffic Operations Analysis

Traffic analysis models were developed using the VISSIM software. The further details on the model development and calibration/validation are contained in the *I-80/SR 65 Interchange TAR* (Fehr & Peers, August 2014).

Table 2 shows the network-wide summary statistics for the AM (6:00 – 10:00) and PM (3:00 – 7:00) peak periods. The results reflect that the PM peak period has the highest level of travel with vehicle hours of delay (VHD) equal to almost 23 percent of all Vehicle Hours of Traveled (VHT). The AM peak period also experiences congested conditions with a VHD at approximately 19 percent of all VHT.

TABLE 2: OVERALL NETWORK PERFORMANCE – EXISTING CONDITIONS		
Performance Measure	**AM Peak Period (6:00 – 10:00)**	**PM Peak Period (3:00 – 7:00)**
Volume Served (% of total demand)	143,450 (100%)	198,170 (101%)
VMT	645,270	730,100
PMT	786,260	880,180
VHT	13,760	16,850
VHD (% of VHT)	2,670 (19%)	3,950 (23%)
Average Delay per Vehicle (min)	1.12	1.20
PHD	3,240	4,670
Average Speed	46.9	43.3
Average Speed for HOVs	47.0	44.7
Notes: PMT = person miles of travel, PHD = person hours of delay Source: Fehr & Peers, 2014		

Tables 3 and 4 show the volume, speed, LOS, and density for the mainline sections under existing conditions during the AM and PM peak hours, respectively. For the purpose of this HOV Report, the results are reported for selected freeway segments, including I-80 from Douglas Boulevard to SR 65 and SR 65 from I-80 to Pleasant Grove Boulevard. The results for the entire study area can be found in the *I-80/SR 65 Interchange Improvements TAR* (Fehr & Peers, August 2014).

TABLE 3: AM PEAK HOUR FREEWAY OPERATIONS RESULTS – EXISTING CONDITIONS					
Freeway	**Location**	**Type**	**Volume**	**Speed**	**LOS/Density**
EB I-80	Douglas Blvd EB Off-ramp	Diverge	6,902	62	C / 24
	Douglas Blvd WB Off-ramp	Diverge	5,505	63	B / 19
	Douglas Blvd On-ramp	Merge	6,018	61	C / 27
	Eureka Rd Off-ramp	Diverge	6,016	62	C / 26
	Eureka Rd EB On-ramp	Merge	4,998	63	B / 19
	Eureka Rd to Taylor Road	Weave	5,439	62	C / 23
	Taylor Road to SR 65	Basic	5,201	62	D / 28
	SR 65 Off-ramp	Diverge	5,204	62	C / 28
	SR 65 On-ramp	Merge	3,949	61	C / 21
	SR 65 to Lane Drop	Basic	3,953	60	C / 25

TABLE 3: AM PEAK HOUR FREEWAY OPERATIONS RESULTS – EXISTING CONDITIONS					
Freeway	**Location**	**Type**	**Volume**	**Speed**	**LOS/Density**
WB I-80	SR 65 Off-ramp	Diverge	4,311	63	B / 19
	SR 65 On-ramp	Merge	6,046	63	C / 25
	Taylor Road On-ramp	Merge	6,624	62	C / 28
	Atlantic St WB Off-ramp	Diverge	6,623	61	D / 31
	Atlantic St EB Off-ramp	Diverge	6,274	53	E / 37
	Atlantic St On-ramp	Merge	6,115	59	C / 24
	Douglas Blvd Off-ramp	Diverge	6,114	57	D / 32
	Douglas Blvd WB On-ramp	Merge	6,036	52	E / 36
	Douglas Blvd EB On-ramp	Merge	6,443	48	E / 42
NB SR 65	I-80 WB On-ramp	Merge	3,704	36	**F / 53**
	I-80 to Stanford Ranch Rd	Basic	3,704	60	D / 32
	Stanford Ranch Rd Off-ramp	Diverge	3,704	60	D / 33
	Stanford Ranch Rd On-ramp	Merge	3,635	53	D / 34
	Stanford Ranch Rd to Pleasant Grove Blvd	Basic	3,632	61	D / 30
	Pleasant Grove Blvd Off-ramp	Diverge	3,632	62	D / 28
	Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,227	63	C / 21
SB SR 65	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,852	20	**F / 75**
	Pleasant Grove Blvd WB On-ramp	Merge	3,643	21	**F / 72**
	Pleasant Grove Blvd EB On-ramp	Merge	4,183	37	**F / 53**
	Pleasant Grove Blvd to Galleria Blvd	Basic	4,176	60	E / 36
	Galleria Blvd Off-ramp	Diverge	4,176	61	E / 35
	Galleria Blvd to Lane Add	Basic	3,411	62	D / 30
	Lane Add to Galleria Blvd On-ramp	Basic	3,414	63	C / 21
	Galleria Blvd On-ramp	Merge	4,191	51	D / 30
	I-80 WB Off-ramp	Diverge	4,190	63	C / 24

Note: Bold and underline font indicate LOS F conditions. The level of service and average density for the study segment are reported.

Source: Fehr & Peers, 2014

During the AM peak hour, congested LOS F conditions occur on northbound SR 65 at the I-80 on-ramp and southbound SR 65 between Blue Oaks Boulevard and Pleasant Grove Boulevard. On northbound SR 65, the merging of the westbound I-80 on-ramp causes congestion. For southbound SR 65, the constraint is the high demand from the mainline combined with the Pleasant Grove Boulevard on-ramp volume.

TABLE 4: PM PEAK HOUR FREEWAY OPERATIONS RESULTS – EXISTING CONDITIONS

Freeway	Location	Type	Volumes	Speed	LOS/Density
EB I-80	Douglas Blvd EB Off-ramp	Diverge	6,929	62	C / 22
	Douglas Blvd WB Off-ramp	Diverge	5,760	63	B / 18
	Douglas Blvd On-ramp	Merge	6,541	57	D / 31
	Eureka Rd Off-ramp	Diverge	6,549	52	**F / 46**
	Eureka Rd EB On-ramp	Merge	5,967	62	B / 20
	Eureka Rd to Taylor Road	Weave	6,942	48	E / 42
	Taylor Road to SR 65	Basic	6,412	44	E / 42
	SR 65 Off-ramp	Diverge	6,416	44	**F / 52**
	SR 65 On-ramp	Merge	4,811	61	C / 22
	SR 65 to Lane Drop	Basic	4,809	59	D / 28
WB I-80	SR 65 Off-ramp	Diverge	3,903	53	E / 35
	SR 65 On-ramp	Merge	5,131	64	C / 21
	Taylor Road On-ramp	Merge	5,596	63	C / 24
	Atlantic St WB Off-ramp	Diverge	5,589	61	C / 25
	Atlantic St EB Off-ramp	Diverge	5,169	60	C / 27
	Atlantic St On-ramp	Merge	5,616	61	C / 22
	Douglas Blvd Off-ramp	Diverge	5,616	61	C / 26
	Douglas Blvd WB On-ramp	Merge	5,685	50	D / 34
	Douglas Blvd EB On-ramp	Merge	6,207	50	E / 37
NB SR 65	I-80 WB On-ramp	Merge	4,410	21	**F / 95**
	I-80 to Stanford Ranch Rd	Basic	4,405	29	**F / 77**
	Stanford Ranch Rd Off-ramp	Diverge	4,404	34	**F / 62**
	Stanford Ranch Rd On-ramp	Merge	4,117	49	E / 39
	Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,118	61	D / 32
	Pleasant Grove Blvd Off-ramp	Diverge	4,118	62	C / 28
	Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,528	63	C / 21

TABLE 4: PM PEAK HOUR FREEWAY OPERATIONS RESULTS – EXISTING CONDITIONS					
Freeway	**Location**	**Type**	**Volumes**	**Speed**	**LOS/Density**
SB SR 65	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,485	61	C / 21
	Pleasant Grove Blvd WB On-ramp	Merge	3,274	51	D / 31
	Pleasant Grove Blvd EB On-ramp	Merge	3,896	48	E / 39
	Pleasant Grove Blvd to Galleria Blvd	Basic	3,895	62	D / 32
	Galleria Blvd Off-ramp	Diverge	3,895	62	D / 32
	Galleria Blvd to Lane Add	Basic	3,060	62	D / 27
	Lane Add to Galleria Blvd On-ramp	Basic	3,057	63	C / 19
	Galleria Blvd On-ramp	Merge	4,078	56	C / 24
	I-80 WB Off-ramp	Diverge	4,079	63	C / 22
Note: Bold and underline font indicate LOS F conditions. The level of service and average density for the study segment are reported.					
Source: Fehr & Peers, 2014					

During the PM peak hour, the primary bottleneck is northbound SR 65 at the on-ramp from westbound I-80. This bottleneck results in LOS F conditions on eastbound I-80 at the SR 65 off-ramp. LOS E conditions exist from Taylor Road to Eureka Road, with the rightmost lanes mostly congested (queued from the SR 65 off-ramp) while the left lanes operate with higher speeds. The Eureka Road off-ramp has LOS F conditions due to queues spilling back from the ramp terminal intersection. During summer 2012, queues regularly extended to the mainline occurred due to recreational trips generated by the water park on Taylor Road. After the Eureka Road widening project was completed in 2013, the peak hour off-ramp queues no longer extend to the mainline. Westbound I-80 has LOS E conditions at the SR 65 off-ramp due to the same bottleneck. LOS D/E conditions occur further north on northbound SR 65 between Stanford Ranch Road and Pleasant Grove Boulevard. If the bottleneck at I-80 were relieved, this downstream location will likely become congested.

2.4 Traffic Safety

Traffic collision data was compiled from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for the mainline freeway sections and ramps adjacent to the I-80/SR 65 interchange. The data shown are for the three-year period between April 1, 2009 and March 31, 2012. Within the study area, 728 collisions occurred on the freeway sections in the three-year period. Table 5 summarizes collisions on by freeway mainline section.

TABLE 5: MAINLINE ACCIDENT HISTORY

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
EB I-80 (PM 2.2 to 4.2): Douglas Blvd On to SR 65 Off	256	2	**0.012**	**0.56**	**1.52**	0.004	0.28	0.90
EB I-80 (PM 4.2 to 5.9): SR 65 Off to Rocklin Rd Off	52	0	0.000	0.15	0.48	0.004	0.27	0.87
WB I-80 (PM 4.3 to 5.9): Rocklin Rd On to SR 65 Off	81	1	**0.010**	**0.34**	0.81	0.004	0.27	0.87
WB I-80 (PM 2.2 to 4.3): SR 65 Off to Douglas Off	189	1	**0.006**	**0.31**	**1.08**	0.004	0.28	0.90
NB SR 65 (PM R4.9 to 6.9): I-80 On to Pleasant Grove Blvd Off	55	1	**0.009**	0.15	0.5	0.006	0.33	1.02
SB SR 65 (PM R4.9 to 7.1): Pleasant Grove Blvd WB On to I-80 Off	95	0	0.000	0.29	0.77	0.006	0.34	1.04

Notes: The post mile (PM) limits are provided in the first column. Bold and underline font indicate actual accident rates that are higher than the statewide average for similar facilities.

1. The accident rate is accidents per million vehicle-miles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately.

Source: Caltrans District 3 TASAS Table B, April 1, 2009 to March 31, 2012

The total collision rates were higher than statewide averages for eastbound and westbound I-80 between Douglas Boulevard and SR 65. This location has the highest volume and experiences the most severe congestion during peak periods. Therefore, drivers in this section are more likely to experience speed differentials and exposure to conflicts. The fatality and injury collision rate for westbound I-80 between Rocklin Road and SR 65 is also greater than the statewide average. This section is the first congested area drivers may experience when approaching the metropolitan Sacramento area from the east, so the potential is high for crashes due to driver inattentiveness.

Table 6 categorizes the collisions by type. The most frequent collision type (62 percent) is a rear end collision, which is typical of congested conditions. The next most frequent collision types are side-swipe and hit object. The other collision types are collectively less than 10 percent of all collisions. The freeway section with the higher than average collision rates, I-80 between Douglas Boulevard and SR 65, also has the highest number of rear end collisions.

TABLE 6: MAINLINE COLLISIONS BY TYPE								
Location	**Head On**	**Side Swipe**	**Rear End**	**Broad -side**	**Hit Object**	**Over-turn**	**Auto-Ped**	**Other**
I-80 EB: Douglas Blvd On to SR 65 Off	0	42	175	6	24	3	1	3
I-80 EB: SR 65 Off to Rocklin Rd Off	0	14	19	1	16	0	1	1
WB I-80: Rocklin Rd On to SR 65 Off	0	48	105	2	21	6	1	5
WB I-80: SR 65 Off to Douglas Off	0	8	53	2	11	2	2	1
NB SR 65: I-80 On to Pleasant Grove Blvd Off	0	6	34	1	10	1	1	2
SB SR 65: Pleasant Grove Blvd WB On to I-80 Off	0	13	67	1	14	0	0	0
Total	0	131 (18%)	453 (62%)	13 (2%)	96 (13%)	12 (2%)	6 (1%)	12 (2%)
Source: Caltrans District 3 TASAS - Table B, April 1, 2009 to March 31, 2012								

Of the 728 collisions that occurred on the freeway system in the study area, 20 percent (148) occurred on the ramps at Eureka Road/Atlantic Street, Taylor Road, I-80/SR 65, and Stanford Ranch Road/Galleria Boulevard interchanges. Table 7 shows that three ramps each on eastbound and westbound I-80 have higher than average total collision rates. In the eastbound direction, they are the loop ramps at Eureka Road, Taylor Road, and SR 65. In the westbound direction, the two SR 65 ramps and the Atlantic Street on-ramp have higher than average collision rates. On SR 65, both on-ramps at Stanford Ranch Road/Galleria Boulevard have higher than average accident rates.

TABLE 7: RAMP ACCIDENT HISTORY

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
EB I-80 Off to Eureka Rd (PM 2.9)	13	0	0.000	0.16	1.01	0.003	0.34	1.01
EB I-80 On from EB Eureka Rd (PM 3.0)	3	0	0.000	**0.37**	**1.10**	0.002	0.21	0.73
EB I-80 On from WB Eureka Rd (PM 3.2)	6	0	0.000	**0.25**	0.51	0.003	0.18	0.57
EB I-80 Off to Taylor Rd (PM 3.6)	7	0	0.000	**0.62**	**1.44**	0.003	0.30	1.03
EB I-80 Off to SR 65 (PM 4.2)	31	0	0.000	**0.29**	**0.98**	0.004	0.20	0.68
EB I-80 On from SR 65 (PM 4.5)	2	0	0.000	**0.17**	0.17	0.003	0.14	0.41
WB I-80 Off to SR 65 (PM 4.3)	9	1	**0.070**	**0.42**	**0.63**	0.005	0.13	0.38
WB I-80 On from SR 65 (PM 4.0)	21	0	0.000	**0.18**	**0.75**	0.003	0.11	0.32
WB I-80 On from Taylor Rd (PM 3.6)	3	0	0.000	0.00	0.54	0.003	0.18	0.57
WB I-80 Off to WB Atlantic St (PM 3.2)	2	0	0.000	0.23	0.46	0.004	0.24	0.75
WB I-80 Off to EB Atlantic St (PM 3.0)	0	0	0.000	0.00	0.00	0.003	0.30	1.06
WB I-80 On from Atlantic St (PM 2.8)	9	0	0.000	**0.32**	**0.71**	0.002	0.22	0.63
NB SR 65 Off to Stanford Ranch Rd (PM R5.7)	2	0	0.000	0.06	0.11	0.002	0.08	0.25
NB SR 65 On from Stanford Ranch Rd (PM R6.2)	22	0	0.000	**0.88**	**2.15**	0.002	0.22	0.63
SB SR 65 Off to Galleria Blvd (PM R6.2)	2	0	0.000	0.09	0.18	0.002	0.08	0.25
SB SR 65 On from Galleria Blvd (PM R5.7)	16	0	0.000	**0.45**	**0.90**	0.002	0.22	0.63

Notes: The post mile (PM) limits are provided in the first column. Bold and underline font indicate actual accident rates that are higher than the statewide average for similar facilities.

1. The accident rate is accidents per million vehicles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately.

Source: Caltrans District 3 TASAS Table B, April 1, 2009 to March 31, 2012

Chapter 3. Project Alternatives

The concept presented in the PSR replaced the eastbound to northbound loop ramp with a flyover ramp and added median HOV ramps from eastbound to northbound and southbound to westbound. Through an alternative generation and screening process, the project development team (PDT) developed and reviewed several alternatives. The final set of alternatives is listed below.

Alternative 1	Taylor Road Full Access Interchange
Alternative 2	Collector-Distributor System Ramps
Alternative 3	Taylor Road Interchange Eliminated
Alternative 4	Transportation System Management (TSM)
Alternative 5	No Build

Each of the alternatives is described below.

Alternative 1 – Taylor Road Full Access Interchange

Alternative 1 (Figure 4) is proposed to include the I-80/SR 65 interchange expansion with a new Taylor Road interchange that has all four movements to and from I-80. The Taylor Road interchange would be co-located with the I-80/SR 65 interchange. The ramp connections to eastbound I-80 would be in approximately the same location as the existing SR 65 connector ramps. The westbound ramps would have a Tight Diamond configuration. To fit the Taylor Road ramps within the I-80/SR 65 interchange requires adjusting the location of the freeway-to-freeway connectors compared to the Collector-Distributor System Ramps and Taylor Road Interchange Eliminated Alternatives. Due to the close ramp spacing, traffic to and from the Eureka Road/Atlantic Street interchange on I-80 and the Galleria Boulevard/Stanford Ranch Road interchange on SR 65 would be prohibited from using the HOV direct connector ramps at the I-80/SR 65 interchange.

Alternative 2 – Collector-Distributor System Ramps

Alternative 2 (Figure 5) is proposed to construct a collector-distributor roadway to serve local ramps. In this alternative, the existing Taylor Road ramps are maintained. In the eastbound direction, a collector-distributor roadway would be constructed between the Eureka Road/Atlantic Street, Taylor Road, and SR 65 interchanges. The eastbound to northbound connector would start as two lanes at the I-80 mainline and a third lane would be added from the collector-distributor roadway. On-ramp traffic from Eureka Road/Atlantic Street would join the eastbound mainline between the SR 65 off-ramp and on-ramp connectors. In the westbound direction, the Taylor Road on-ramp would be maintained in its existing location.

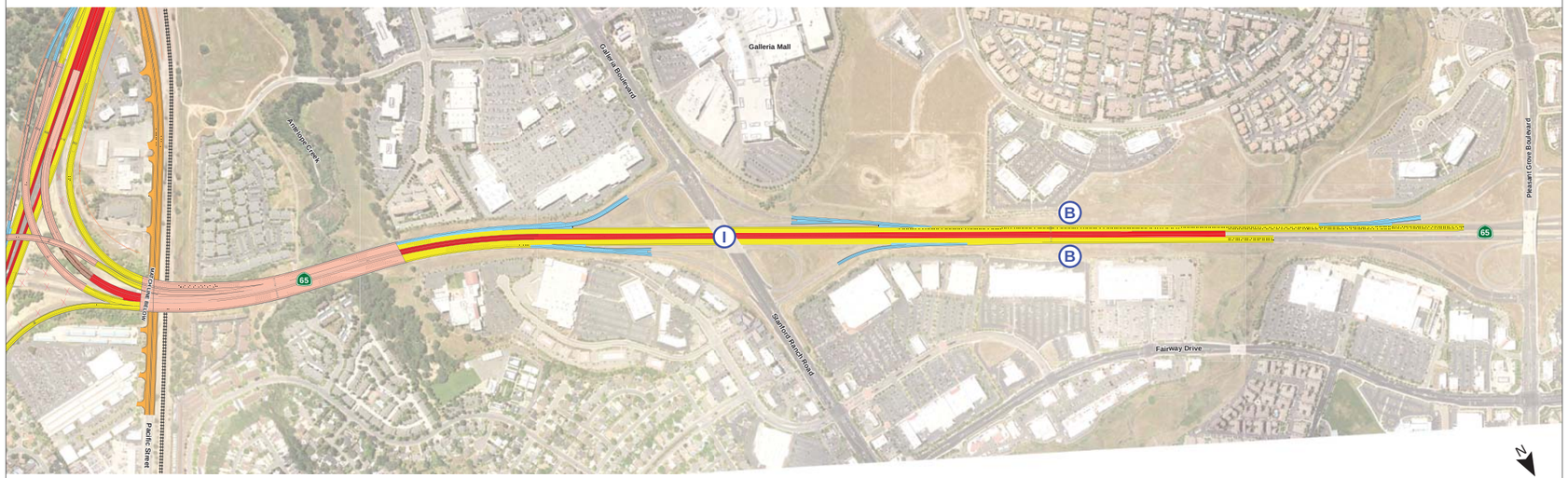
Alternative 1 Improvements:

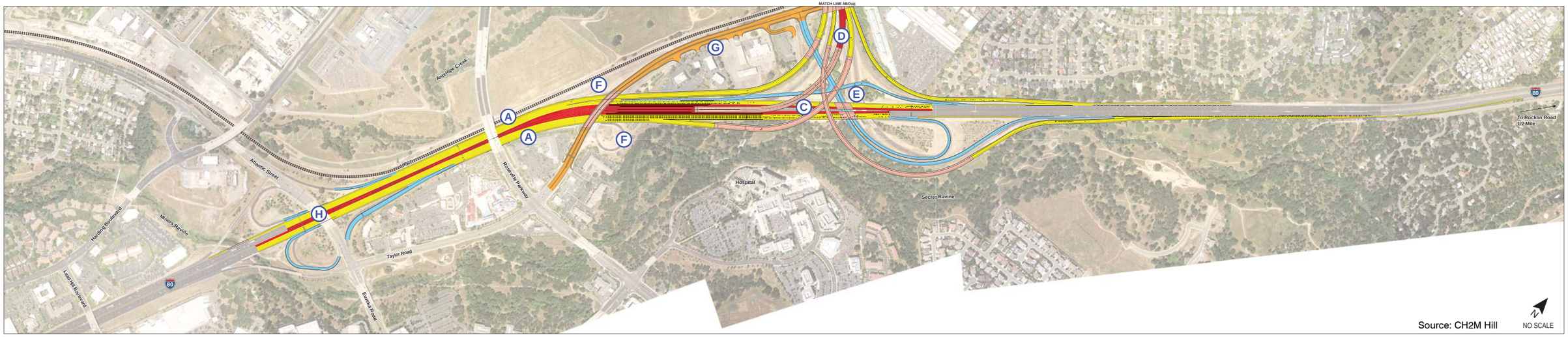
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 - add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange – add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Add a full access local interchange connection for I-80/Taylor Road
- (F) Remove existing I-80/Taylor Road ramp connections
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/ Stanford Ranch Road Interchange

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





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TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)

FIGURE 4

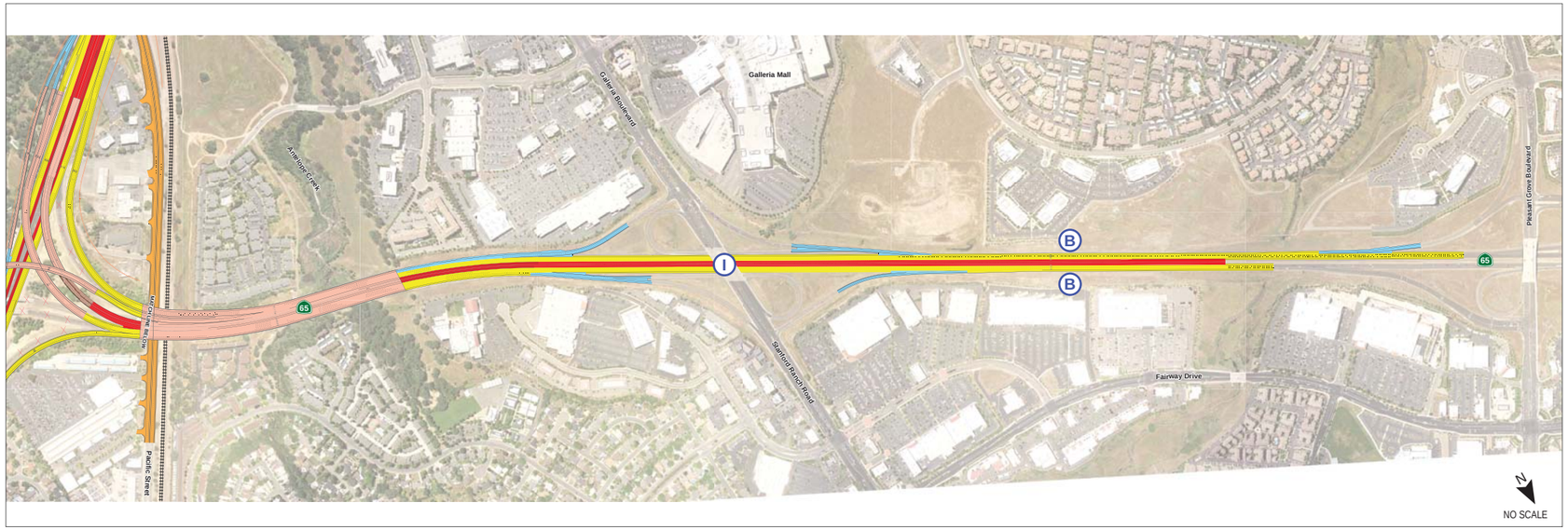
Alternative 2 Improvements:

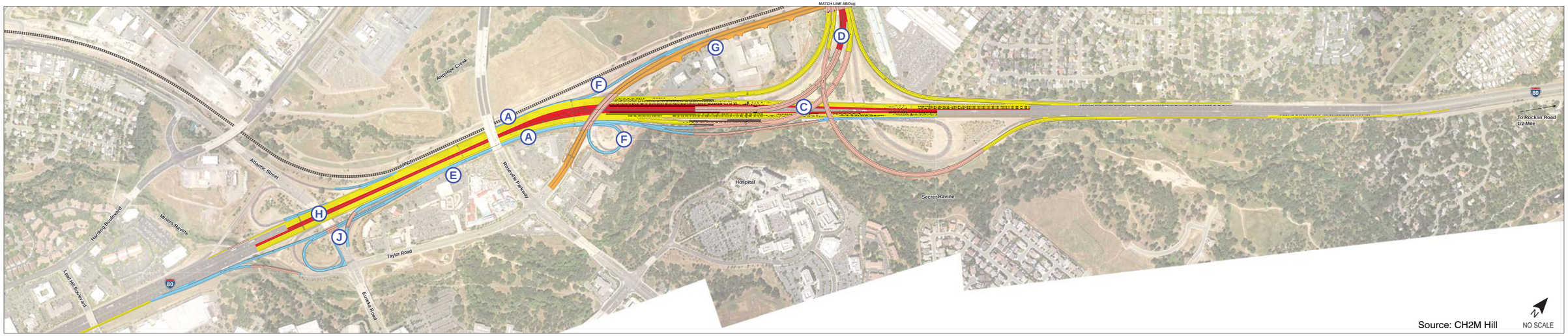
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 - add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange – add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Add eastbound collector-distributor road, separated from eastbound I-80
- (F) Modify ramps at I-80/Taylor Road Interchange
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/Stanford Ranch Road Interchange
- (J) Modify the eastbound I-80/Eureka Road ramps as part of the collector-distributor road

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





Source: CH2M Hill

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COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)

FIGURE 5

Alternative 3 – Taylor Road Interchange Eliminated

Alternative 3 (Figure 6) is similar to the Collector-Distributor Roadway System Ramps Alternative (Alternative 2). The primary difference is that the Taylor Road ramps are removed. As a result, the eastbound collector-distributor roadway starts further east at the Eureka Road/Atlantic Street on-ramps. To handle the traffic diverted from the closure of the Taylor Road ramps, two intersections would be widened. The Eureka Road/Taylor Road/I-80 Eastbound Ramps intersection would be widened to add a second northbound left turn lane and a second southbound right turn lane. At the Taylor Road/Roseville Parkway intersection, a second westbound right turn lane would be added.

Alternative 4 – Transportation System Management

Alternative 4 (Figure 7) would add operational enhancements to the planned transportation network. These enhancements include auxiliary lanes, increased ramp meter storage, signal coordination, and greater access control along major arterials.

Alternative 5 – No Build

Alternative 5 assumes no improvements would be made at the I-80/SR 65 interchange. However, numerous transportation capacity improvements proposed by other projects are planned to be constructed within the study area under construction year (2020) and design year (2040) conditions as displayed in Figures 8 and 9, respectively. All of these projects are assumed to be in place under all alternatives (Alternatives 1 through 5).

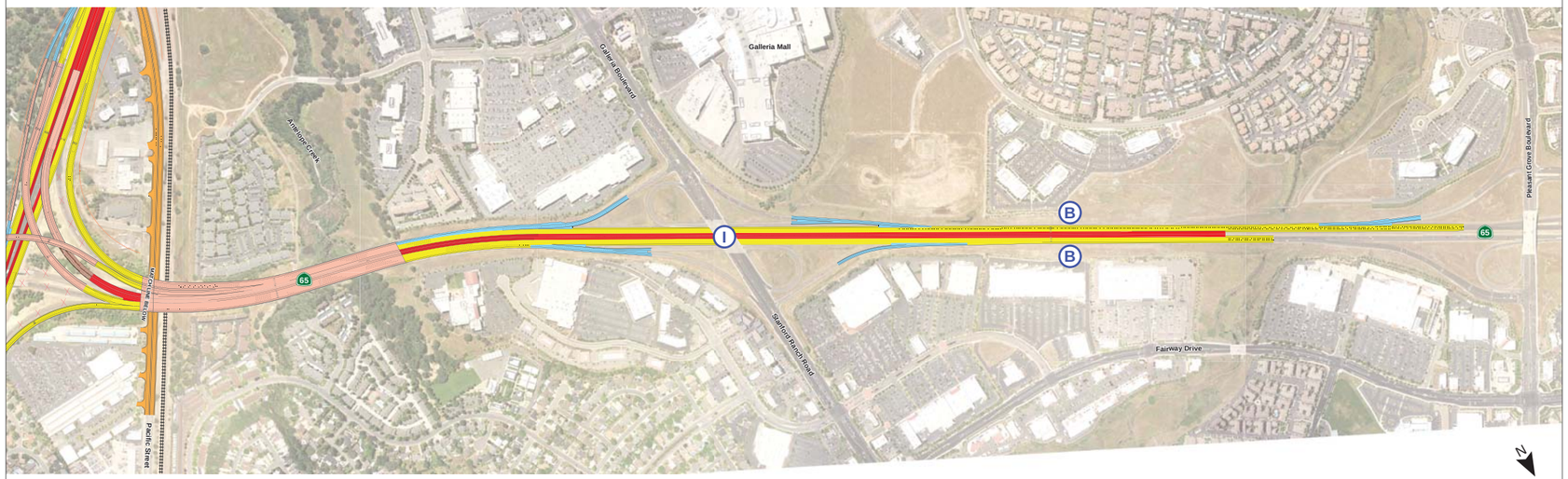
Alternative 3 Improvements:

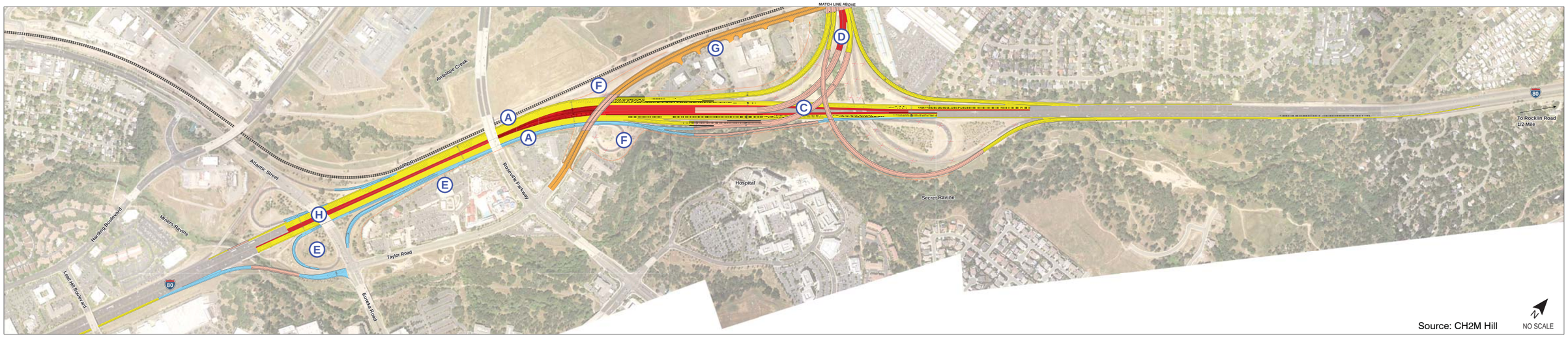
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 – add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange - add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Modify the eastbound I-80/Eureka Road ramps to be separated from I-80. Access to Taylor Road would be accommodated by the adjacent local interchanges
- (F) Remove existing I-80/Taylor Road ramp connections
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/Stanford Ranch Road Interchange

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





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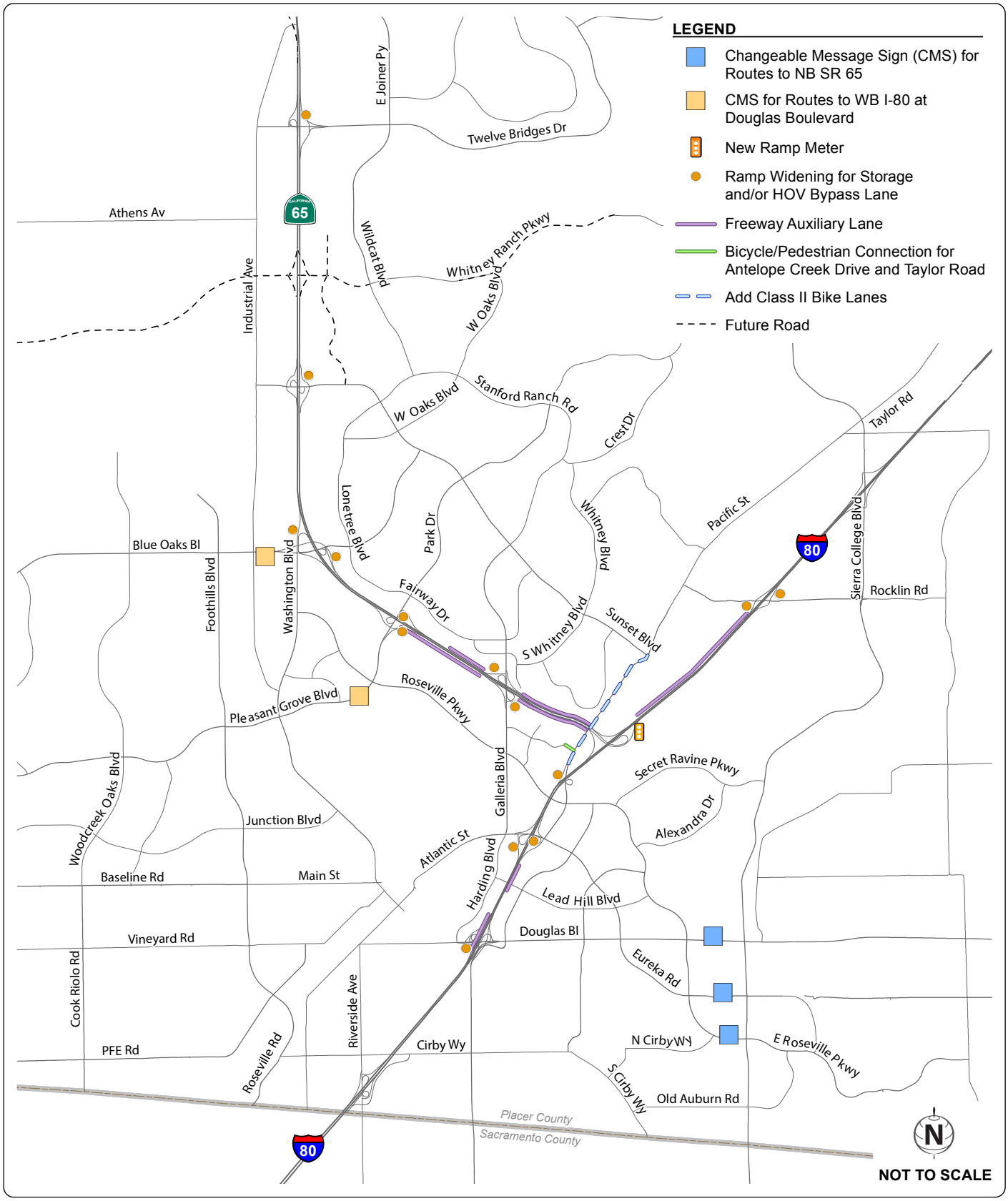
TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)

FIGURE 6



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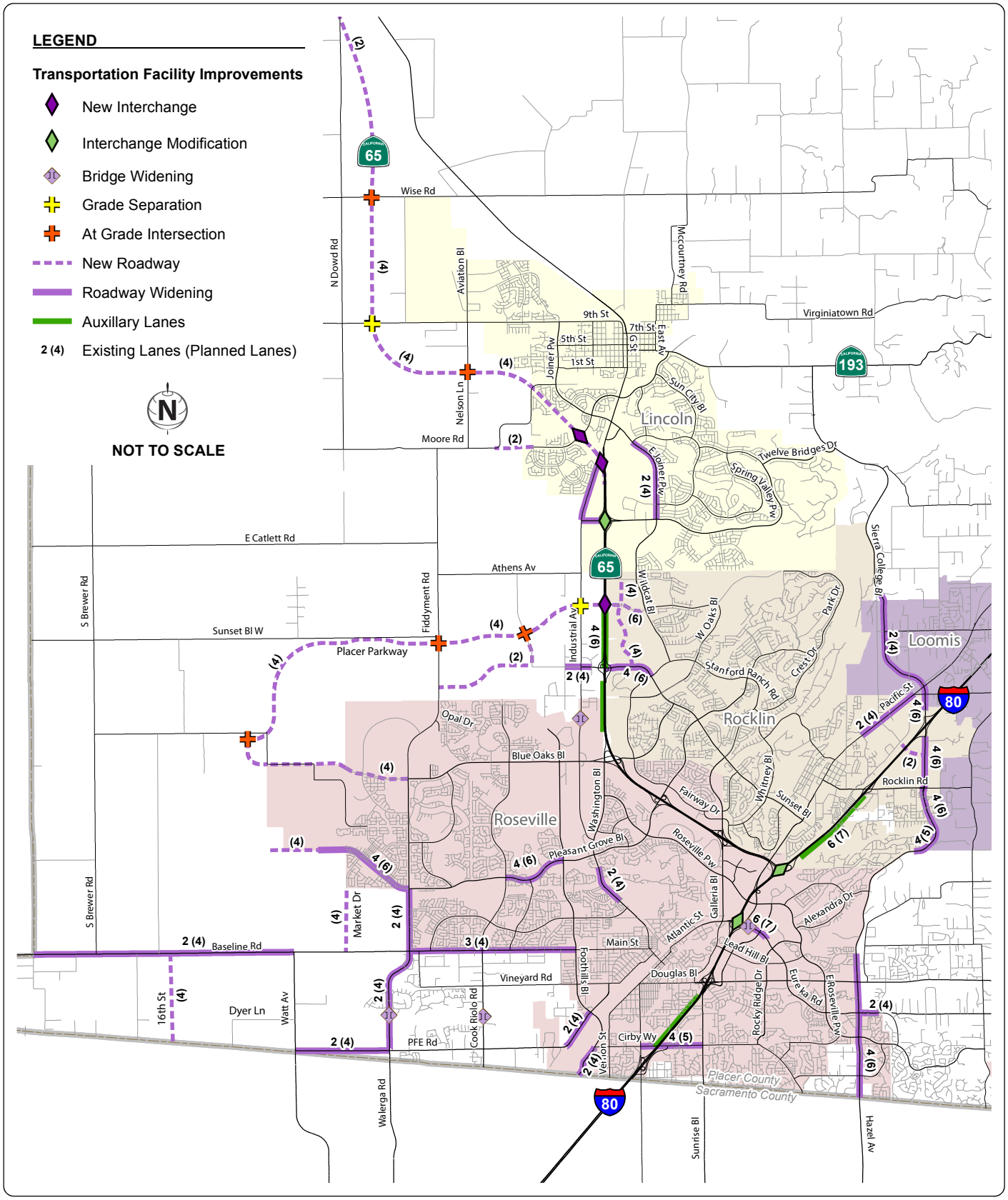
TRANSPORTATION SYSTEM MANAGEMENT (ALTERNATIVE 4)

FIGURE 7



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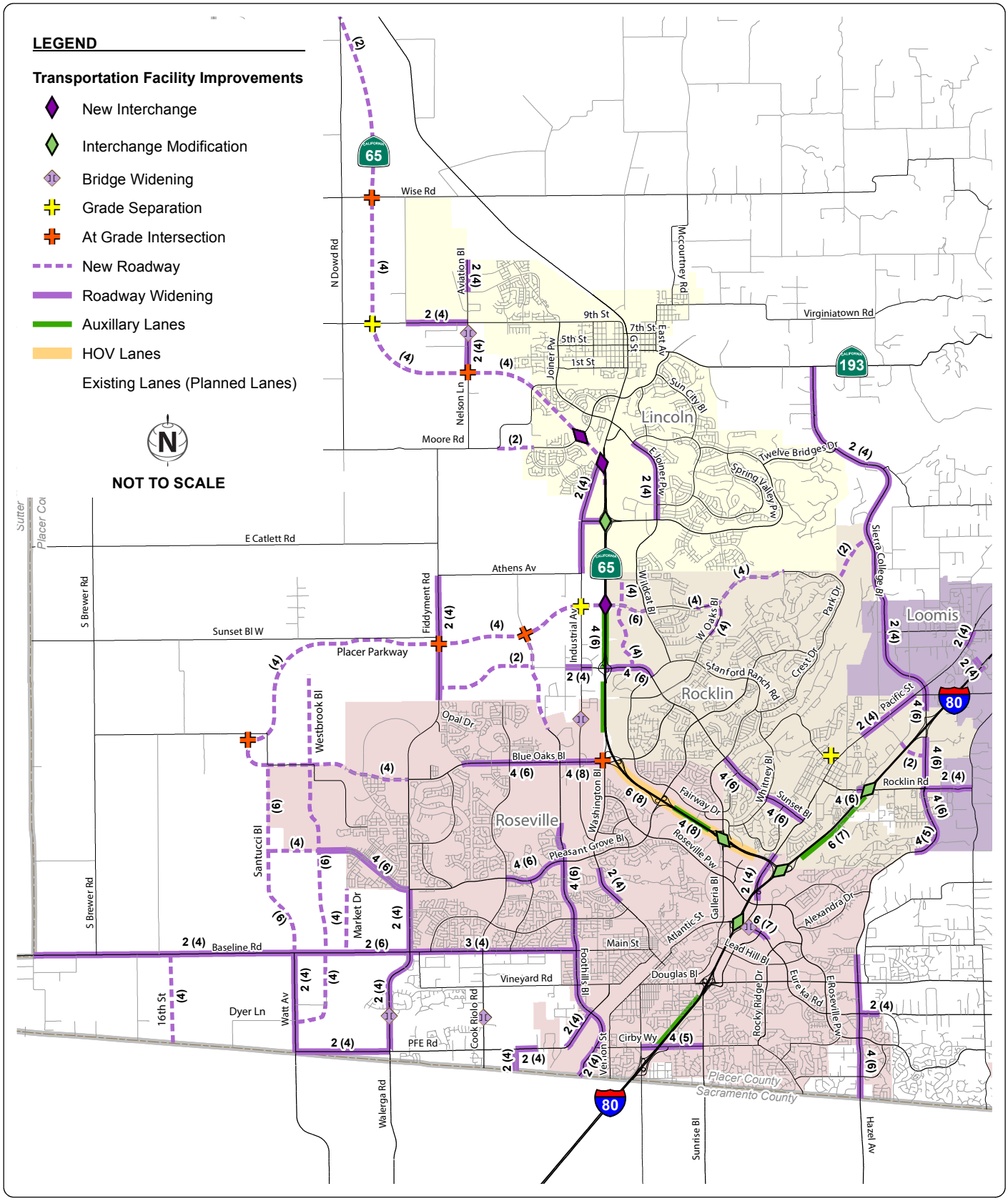
ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2020

FIGURE 8



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ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2040

FIGURE 9

Chapter 4. Alternatives Analysis

The chapter summarizes and compares the traffic operations analysis results for the project alternatives under design year (2040) conditions.

4.1 Future Traffic Forecasts

Traffic volume forecasts for design year (2040) analysis were developed for each of the following project alternatives and shown in Figures 10 through 14. Further details of the traffic forecasting development process are contained in the *I-80/SR 65 Interchange Improvements TAR* (Fehr & Peers, August 2014).

Alternative 1 Taylor Road Full Access Interchange

Alternative 2 Collector-Distributor System Ramps

Alternative 3 Taylor Road Interchange Eliminated

Alternative 4 Transportation System Management (TSM)

Alternative 5 No Build

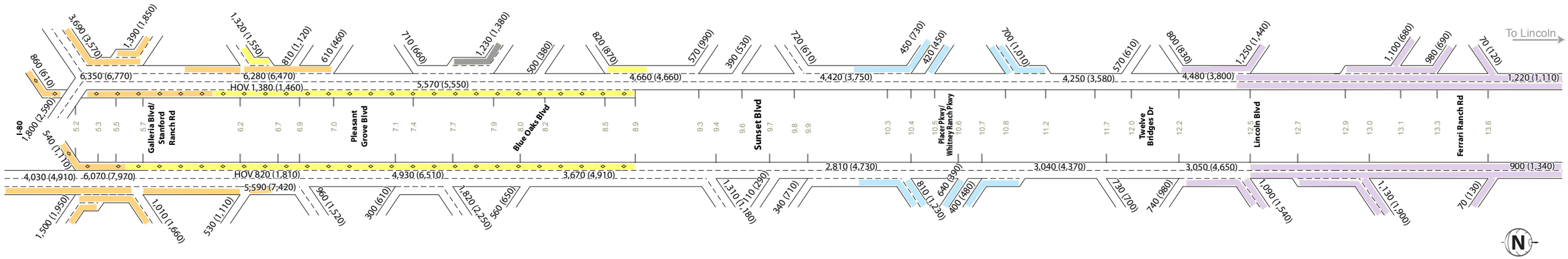
HOV forecasts were also developed for each alternative. The HOV forecasts from the travel demand forecasting model were adjusted based on previous comments from Caltrans about HOV forecasts being lower than observed conditions on I-80. Table 8 shows the AM and PM peak hour HOV percentages for the I-80 western gateway from the 2035 SACMET model, the 2012 traffic counts, and the proposed 2040 forecast values.

TABLE 8: PEAK PERIOD HOV PERCENTAGE FOR I-80 WESTERN GATEWAY

Direction	2035 SACMET		2012 Counts		2040 Forecast	
	AM	PM	AM	PM	AM	PM
Eastbound	11%	13%	15%	17%	15%	22%
Westbound[1]	13%	13%	14%	18%	19%	18%

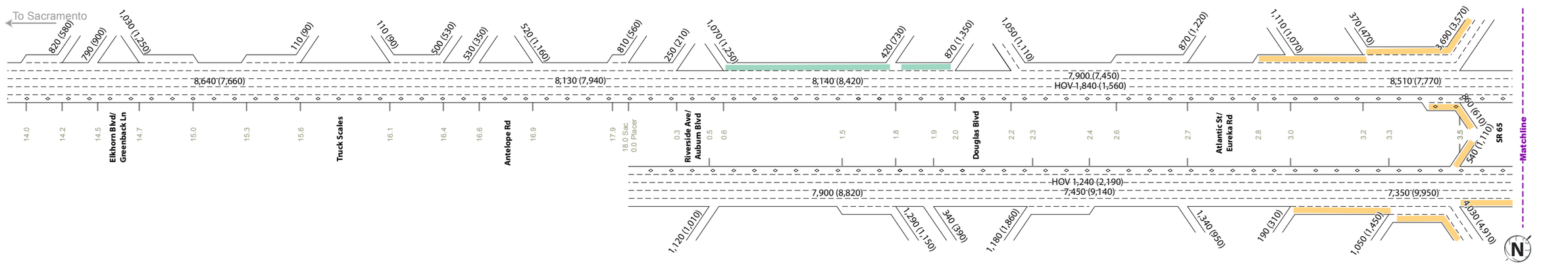
Note: 1. The count location was at the Riverside Ave/Auburn Blvd overcrossing, but the westbound study area gateway is between Elkhorn Blvd and Madison Ave.

Source: Fehr & Peers, 2014



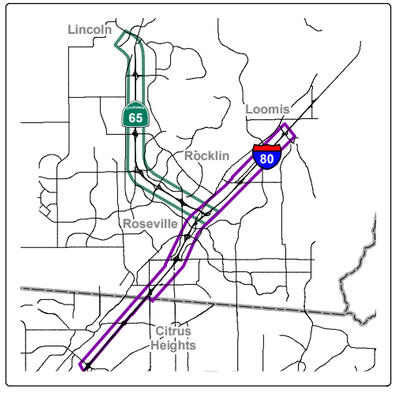
SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to SR 65

NOT TO SCALE



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

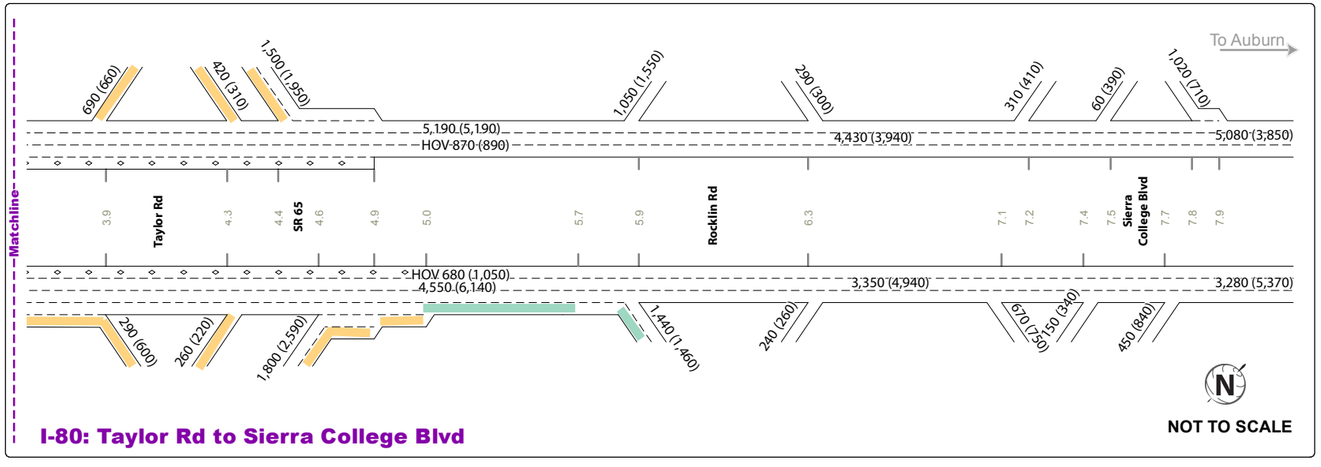
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 1

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: Taylor Rd to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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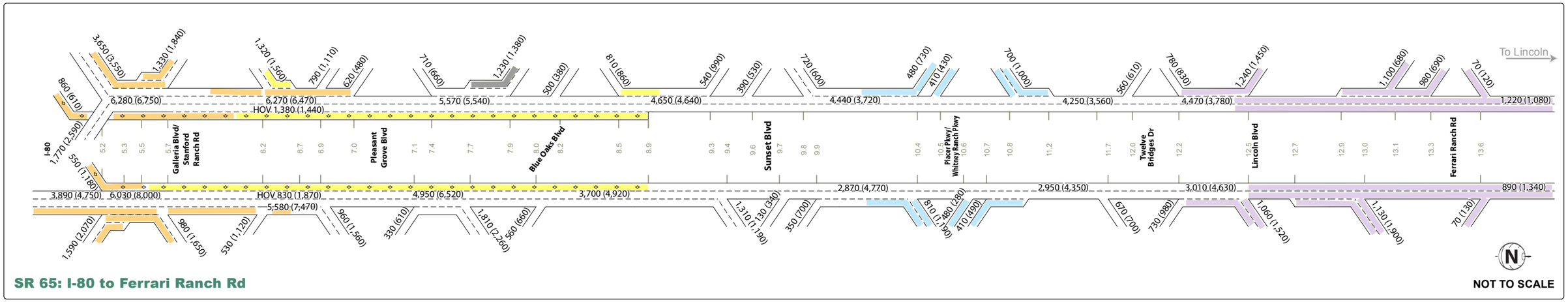
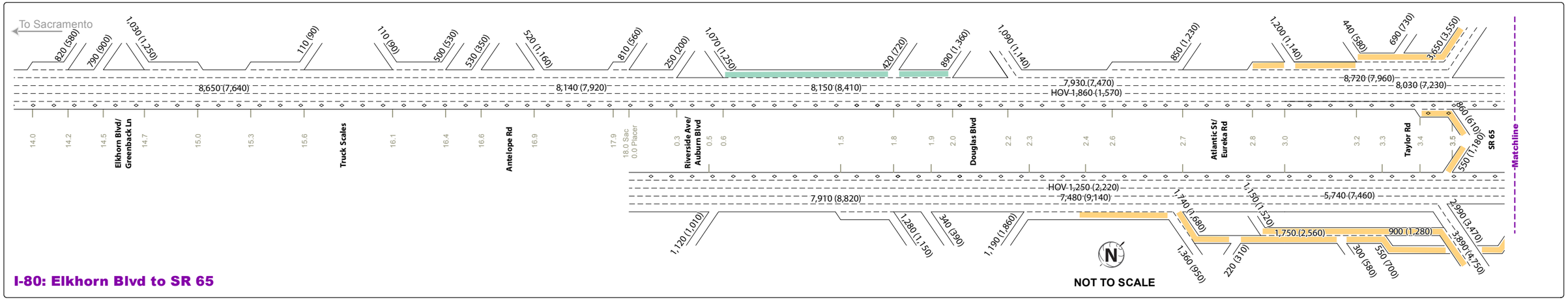
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)

FIGURE 10



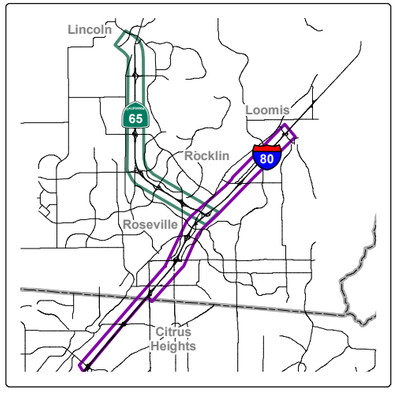
SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to SR 65

NOT TO SCALE



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

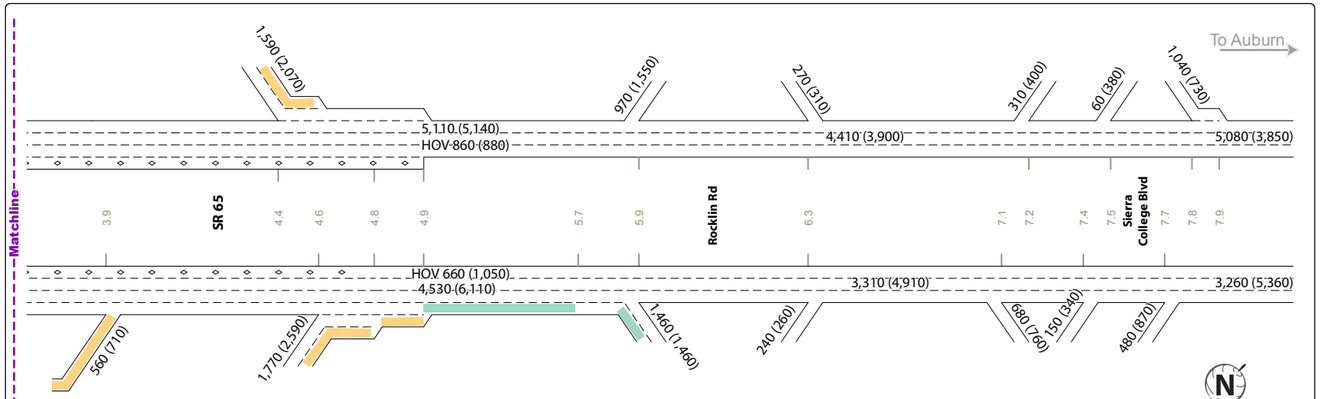
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 2

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

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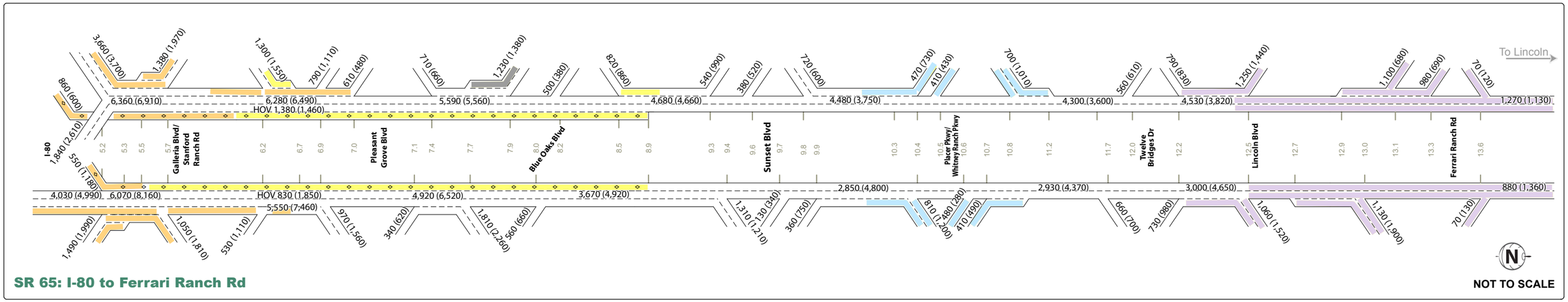
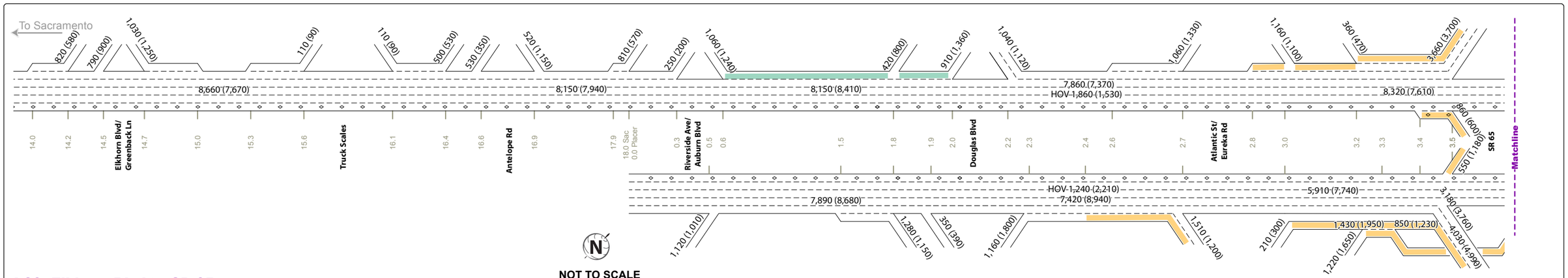
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)

FIGURE 11



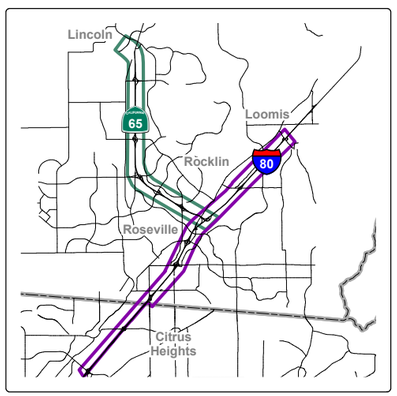
SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to SR 65

NOT TO SCALE



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

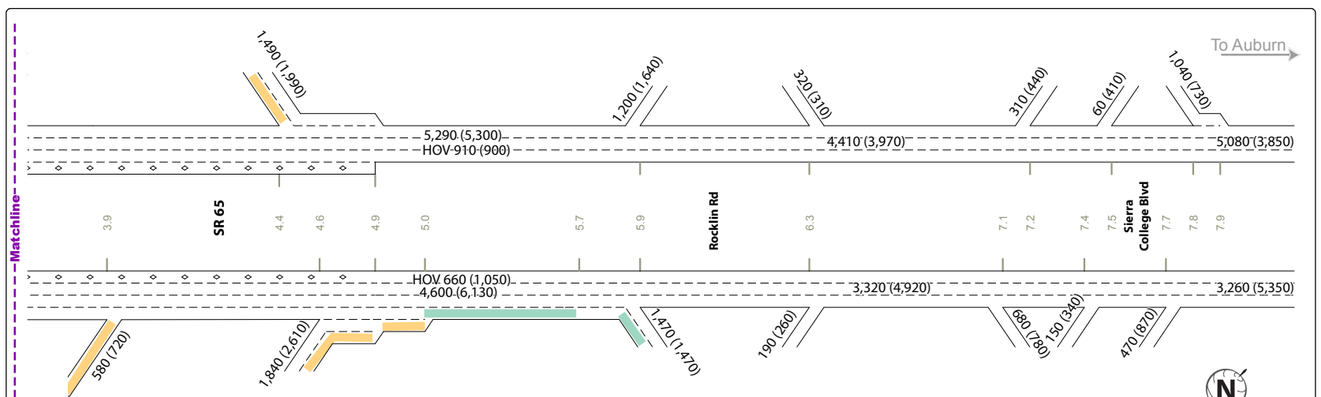
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 3

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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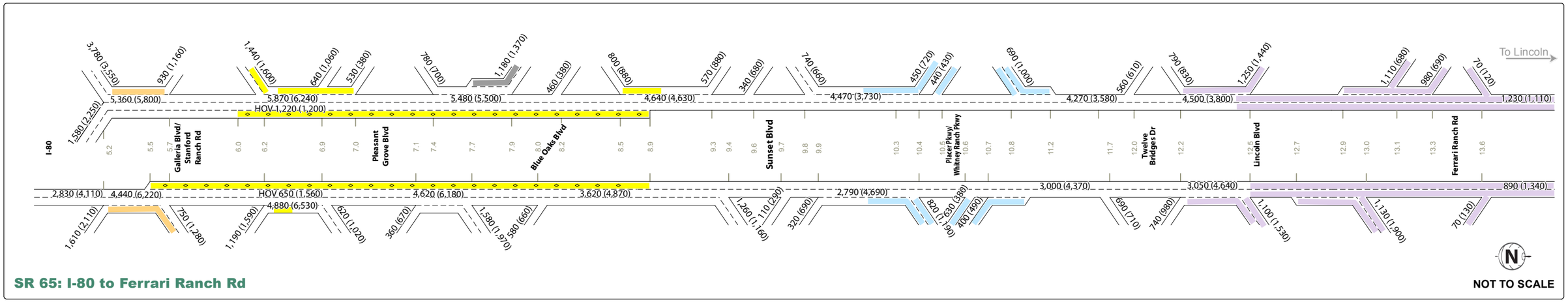
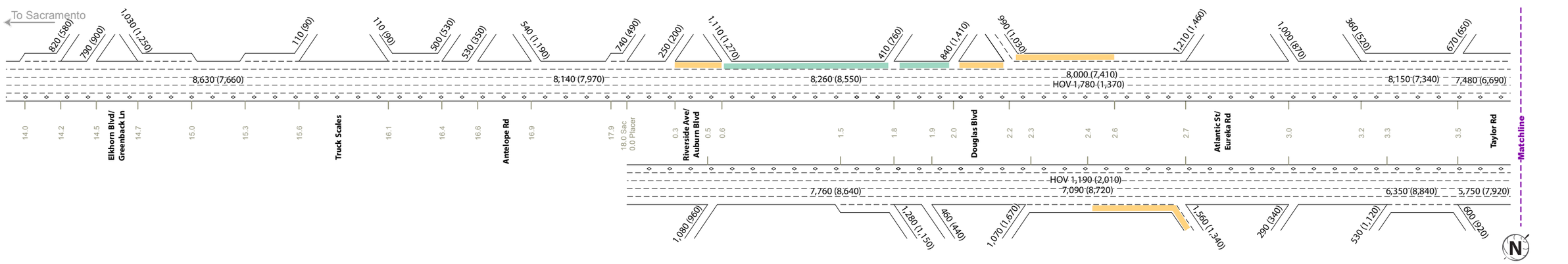
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)

FIGURE 12



SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

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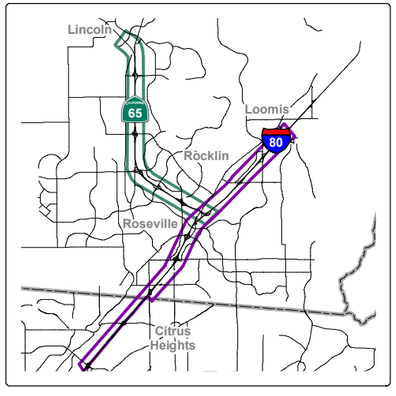


LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

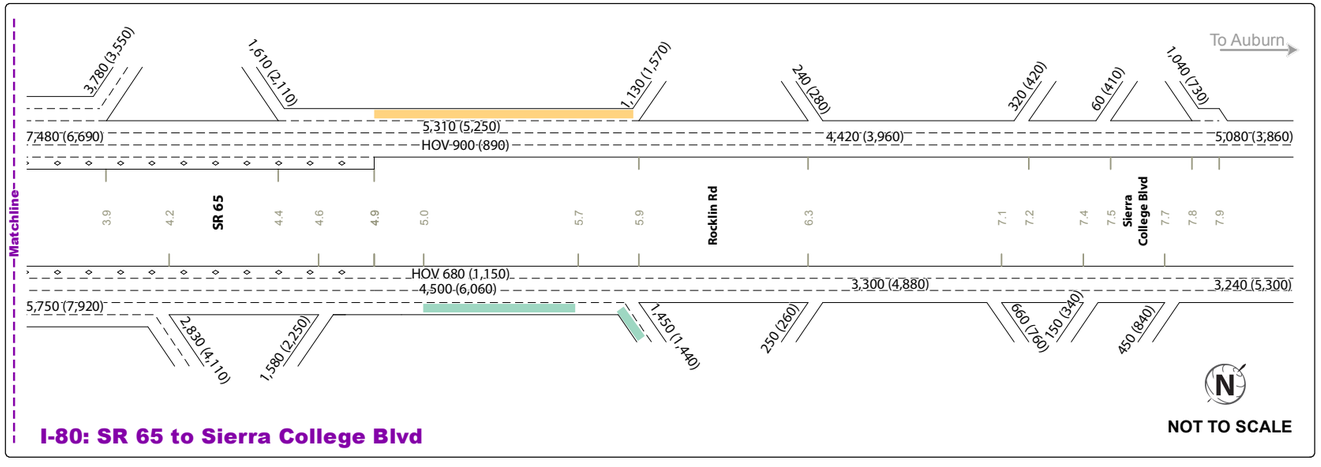
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 4

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

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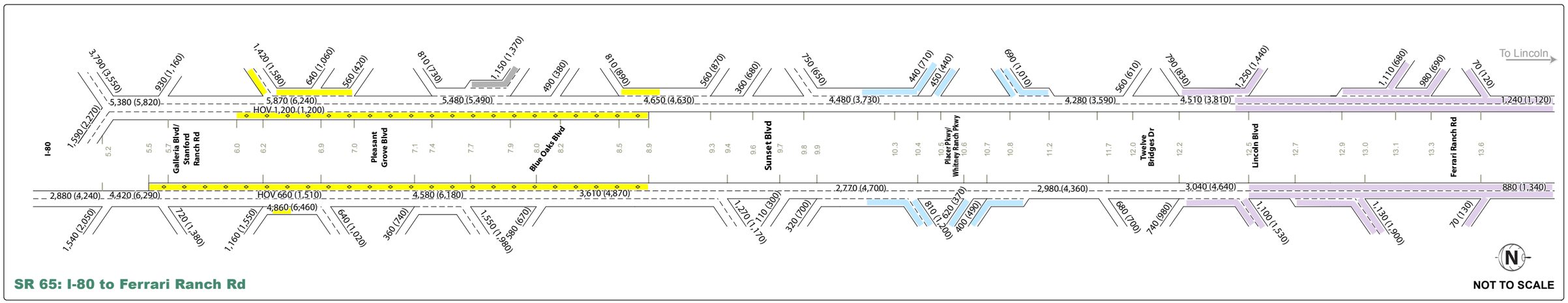
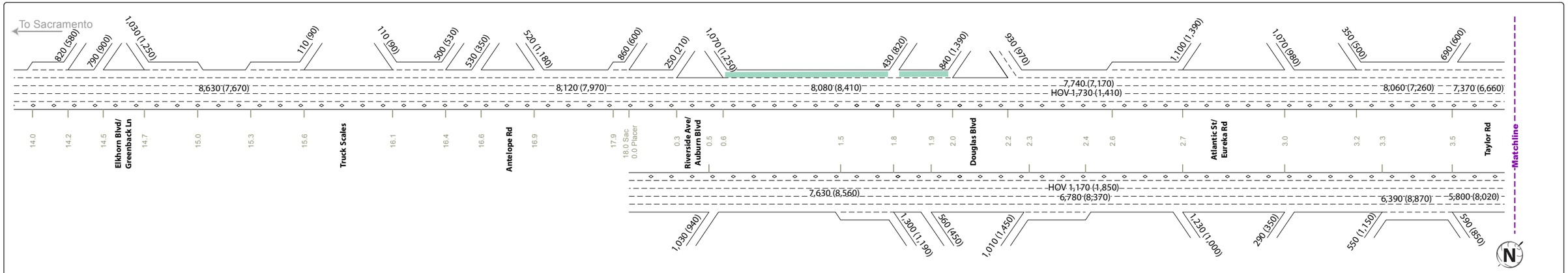
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TRANSPORTATION SYSTEM MANAGEMENT (ALTERNATIVE 4)

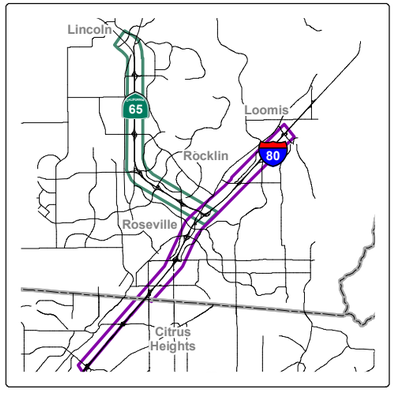
FIGURE 13



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to Taylor Rd



LEGEND

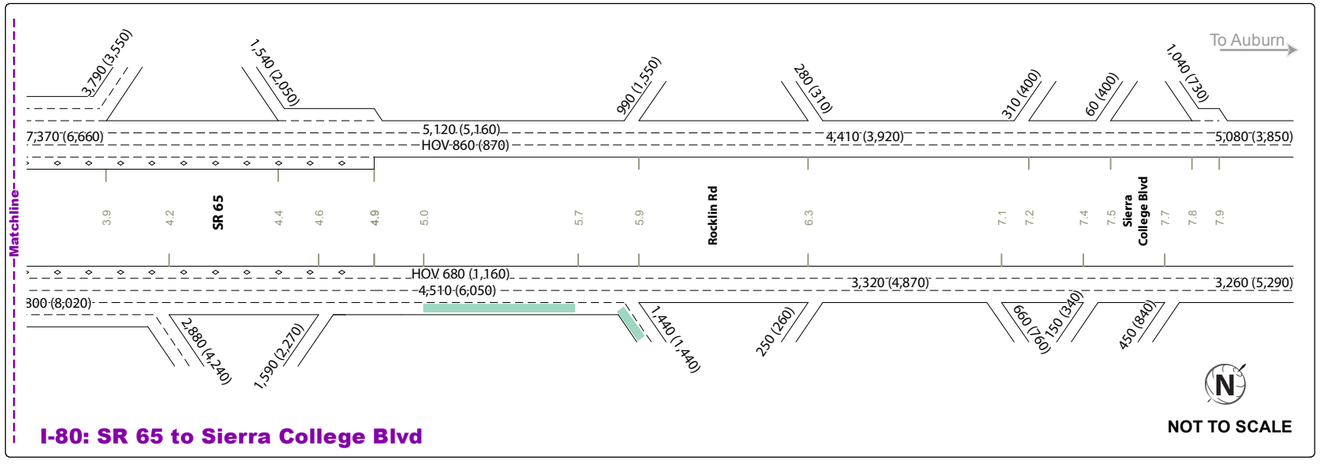
AM (PM) Peak Hour Traffic Volume for 2040 Conditions

HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

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DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO BUILD (ALTERNATIVE 5)

FIGURE 14

As shown in Table 8, the 2008 and 2035 SACMET model forecasts show similar values of 11 to 13 percent at this gateway. These values are lower than the traffic counts that were collected in 2012. The proposed 2040 HOV percentages use the 2012 traffic count percentages for the off-peak directions. In the peak direction, a five percentage point increase was assumed to compensate for the difference between model estimates and counts. Additionally, traffic congestion is expected to be more severe in the design year, which would encourage the formation of carpools. The adjustments noted in Table 8 result in HOV volume forecasts that are at or near the HOV lane operating capacity under design year conditions, so they were considered reasonable for purposes of this study. The resulting HOV lane projections for the project alternatives are listed in Table 9. (Note: Figures 10 through 15 show the total HOV volume across all lanes, but Table 9 shows only the HOV lane volume forecast.)

TABLE 9: HOV LANE VOLUME FOR DESIGN YEAR CONDITIONS

Location	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
EB I-80: Douglas Blvd to Eureka Rd	1,070	1,650	1,080	1,540	1,070	1,480	1,040	1,460	1,030	1,470
WB I-80: Atlantic St to Douglas Blvd	1,570	1,310	1,580	1,320	1,570	1,300	1,320	1,230	1,530	1,280
EB I-80 to NB SR 65	540	1,110	550	1,180	550	1,180	n/a	n/a	n/a	n/a
SB SR 65 to WB I-80	860	610	860	610	860	600	n/a	n/a	n/a	n/a
NB SR 65: Stanford Ranch Rd to Pleasant Grove Blvd	720	1,590	720	1,610	710	1,590	570	1,460	590	1,410
SB SR 65: Pleasant Grove Blvd to Galleria Blvd	1,230	1,200	1,230	1,200	1,230	1,200	1,100	1,090	1,080	1,080

Source: Fehr & Peers, 2014

Under TSM (Alternative 4) and No Build (Alternative 5), HOVs will use the regular direct connector ramps to travel between the HOV lanes on I-80 and SR 65. Because the ramps will be over capacity, the demand will be constrained. In particular, the AM peak hour HOV lane volume on northbound SR 65 would be low. With demand constrained at the I-80 interchange, northbound SR 65 would be relatively free from congestion, so the HOV lane would not provide a travel time advantage.

With the addition of the HOV direct connector ramps, the mainline HOV lane volume would increase. The HOV direct connector peak hour volume is projected to range from 540 to 1,180 vehicles per hour depending on the direction and peak hour. With the HOVs from the westbound to northbound connector added in, the HOV lane volume on northbound SR 65 would be similar to the eastbound I-80 volume. HOV lane volumes would be similar across the alternatives that reconstruct the I-80/SR 65 Interchange (Alternatives 1, 2, and 3).

4.2 Traffic Operations Analysis

Traffic operations are evaluated using peak-hour volume served, speed, LOS, density, and network summary statistics for each alternative. Alternative 4 (TSM) performed significantly worse than the other alternatives and did not meet the project purpose and need; therefore, a detailed traffic analysis of Alternative 4 was not performed. The results presented in this Chapter are based on the *I-80/SR 65 Interchange Improvements TAR* (Fehr & Peers, August 2014).

Network Performance

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 10 and 11 below, respectively.

TABLE 10: COMPARISON OF OVERALL NETWORK PERFORMANCE – DESIGN YEAR AM PEAK PERIOD

Performance Measure	Design Year Conditions			
	Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)	207,230 (99%)	206,770 (99%)	206,770 (99%)	200,650 (95%)
VMT	920,910	921,610	915,790	831,280
PMT	1,106,120	1,110,890	1,100,400	1,004,060
VHT	21,450	21,190	21,450	26,470
VHD (% of VHT)	5,560 (26%)	5,310 (25%)	5,660 (26%)	12,040 (46%)
Average Delay per Vehicle (min)	1.61	1.54	1.64	3.60
PHD	6,360	6,080	6,520	13,880
Average Speed	42.9	43.5	42.7	31.4
Average Speed for HOVs	46.8	47.5	46.1	36.2

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

TABLE 11: COMPARISON OF OVERALL NETWORK PERFORMANCE – DESIGN YEAR PM PEAK PERIOD

Performance Measure	Design Year Conditions			
	Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)	300,410 (100%)	300,020 (100%)	300,690 (100%)	259,410 (86%)
VMT	1,114,000	1,109,610	1,110,480	863,410
PMT	1,355,200	1,349,510	1,352,230	1,071,230
VHT	29,970	30,790	30,680	43,430
VHD (% of VHT)	10,300 (34%)	11,210 (36%)	11,080 (36%)	28,070 (65%)
Average Delay per Vehicle (min)	2.06	2.24	2.21	6.49
PHD	12,020	13,020	12,900	32,910
Average Speed	37.2	36.0	36.2	19.9
Average Speed for HOVs	40.8	40.1	40.1	24.7

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

Overall, the build alternatives improve overall network performance compared to no build conditions. The three build alternatives (Alternatives 1 through 3) serve nearly all of the peak period demand volume, but Alternative 5 (No Build) does not. Alternative 2 (Collector-Distributor System Ramps) has slightly lower delay and higher average speed during the AM peak period than the other two build alternatives. Compared to Alternative 1 (Taylor Road Full Access Interchange), Alternative 2 has fewer freeway ramps, which minimizes freeway congestion. Although Alternative 3 (Taylor Road Interchange Eliminated) has even fewer ramps, the local system is more congested offsetting the benefit to the freeway network.

The PM peak period results reveal that Alternative 1 serves the most vehicles while having the lowest delay for vehicles and persons, as well as the lowest travel times for SOVs and HOVs. In this case, the additional ramps to and from the east at Taylor Road reduce the demand for the ramps to and from the east at Eureka Road/Atlantic Street and, consequently, the weaving volume between Eureka Road/Atlantic Street and SR 65.

Freeway Analysis

Tables 12 and 13 shows the volume, speed, LOS, and density for the mainline sections under design year (2040) conditions during the AM and PM peak hours, respectively. For the purpose of this HOV Report, the results are reported for the selected freeway segments on I-80 from Douglas Boulevard to SR 65 and on SR 65 from I-80 to Pleasant Grove Boulevard.

TABLE 12: FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR														
Freeway	**Location**	**Type[1]**	**Alternative 1**			**Alternative 2**			**Alternative 3**			**Alternative 5**		
			Volume	**Speed**	**LOS/ Density**	**Volume**	**Speed**	**LOS/ Density**	**Volume**	**Speed**	**LOS/ Density**	**Volume**	**Speed**	**LOS/ Density**
EB I-80	Douglas Blvd EB Off-ramp	Diverge	8,718	60	D / 31	8,722	60	D / 29	8,714	56	D / 33	8,085	28	**F / 71**
	Douglas Blvd WB Off-ramp	Diverge	7,304	62	C / 26	7,388	62	C / 26	7,308	55	E / 36	6,522	22	**F / 127**
	Douglas Blvd On-ramp	Merge	8,082	60	D / 35	8,229	62	C / 26	8,088	62	C / 26	6,443	12	**F / 153**
	Eureka Rd Off-ramp	Diverge	8,082	59	E / 37							6,263	15	**F / 114**
	Eureka Rd to SR 65	Weave	7,986	62	C / 23	6,546	62	D / 30	6,523	61	D / 31	5,647	14	**F / 131**
	Taylor Rd Off-ramp	Diverge	3,044	64	B / 16	-	-	-	-	-	-			
	Taylor Rd On-ramp	Merge	3,004	64	B / 18	-	-	-	-	-	-	5,129	13	**F / 123**
	SR 65 Off-ramp	Diverge	-	-	-	5,785	63	C / 25	5,931	63	C / 25	5,085	15	**F / 86**
	SR 65 On-ramp	Merge	4,933	62	D / 30	5,019	61	D / 30	5,025	60	D / 30	4,086	62	B / 20
WB I-80	SR 65 Off-ramp	Diverge	5,381	63	C / 24	5,319	64	C / 22	5,460	63	C / 23	5,265	61	C / 27
	Taylor Rd Off-ramp	Diverge	3,825	63	B / 20	-	-	-	-	-	-	-	-	-
	Taylor Rd On-ramp	Merge	4,155	62	C / 21	-	-	-	-	-	-	7,687	60	D / 32
	SR 65 to Atlantic St	Weave	8,747	22	**F / 90**	9,071	26	**F / 83**	8,583	29	**F / 78**	7,029	62	C / 27
	Atlantic St EB Off-ramp	Diverge	8,174	22	**F / 112**	8,357	23	**F / 107**	8,016	22	**F / 111**	7,258	43	F / 53
	Atlantic St On-ramp	Merge	7,985	23	**F / 75**	8,031	24	**F / 73**	7,914	23	**F / 77**	6,987	53	C / 28
	Douglas Blvd Off-ramp	Diverge	7,982	37	**F / 63**	8,016	38	**F / 60**	7,899	37	**F / 64**	6,990	55	C / 21
	Douglas Blvd WB On-ramp	Merge	7,941	24	**F / 113**	7,900	24	**F / 113**	7,889	24	**F / 112**	6,817	62	C / 25
	Douglas Blvd EB On-ramp	Merge	8,394	29	**F / 77**	8,365	28	**F / 76**	8,362	28	**F / 76**	7,214	58	C / 23

TABLE 12: FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR

Freeway	Location	Type[1]	Alternative 1			Alternative 2			Alternative 3			Alternative 5		
			Volume	Speed	LOS/ Density	Volume	Speed	LOS/ Density	Volume	Speed	LOS/ Density	Volume	Speed	LOS/ Density
NB SR 65	I-80 to Stanford Ranch Rd	Weave	6,507	60	C / 27	6,592	60	C / 26	6,501	60	C / 26	4,219	36	**F / 57**
	Stanford Ranch Rd On-ramp	Merge	5,972	35	**F / 61**	6,153	38	**F / 58**	5,940	35	**F / 61**	4,602	61	D / 30
	Stanford Ranch Rd to Pleasant Grove Blvd	Basic	5,979	49	E / 44	6,151	48	**F / 46**	5,942	49	**F / 45**			
	Pleasant Grove Blvd Off-ramp	Diverge	5,980	53	E / 40	6,151	53	E / 40	5,943	53	E / 40			
	Pleasant Grove Blvd to Blue Oaks Blvd	Weave	5,335	61	D / 31	5,551	61	D / 31	5,343	62	D / 31	4,366	63	C / 25
SB SR 65	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	5,796	56	E / 37	5,773	57	D / 35	5,780	57	D / 35	5,356	60	D / 30
	Pleasant Grove Blvd WB On-ramp	Merge	5,662	60	D / 29	5,679	61	D / 28	5,666	61	D / 29	4,993	58	C / 28
	Pleasant Grove Blvd EB On-ramp	Merge	6,507	54	E / 38	6,491	53	E / 36	6,474	57	D / 35	5,613	49	E / 44
	Pleasant Grove Blvd to Galleria Blvd	Basic	6,505	59	D / 33	6,483	59	D / 33	6,461	59	D / 33	5,615	45	**F / 50**
	Galleria Blvd Off-ramp	Diverge	6,505	62	D / 29	6,481	62	D / 29	6,460	61	D / 29	5,615	42	**F / 55**
	Galleria Blvd to I-80	Weave	6,632	60	C / 26	6,535	59	C / 26	6,604	58	C / 28	5,050	32	**F / 78**

Notes: Bold and underline font indicate LOS F conditions.

[1] The facility type reported is for Alternative 1.

Source: Fehr & Peers, 2014

TABLE 13: FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR														
Freeway	**Location**	**Type[1]**	**Alternative 1**			**Alternative 2**			**Alternative 3**			**Alternative 5**		
			Volume	**Speed**	**LOS/ Density**	**Volume**	**Speed**	**LOS/ Density**	**Volume**	**Speed**	**LOS/ Density**	**Volume**	**Speed**	**LOS/ Density**
EB I-80	Douglas Blvd EB Off-ramp	Diverge	8,923	56	E / 37	8,943	60	D / 30	8,757	57	E / 37	4,927	13	**F / 107**
	Douglas Blvd WB Off-ramp	Diverge	7,758	60	D / 30	7,796	62	C / 27	7,611	57	E / 39	4,250	16	**F / 180**
	Douglas Blvd On-ramp	Merge	9,165	60	E / 35	9,124	62	C / 27	8,928	62	C / 26	4,384	9	**F / 181**
	Eureka Rd Off-ramp	Diverge	9,169	60	E / 38							4,403	14	**F / 149**
	Eureka Rd to SR 65	Weave	9,948	60	C / 27	7,432	60	D / 32	7,728	59	D / 33	5,061	10	**F / 142**
	Taylor Rd Off-ramp	Diverge	3,917	64	B / 18	-	-	-	-	-	-			
	Taylor Rd On-ramp	Merge	3,505	64	B / 18	-	-	-	-	-	-	4,706	8	**F / 133**
	SR 65 Off-ramp	Diverge	-	-	-	6,278	62	C / 25	6,577	61	C / 28	4,710	22	**F / 66**
	SR 65 On-ramp	Merge	6,032	59	D / 33	6,011	59	D / 32	6,021	59	D / 33	3,907	62	C / 21
WB I-80	SR 65 Off-ramp	Diverge	5,474	63	C / 23	5,411	64	C / 22	5,568	64	C / 22	4,583	38	**F / 114**
	Taylor Rd Off-ramp	Diverge	3,447	63	B / 17	-	-	-	-	-	-	-	-	-
	Taylor Rd On-ramp	Merge	3,767	63	B / 18	-	-	-	-	-	-	6,175	45	**F / 61**
	SR 65 to Atlantic St	Weave	7,929	50	E / 39	8,083	57	C / 25	7,770	57	D / 28	5,677	49	E / 42
	Atlantic St EB Off-ramp	Diverge	7,328	27	**F / 91**	7,541	41	**F / 51**	7,250	49	E / 39	5,605	43	**F / 61**
	Atlantic St On-ramp	Merge	7,307	19	**F / 84**	7,462	21	**F / 79**	7,335	25	**F / 61**	5,690	26	**F / 100**
	Douglas Blvd Off-ramp	Diverge	7,211	30	**F / 77**	7,374	32	**F / 71**	7,252	34	**F / 70**	5,670	30	**F / 108**
	Douglas Blvd WB On-ramp	Merge	7,381	22	**F / 114**	7,368	22	**F / 111**	7,371	22	**F / 114**	5,049	62	C / 20
	Douglas Blvd EB On-ramp	Merge	8,012	28	**F / 74**	7,972	27	**F / 75**	8,004	27	**F / 73**	5,470	61	B / 15

TABLE 13: FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR

Freeway	Location	Type[1]	Alternative 1			Alternative 2			Alternative 3			Alternative 5		
			Volume	Speed	LOS/ Density	Volume	Speed	LOS/ Density	Volume	Speed	LOS/ Density	Volume	Speed	LOS/ Density
NB SR 65	I-80 to Stanford Ranch Rd	Weave	8,035	46	E / 44	7,905	28	**F / 71**	8,164	32	**F / 65**	4,397	27	**F / 84**
	Stanford Ranch Rd On-ramp	Merge	7,341	31	**F / 73**	7,280	30	**F / 75**	7,288	31	**F / 72**	5,046	61	D / 30
	Stanford Ranch Rd to Pleasant Grove Blvd	Basic	7,329	54	E / 38	7,277	52	E / 39	7,283	53	E / 39			
	Pleasant Grove Blvd Off-ramp	Diverge	7,328	59	D / 33	7,278	57	D / 34	7,283	57	D / 34			
	Pleasant Grove Blvd to Blue Oaks Blvd	Weave	6,404	61	D / 32	6,341	61	D / 32	6,349	61	D / 32	4,941	63	C / 25
SB SR 65	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	5,545	60	D / 32	5,613	60	D / 33	5,600	59	D / 33	4,857	61	C / 26
	Pleasant Grove Blvd WB On-ramp	Merge	5,356	62	C / 28	5,438	62	D / 28	5,444	62	D / 28	4,451	62	C / 22
	Pleasant Grove Blvd EB On-ramp	Merge	6,460	61	D / 31	6,536	60	D / 32	6,540	59	D / 32	5,464	59	D / 29
	Pleasant Grove Blvd to Galleria Blvd	Basic	6,462	59	D / 33	6,534	59	D / 34	6,537	59	D / 34	5,461	61	D / 32
	Galleria Blvd Off-ramp	Diverge	6,462	62	D / 29	6,534	61	D / 30	6,537	61	D / 30	5,461	60	D / 33
	Galleria Blvd to I-80	Weave	6,689	61	C / 25	6,711	61	C / 25	6,845	61	C / 26	4,868	51	E / 40

Notes: Bold and underline font indicate LOS F conditions.

[1] The facility type reported is for Alternative 1.

Source: Fehr & Peers, 2014

The results for other freeway segments are included in the *I-80/SR 65 Interchange Improvements TAR* (Fehr & Peers, August 2014) and also discussed below in order to provide better understanding of corridor-wide operational characteristics and potential bottlenecks and their effects along the study corridors.

Eastbound I-80

The freeway operations results indicate the No Build alternative would result in LOS F operations on I-80 in the eastbound direction between the beginning of the analysis area at Auburn Blvd and the SR 65 off-ramp during the AM and PM peak periods. The speed for vehicles in the mixed flow lanes would be less than 10 mph for most of this section, and about 60 percent of the demand would be served in the PM peak hour. All of the build alternatives provide significant congestion relief in both the AM and PM peak periods; therefore, no deficiencies occur on eastbound I-80. Most segments would operate with LOS D or better conditions. Under all build alternatives, LOS E would occur between Auburn Boulevard and Douglas Boulevard during both peak hours. Unlike the LOS D conditions under the other two build alternatives, Alternative 1 (Taylor Road Full Access Interchange) would have LOS E between Douglas Boulevard and Eureka Road since no auxiliary lane would be constructed. During the PM peak hour, Alternative 3 (Taylor Road Interchange Eliminated) would have minor slowing (less than 30 minutes) due to congestion from the SR 65 northbound connector ramp.

Westbound I-80

During the AM peak period, congestion would occur between SR 65 and Douglas Boulevard and between the truck scales and Elkhorn Boulevard. The build alternatives would have LOS F from the SR 65 to Atlantic Street weaving section to the eastbound Douglas Boulevard on-ramp. In contrast, the Alternative 5 (No Build) would have LOS F only at the eastbound Atlantic Street off-ramp. The difference is caused in part by different forecast assumptions (as discussed above) and in part by upstream congestion on southbound SR 65 between Pleasant Grove Boulevard and Galleria Boulevard.

During the PM peak hour, LOS F conditions would occur between Atlantic Street and Douglas Boulevard under Alternatives 1, 2, and 3. For Alternative 5 (No Build), LOS F would also occur in this area, the upstream section between Rocklin Road and SR 65 would also have LOS F. Under Alternative 5, congestion on SR 65 northbound would spill back onto westbound I-80 for longer than the four-hour peak period. This bottleneck would constrain westbound through volumes (95 percent demand served downstream after SR 65 in the peak hour) which would result in better conditions downstream for the no build alternative compared to the build alternatives. The proposed project (Alternatives 1, 2, and 3) would result in impacts on westbound I-80 in the PM peak hour at Atlantic Street and at Douglas Boulevard.

Northbound SR 65

During the AM peak hour, Alternatives 1, 2, and 3 would have LOS F conditions at Stanford Ranch Road. The lane drop at the Pleasant Grove Boulevard off-ramp would be the bottleneck. Despite the LOS F

conditions, the congested period would last for about 30 minutes. Alternative 5 (No Build) would have in LOS F conditions at the I-80 westbound on-ramp to northbound SR 65. This bottleneck would constrain traffic (72 percent demand served in the peak hour) such that the downstream segments at Stanford Ranch Road would have LOS D conditions.

The PM peak hour results show the same trends as the AM peak hour; however, the demand volumes are higher, which results in more congestion. Alternative 1 (Taylor Road Full Access Interchange) has LOS F conditions at the same locations as in the AM peak hour. For Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated), the LOS F conditions extend back to I-80. Despite this congestion, the build alternatives would serve 97 to 99 percent of the peak-hour demand volume. Alternative 5 (No Build) has LOS F conditions at the I-80 westbound on-ramp and would serve about 70 percent of the demand. The northbound SR 65 bottleneck at Pleasant Grove Boulevard would occur for longer than three hours even in the build alternatives. Farther north, LOS E conditions occur for the build alternatives between Whitney Ranch Parkway and Twelve Bridges Drive indicating that further increases in volume may result in congested conditions.

Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated) show more congestion compared to Alternative 1 (Taylor Road Full Access Interchange). The three build alternatives have similar peak-hour volumes (within 40 vehicles per hour). However, the volume of weaving traffic between Stanford Ranch Road and Pleasant Grove Boulevard differs. The 4 to 5 PM demand volume for the weaving movements (on-ramp to downstream mainline and upstream mainline to off-ramp) are 46 vehicles per hour lower for Alternative 1 compared to Alternative 2 and 33 vehicles per hour lower for Alternative 3. The higher weaving volume disrupts the traffic flow in Alternatives 2 and 3, which results in worse operations compared to Alternative 1.

Southbound SR 65

During the AM peak hour, all project alternatives have LOS F conditions on southbound SR 65 at the Twelve Bridges Drive on-ramp. For the build alternatives, LOS F conditions extend upstream to the Ferrari Ranch Road interchange. As noted previously, the difference is caused by different forecasts used for the analysis of Alternative 5 (No Build). For Alternatives 1, 2, and 3, slowing is also present at the Placer Parkway, Sunset Boulevard, and Blue Oaks Boulevard westbound on-ramps, and at the Pleasant Grove Boulevard interchange. For Alternative 5, a bottleneck at the Galleria Boulevard to I-80 weaving section causes LOS F conditions to extend back to Pleasant Grove Boulevard. Alternatives 1 and 2 have LOS F conditions on the connector to westbound I-80 due to downstream bottlenecks at Douglas Boulevard. All of the study facilities operate at LOS E or better in the southbound direction during the PM peak hour.

4.3 Traffic Safety

As noted in the safety section in Chapter 2, the total collision rates were higher than statewide averages for eastbound and westbound I-80 between Douglas Boulevard and SR 65. This location has the highest volume and experiences the most severe congestion during peak periods. The fatality and injury collision rate for westbound I-80 between Rocklin Road and SR 65 is also greater than the statewide average. The most frequent collision type (62 percent) is a rear end collision, which is typical an indicator of congested conditions. This congestion at a majority of the study segments will be reduced with the build alternatives in place. With the lane additions and resulting increased capacity, congestion and accidents such as rear end and sideswipe collisions will likely be reduced.

At the I-80/SR 65 interchange, all four freeway-to-freeway connectors have actual accident rates that are higher than the statewide average. The proposed project would improve these ramps by adding lane capacity to all the connectors to reduce vehicle density, replacing the eastbound I-80 to northbound SR 65 loop ramp with a flyover ramp with a larger radius to provide a higher comfort speed for drivers, especially truck drivers, and providing median HOV ramps from eastbound I-80 to northbound SR 65 and southbound SR 65 to westbound I-80. The improvements are expected to reduce rear-end, sideswipe, hit object, and overturn accidents for these ramps.

Chapter 5. Other Considerations

This chapter covers other considerations regarding the proposed I-80/SR 65 Interchange project.

Approval of Regional Planning Agencies

The Sacramento Area Council of Governments (SACOG) lists the I-80/SR-65 Interchange project in the *2035 Metropolitan Transportation Plan / Sustainable Communities Strategy* (2012). The project is programmed for $30,000,000 as part of the 2013 MTP Amendment #8 with a total preliminary cost estimate for the overall project of $330 million. The MTP describes the project as follows: "Rebuild I-80/SR 65 interchange to widen northbound SR 65 from 2 to 3 lanes between I-80 and Pleasant Grove Boulevard northbound off-ramp auxiliary lane (Phase 1)."

Compliance with AQMD Regulations

As noted above, the proposed project is included in the *2035 Metropolitan Transportation Plan* (2012), which SACOG found to conform with air quality regulations on May 30, 2013. The project is also included in the financially constrained 2013/16 Metropolitan Transportation Improvement Plan (MTIP) (Amendment 8). The MTIP was found to conform by FHWA and the Federal Transit Authority (FTA) on May 30, 2013. The design concept and scope of the proposed project is consistent with the assumptions in SACOG's regional emissions analysis.

Chapter 6. Summary

This chapter presents the key findings of traffic operation results of the project alternatives. Table 14 summarizes the congestion, capacity, and safety results for the proposed project alternatives.

Compared to the No Build alternative, Alternatives 1 through 3 would serve 3 and 15 percent of more people through the study area in the AM and PM peak periods, respectively, under design year 2040 conditions. Freeway operations near the four freeway-to-freeway connectors would improve to LOS C during both AM and PM peak hours under all three build alternatives.

TABLE 14: HOV REPORT SUMMARY

Alternatives	Connector Direction (Lanes)	Congestion / Capacity												Safety	
		Connector Peak Period Demand Volumes[1]				Study Area Persons Moved / Peak Period				Freeway Segment Peak Hour LOS/Density[2]				Connector Accidents per MV	
		Existing (2012)		Projected (2040)		Existing (2012)		Projected (2040)		Existing (2012)		Projected (2040)			
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	Actual	Ex-pected
5 (No Build)	EB-NB (2)	7,296	10,553	9,959	16,505	175,740	238,060	237,450	311,370	C/28	**F/52**	**F/86**	**F/66**	0.98	0.70
	SB-WB (2)	8,324	7,661	14,728	13,509					C/24	C/22	**F/78**	E/40	0.75	0.60
1	EB-NB (3+1)			15,383	23,384			245,630	359,150			C/23	C/27		0.55[3]
	SB-WB (3+1)			17,000	15,834							C/26	C/25		0.60[3]
2	EB-NB (3+1)			14,997	22,756			245,180	358,640			C/25	C/25		0.55[3]
	SB-WB (3+1)			16,827	15,822							C/26	C/25		0.60[3]
3	EB-NB (3+1)			15,390	23,990			245,170	359,100			C/25	C/28		0.55[3]
	SB-WB (3+1)			17,018	16,272							C/28	C/26		0.60[3]

Notes: The peak periods are 6:00 to 10:00 AM and 3:00 to 7:00 PM.

1. HOVs are included in the traffic demand volume under all alternatives.
2. The peak hour LOS and density are from the freeway segment upstream of the connector. Bold and underlined indicates LOS F.
3. Does not include the expected accident rate for the HOV direct connector.

Source: Fehr & Peers, 2014

In general, the three build alternatives perform similarly under design year conditions. Table 15 compares the build alternatives across a range of performance measures based on the project objectives. As described in Chapter 1, the project objectives can be summarized as reducing congestion, balancing local access and safety, and accommodating multiple modes of travel.

In the comparison summary table, two performances measures for the overall network performance are provided: the sum of the AM and PM peak period volume served (throughput) and vehicle hours of delay. The three build alternatives have similar performance, with less than 2 percent difference among the alternatives. Alternative 1 (Taylor Road Full Access Interchange) has the best performance since the full Taylor Road interchange provides alternate paths to spread traffic demand across the network. Alternative 3 (Taylor Road Interchange Eliminated) would serve about the same volume as Alternative 1, but Alternative 2 (Collector-Distributor System Ramps) would have less delay than Alternative 3.

The comparison table lists the total number of design year AM and PM peak hour impacts for study freeway sections and intersections. Alternative 3 (Taylor Road Access Eliminated) has the fewest freeway impacts but the most intersection impacts. Conversely, Alternative 1 (Taylor Road Full Access Interchange) has the most freeway impacts but the fewest intersection impacts. Alternative 2 (Collector-Distributor System Ramps) has the fewest total impacts (freeway and intersection impacts combined).

TABLE 15: ALTERNATIVE COMPARISON SUMMARY

Category	Alternative 1	Alternative 2	Alternative 3
Network Throughput (Design Year AM & PM)[1]	1st	3rd (-0.17%)	2nd (-0.04%)
Network Delay (Design Year AM & PM)[1]	1st	2nd (-1.1%)	3rd (-1.4%)
Freeway Impacts (Design Year AM & PM)	31	30	28
Intersection Impacts (Design Year AM & PM)	5	3	6
Ramp Junctions on I-80 in the Project Area	16	15	12
Ramps on I-80 in the Project Area	16	14	12

Note: 1. The percent difference from the first place value is shown in parentheses.
Source: Fehr & Peers, 2014

Traffic safety assessment indicates collisions tend to be located near ramp junctions, so the number of ramp junctions is used here as a proxy for vehicle safety. Alternative 1 has the most ramp junctions, while Alternative 3 has the fewest. Freeway ramps provide access to and from the local street network, so they are important for local network circulation. Alternative 1 provides the most points for local access, while Alternative 3 has the fewest. Ramps and ramp junctions for an alternative can differ depending on how the ramps connect to the freeway, the collector-distributor roadway (in Alternatives 2 and 3), and the local streets.

The third project objective relating the accommodation of multiple modes is equally addressed by all three build alternatives. The alternatives provide mainline freeway connections for the HOV lane network including the direct connectors at the I-80/SR 65 interchange and HOV preferential lanes at ramp meters. The local street improvements planned for Taylor Road under all alternatives will provide pedestrian (sidewalks, crosswalks, etc.) and bicycle (Class II lane) facilities according to local design standards and planning documents.

In summary, all three build alternatives would meet the project need and purpose. Alternative 1 would provide better network conditions and a higher level of local access. In contrast, Alternative 3 would have fewer impacts to the freeway system and a lower level of risk for freeway safety. Alternative 2 would provide a balance of the competing objectives of local access and freeway safety risk.

Attachment D
Viable Alternatives Exhibits

EB80 EUREKA ON-RAMP ("E1" LINE)

EB80 EUREKA ON-RAMP ("E2" LINE)

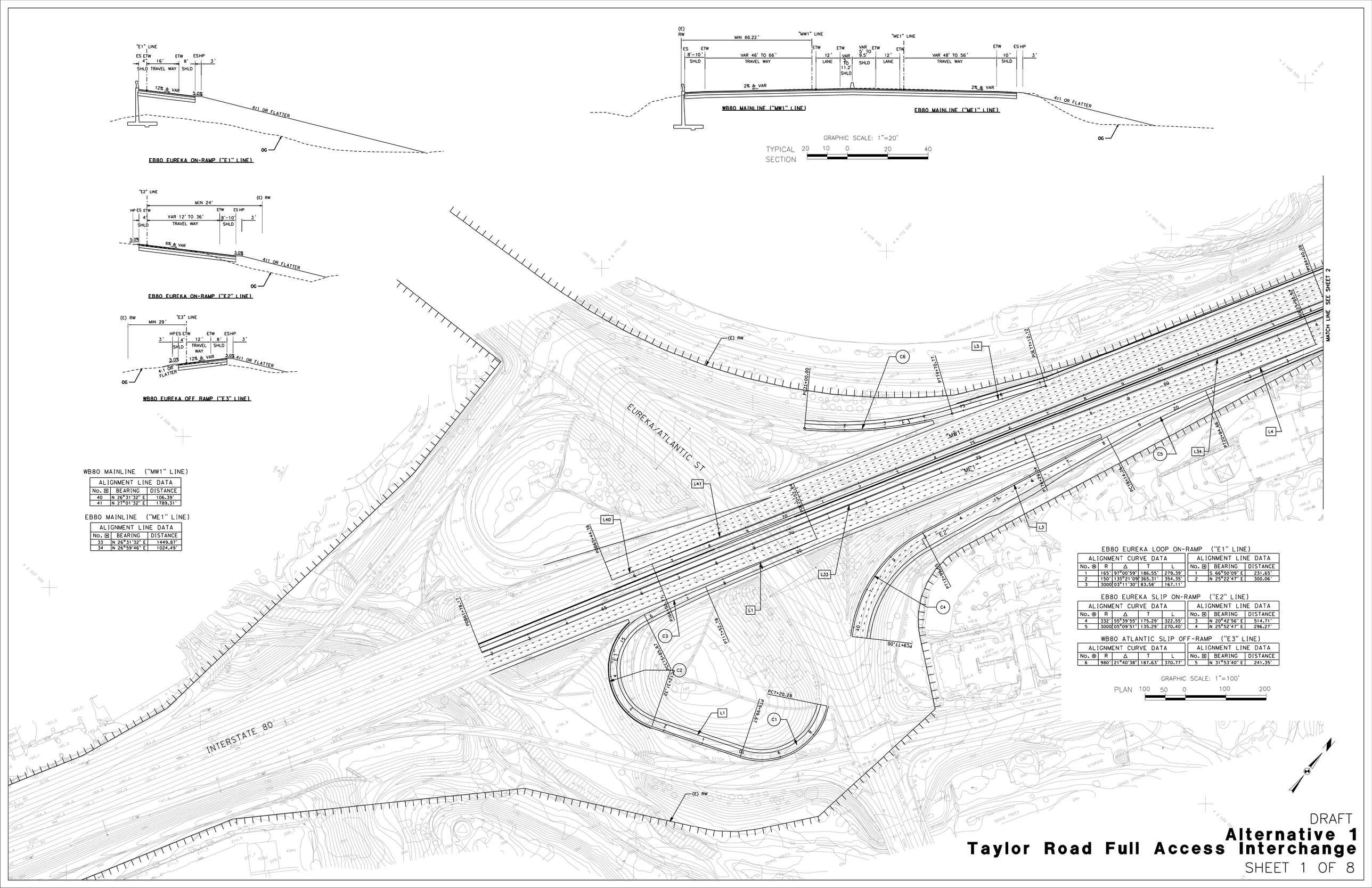
WB80 EUREKA OFF RAMP ("E3" LINE)

WB80 MAINLINE ("MW1" LINE)

EB80 MAINLINE ("ME1" LINE)

GRAPHIC SCALE: 1"=20'

TYPICAL SECTION 20 10 0 20 40


EUREKA/ATLANTIC ST
INTERSTATE 80
(E) RW
"MW1"
"ME1"
"E1"
"E2"
"E3"
PCE1+00.00
PT1+21.12
PCE1+84.03
PCE1+84.03
PT1+84.03
PCE1+84.03
PT1+84.03
PCE1+84.03
PT

TAYLOR ROAD ("TR" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
7	1553'	14°06'32"	192.18'	382.42'
8	1491'	28°26'05"	377.76'	739.96'
9	3962'	17°43'28"	617.76'	1225.65'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
6	N 11°52'16" W	249.68'

WB80 ("MW1" LINE)

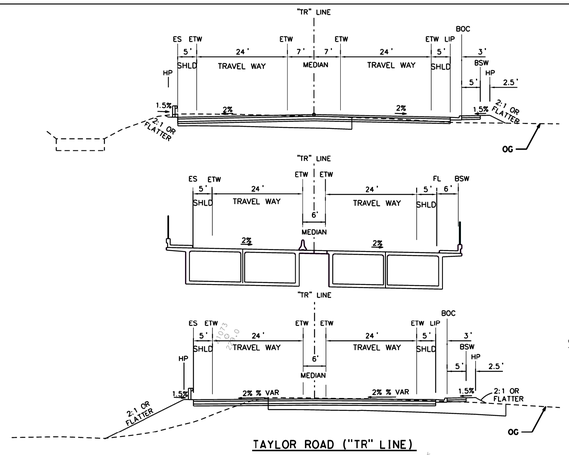
ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
36	2488'	01°28'56"	32.18'	64.36'
37	2602'	13°13'15"	301.54'	600.41'
38	2500'	09°39'56"	211.37'	421.74'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
42	N 26°31'32" E	626.38'
43	N 51°00'18" E	1329.15'

EB80 ("ME1" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
35	2600'	24°08'42"	556.09'	1095.67'

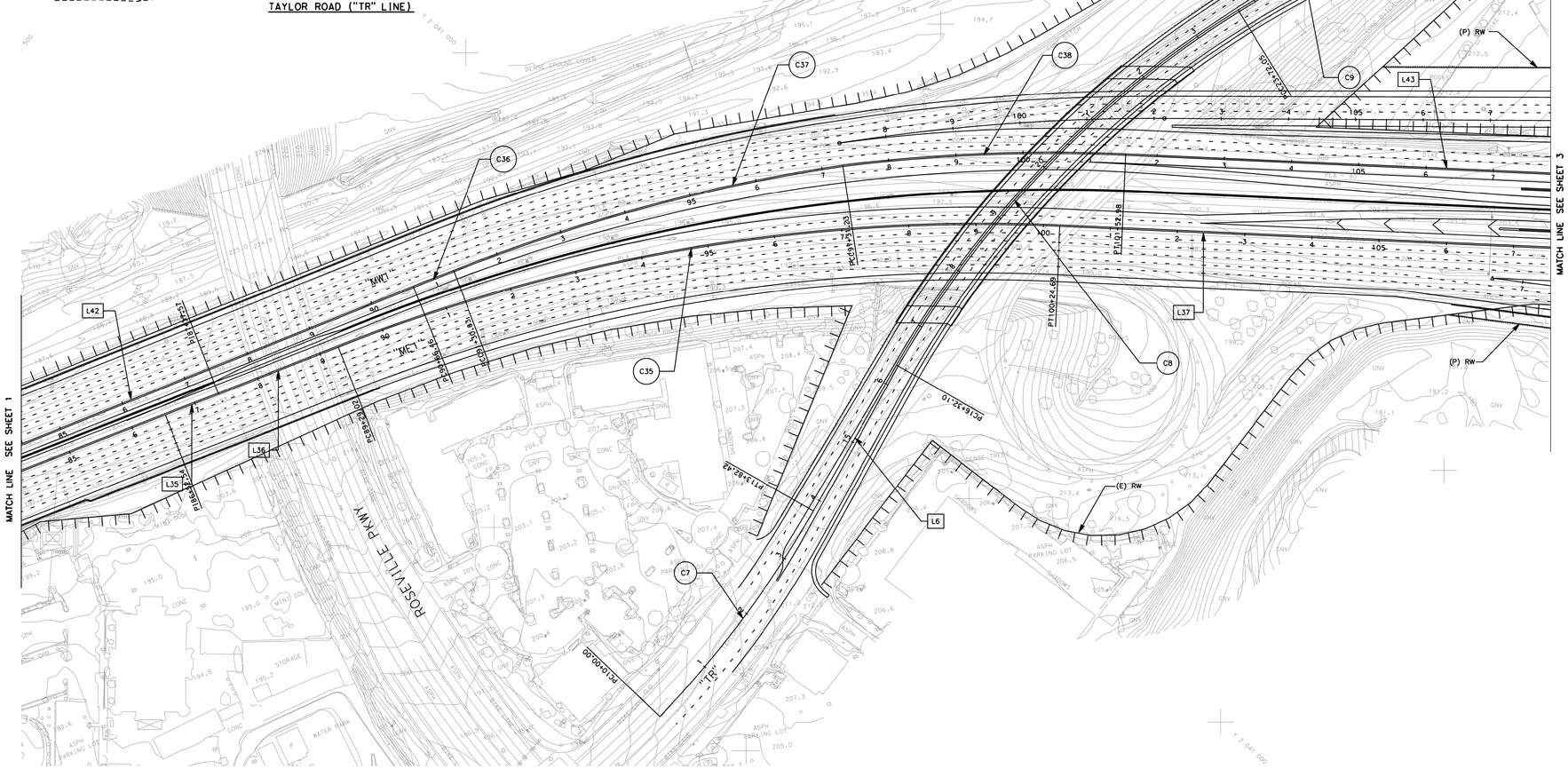
ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
35	N 27°21'36" E	85.04'
36	N 26°51'36" E	191.45'
37	N 51°00'18" E	1565.70'



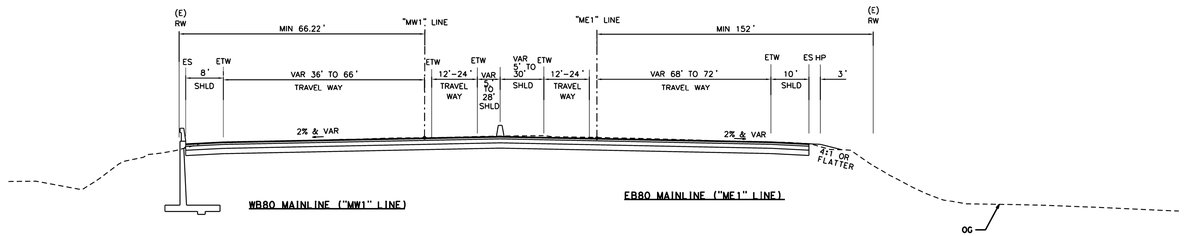
TAYLOR ROAD ("TR" LINE)

TYPICAL SECTION

GRAPHIC SCALE: 1"=20'
20 10 0 20 40



GRAPHIC SCALE: 1"=100'
PLAN 100 50 0 100 200



WB80 MAINLINE ("MW1" LINE)

EB80 MAINLINE ("ME1" LINE)

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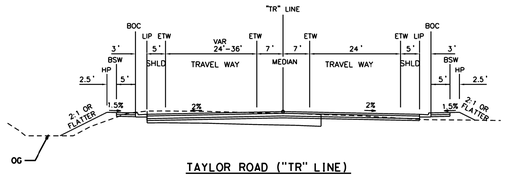
Alternative 1
Taylor Road Full Access Interchange

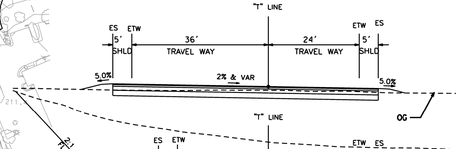
SHEET 2 OF 8

TAYLOR ROAD ("TR" LINE)

ALIGNMENT LINE DATA		
No. ⊕	BEARING	DISTANCE
7	N 34°17'17" W	2005.33'



TAYLOR ROAD ("TR" LINE)



TAYLOR ROAD OFF-RAMP ("T" LINE)

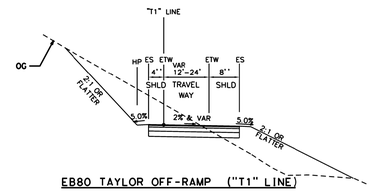
EB80 ("ME1" LINE)

ALIGNMENT LINE DATA		
No. ⊕	BEARING	DISTANCE
38	N 51°30'18" E	1756.49'
39	N 50°30'18" E	100.00'

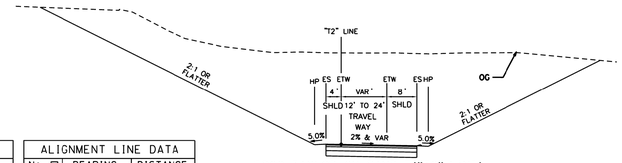
WB80 ("MW1" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
39	20000'	02°29'29"	434.77'	869.40'
40	20000'	02°32'32"	443.76'	887.37'

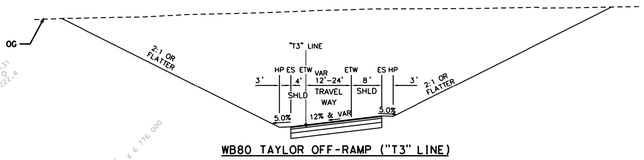
ALIGNMENT LINE DATA		
No. ⊕	BEARING	DISTANCE
44	N 53°29'44" E	226.77'
45	N 50°57'13" E	17.05'



EB80 TAYLOR OFF-RAMP ("T1" LINE)



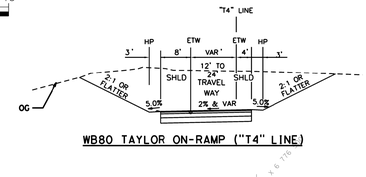
EB80 TAYLOR ON-RAMP ("T2" LINE)



WB80 TAYLOR OFF-RAMP ("T3" LINE)

GRAPHIC SCALE: 1"=20'

TYPICAL SECTION 20 10 0 20 40



WB80 TAYLOR ON-RAMP ("T4" LINE)

EB80 TAYLOR OFF-RAMP ("T1" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
10	200'	173°49'25"	3706.96'	606.76'
11	900'	67°30'32"	601.46'	1060.43'

ALIGNMENT LINE DATA		
No. ⊕	BEARING	DISTANCE
8	N 55°22'26" E	470.00'
9	N 63°17'38" E	206.49'

WB80 TAYLOR ON-RAMP ("T4" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
17	3000'	03°11'30"	83.58'	167.11'
18	300'	12°32'21"	32.96'	65.66'

ALIGNMENT LINE DATA		
No. ⊕	BEARING	DISTANCE
16	N 49°51'33" E	300.06'
17	N 46°40'04" E	983.80'
18	N 34°07'42" E	31.65'

EB80 TAYLOR ON-RAMP ("T2" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
12	850'	105°43'17"	1122.30'	1568.41'
13	850'	30°48'50"	234.24'	457.13'
14	3000'	03°11'30"	83.58'	167.11'

ALIGNMENT LINE DATA		
No. ⊕	BEARING	DISTANCE
10	S 58°25'30" E	193.47'
11	N 15°51'14" E	267.79'
12	N 49°51'33" E	300.06'

TAYLOR LOCAL ROAD ("T" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
19	620'	15°42'36"	85.54'	170.00'
20	900'	12°37'57"	99.62'	198.43'

ALIGNMENT LINE DATA		
No. ⊕	BEARING	DISTANCE
19	S 55°20'50" E	95.78'
20	N 71°03'26" E	352.81'
21	S 58°25'30" E	77.01'

WB80 TAYLOR OFF-RAMP ("T3" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
15	300'	42°22'41"	116.30'	221.89'
16	850'	20°37'58"	154.72'	306.09'

ALIGNMENT LINE DATA		
No. ⊕	BEARING	DISTANCE
13	N 34°07'42" E	148.42'
14	N 76°30'24" E	188.40'
15	N 55°52'26" E	282.42'

GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

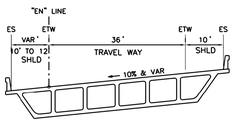
MATCH LINE SEE SHEET 2

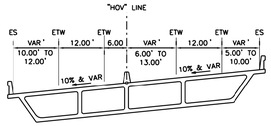
MATCH LINE SEE SHEET 4

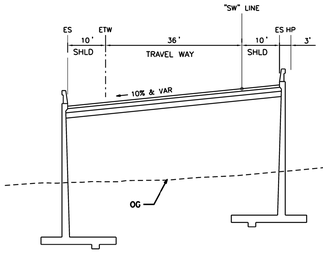
DRAFT

Alternative 1

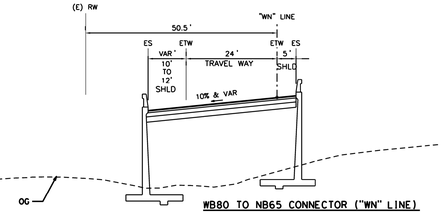
Taylor Road Full Access Interchange



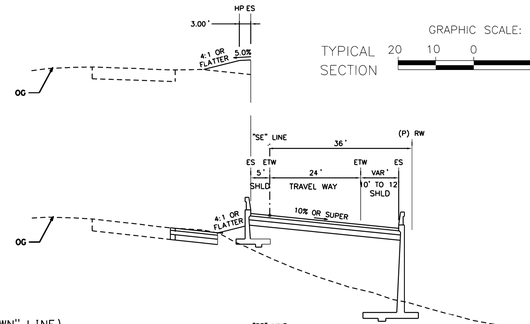




SB65 TO WB80 CONNECTOR ("SW" LINE)



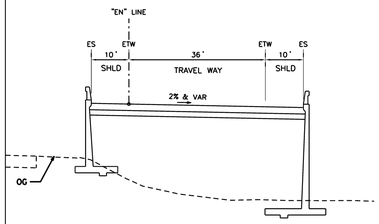
WB80 TO NB65 CONNECTOR ("WN" LINE)



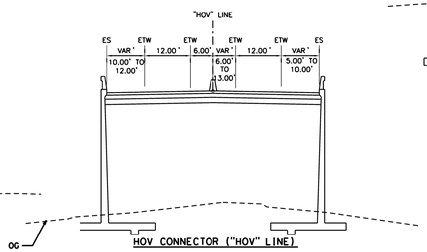
TYPICAL SECTION

GRAPHIC SCALE: 1"=20'

20 10 0 20 40



EB80 TO NB65 CONNECTOR ("EN" LINE)



HOV CONNECTOR ("HOV" LINE)

HOV CONNECTOR ("HOV" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
21	880'	104°22'22"	1603.05'	1133.94'
22	3012'	20°48'21"	552.96'	1093.74'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
22	N 51°00'18" E	882.36'

EB80 TO NB65 CONNECTOR ("EN" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
23	900'	103°12'37"	1135.73'	1621.23'
24	2700'	08°46'29"	207.16'	413.50'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
23	N 55°52'26" E	898.40'

SB65 TO WB80 CONNECTOR ("SW" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
25	3000'	09°16'36"	243.39'	458.72'
26	930'	101°20'53"	1135.19'	1645.04'
27	2750'	08°03'12"	386.53'	193.58'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
24	N 48°45'36" E	1250.24'

WB80 TO NB65 CONNECTOR ("WN" LINE)

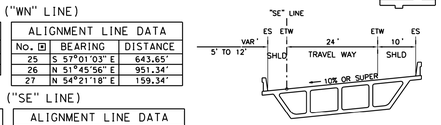
ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
28	920'	71°13'00"	658.86'	1143.53'
29	4500'	02°35'21"	101.70'	203.36'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
25	S 57°01'03" E	643.65'
26	N 51°45'56" E	951.34'
27	N 54°21'18" E	159.34'

SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
30	860'	31°43'34"	244.38'	476.20'
31	950'	135°31'58"	2324.01'	2247.22'
32	950'	31°34'46"	268.64'	523.61'
33	4500'	03°55'23"	154.12'	308.11'
34	3000'	03°11'30"	83.58'	167.11'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
28	S 25°27'20" E	310.44'
29	N 19°00'41" E	489.34'
30	N 50°35'27" E	364.97'
31	N 46°40'04" E	145.56'
32	N 49°51'34" E	300.12'



SB65 TO EB80 CONNECTOR ("SE" LINE)

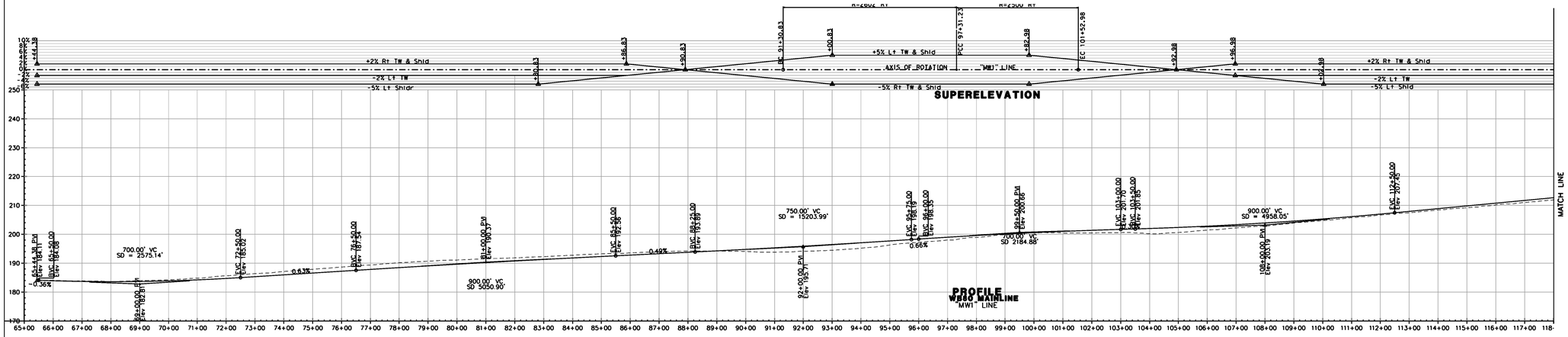
GRAPHIC SCALE: 1"=100'

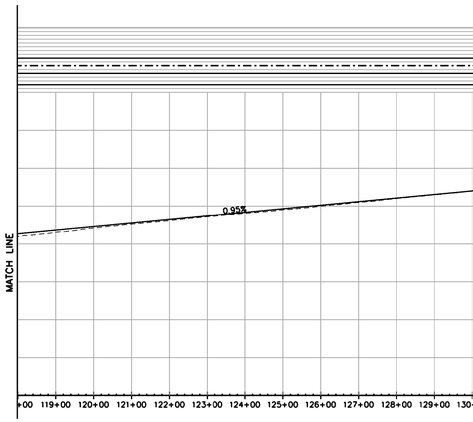
PLAN 100 50 0 100 200

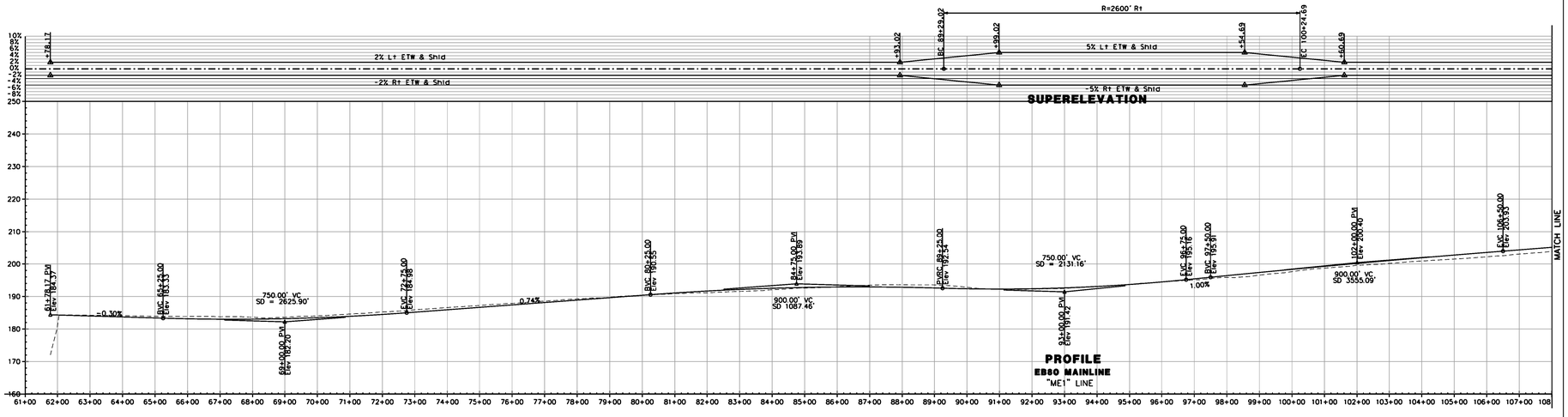
DRAFT

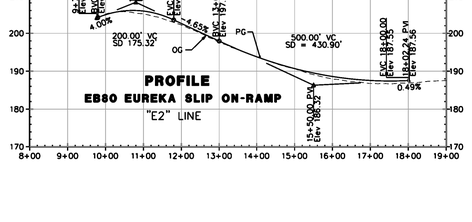
Alternative 1
Taylor Road Full Access Interchange

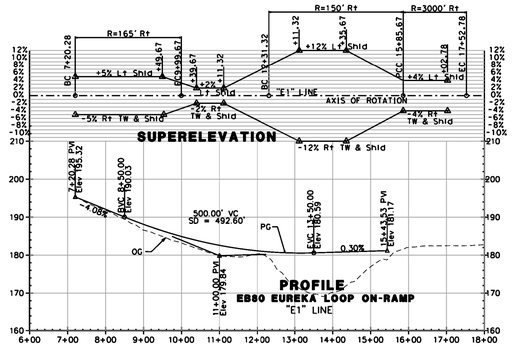
SHEET 4 OF 8

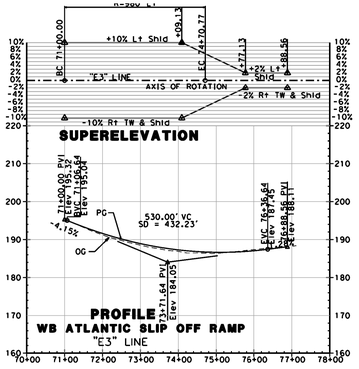


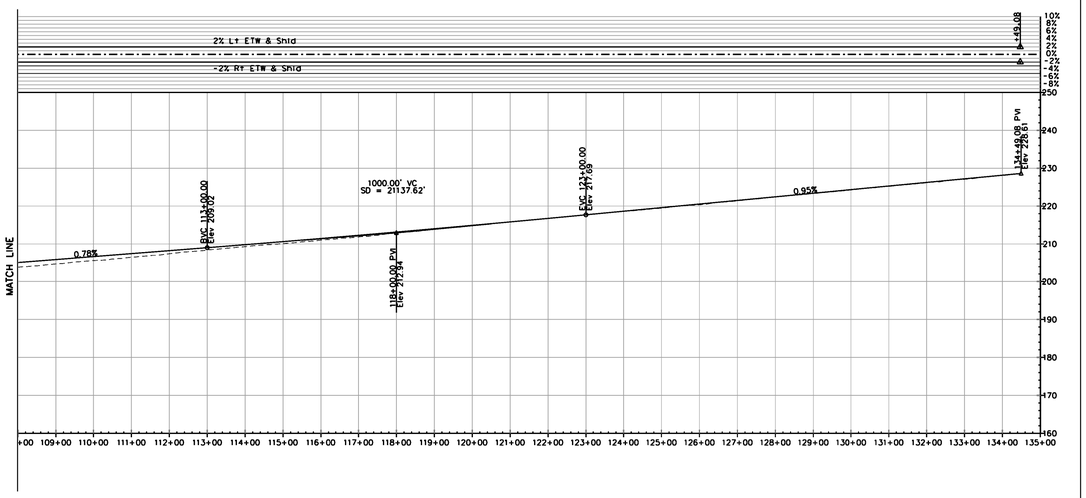








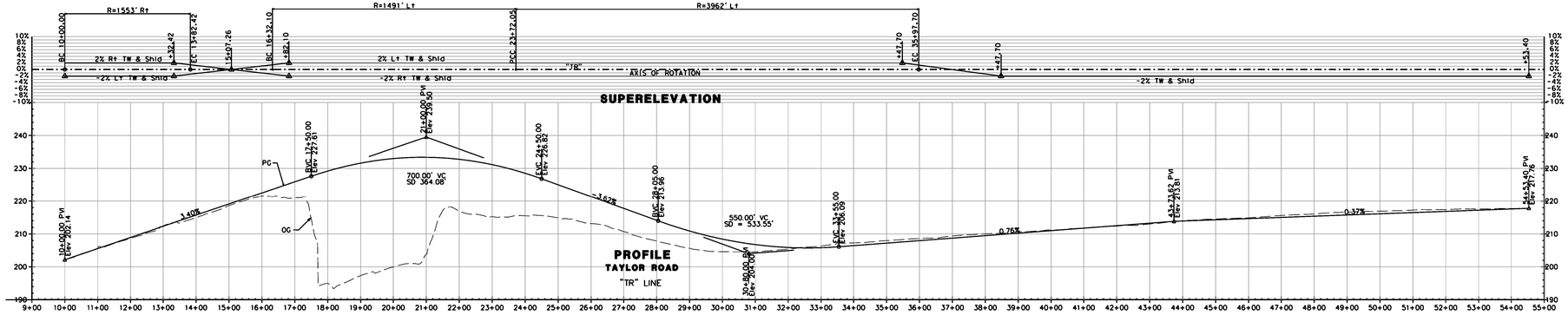


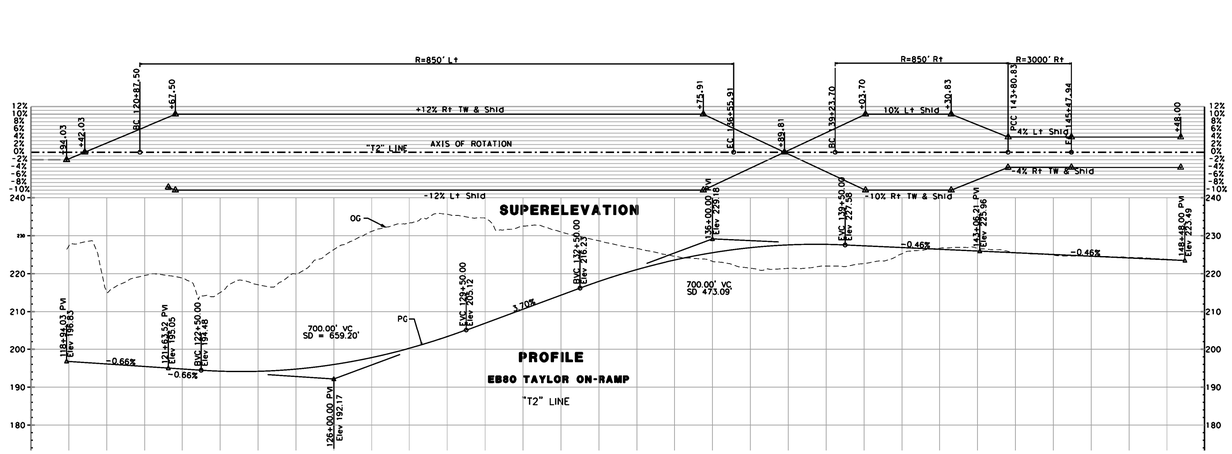


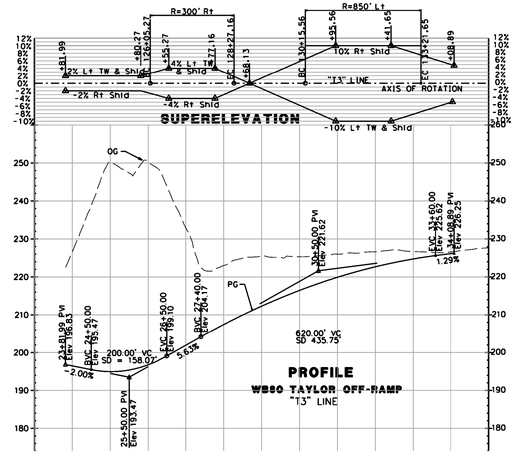
DRAFT

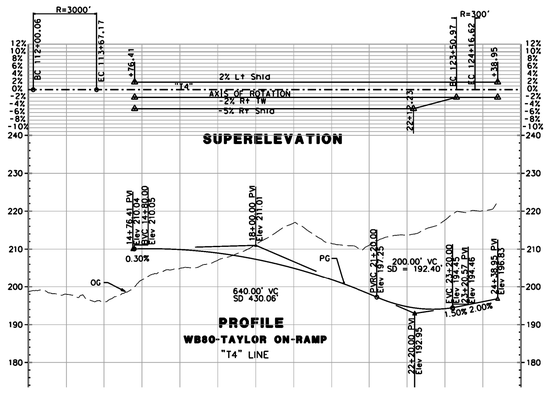
Alternative 1
Taylor Road Full Access Interchange

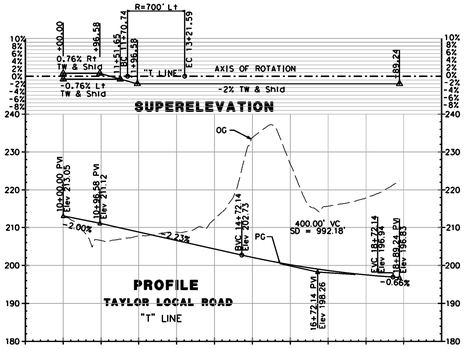
SHEET 5 OF 8

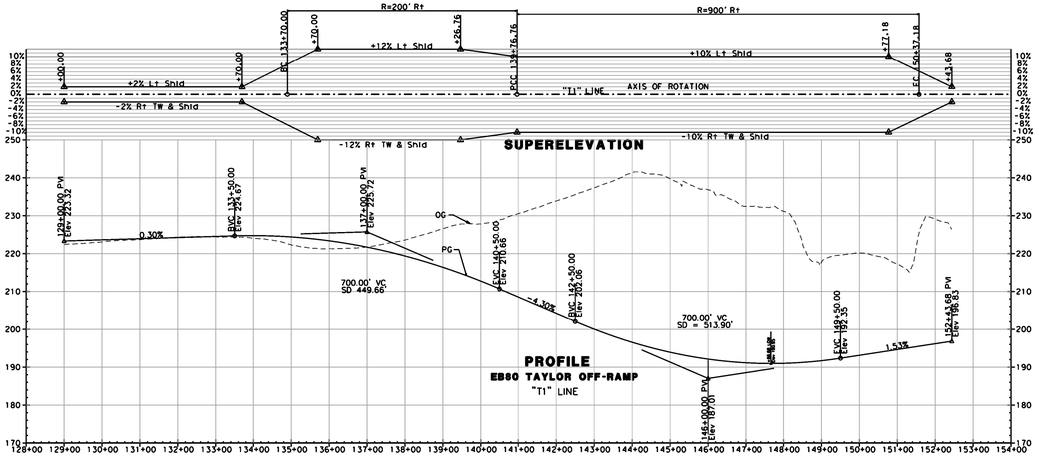








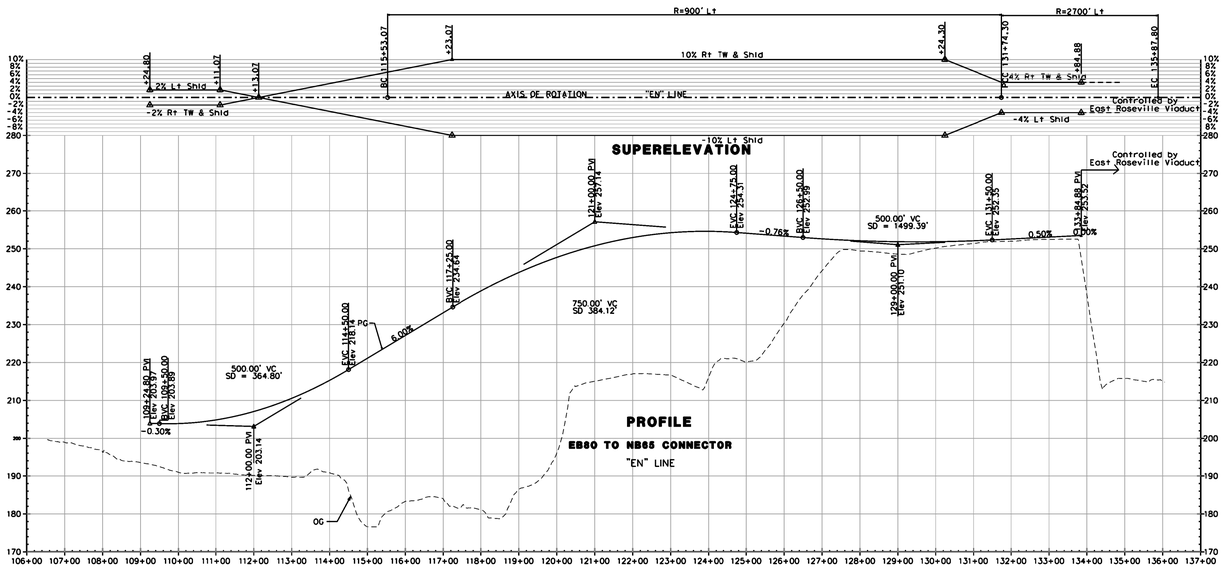


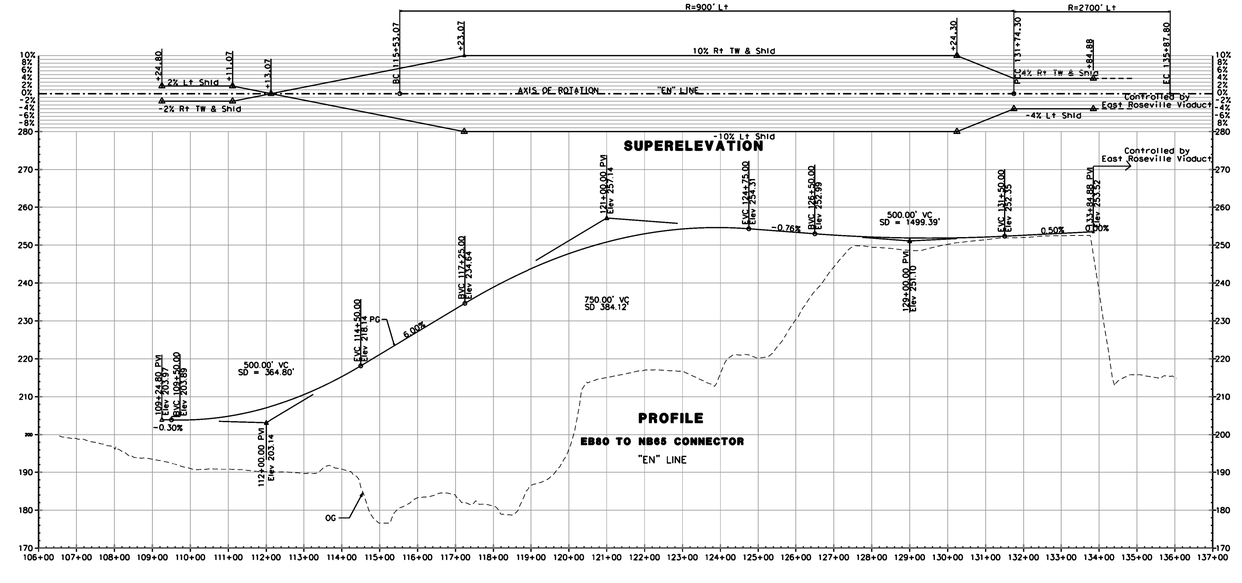


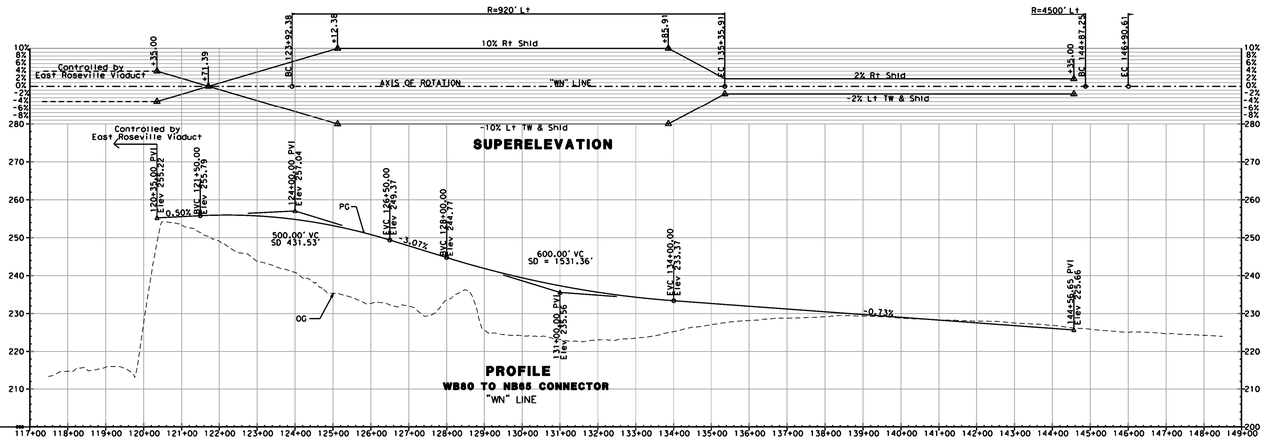
DRAFT

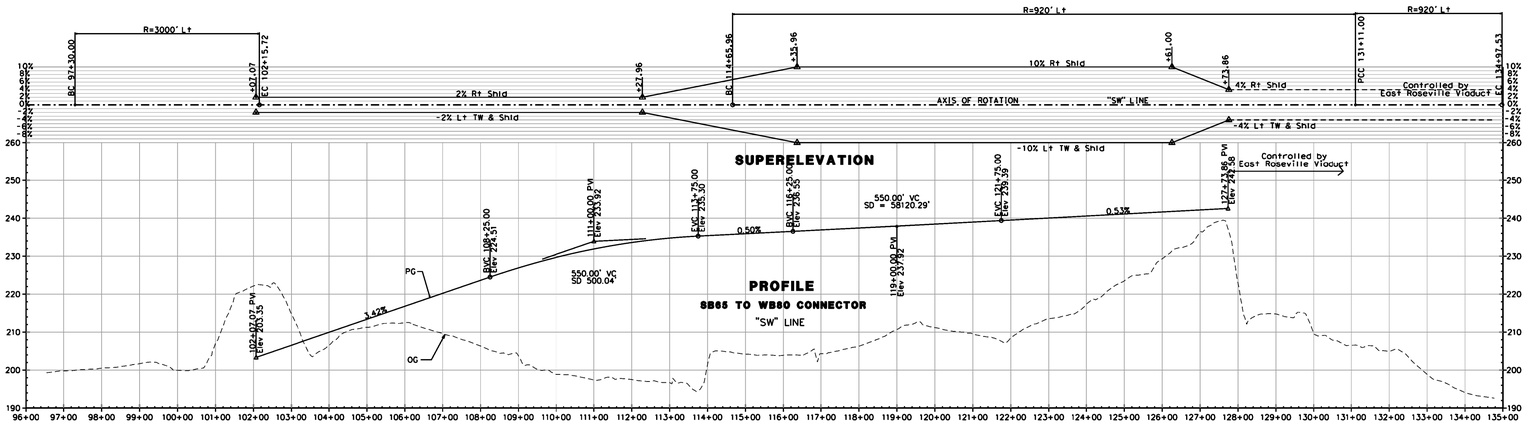
Alternative 1
Taylor Road Full Access Interchange

SHEET 6 OF 8









GRAPHIC SCALE: 1"=200'
PROFILE 100 50 0 100 200

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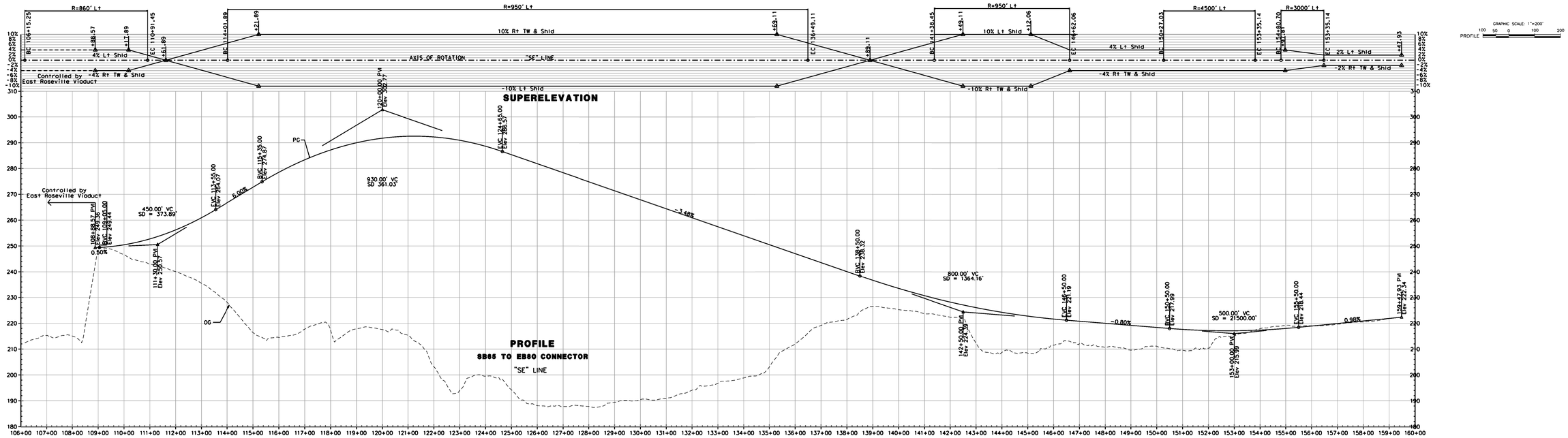
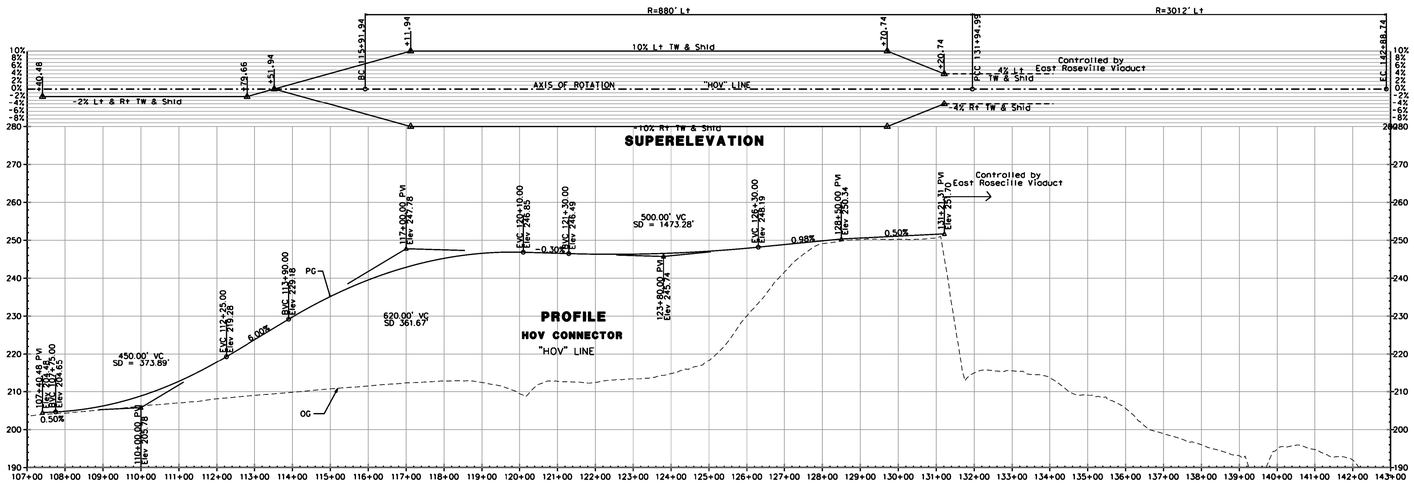
Alternative 1
Taylor Road Full Access Interchange

SHEET 7 OF 8





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Alternative 1
Taylor Road Full Access Interchange

SHEET 8 OF 8

EB COLLECTOR DISTRIBUTOR ("CD1" LINE)

WB80 MAINLINE ("MW1" LINE)

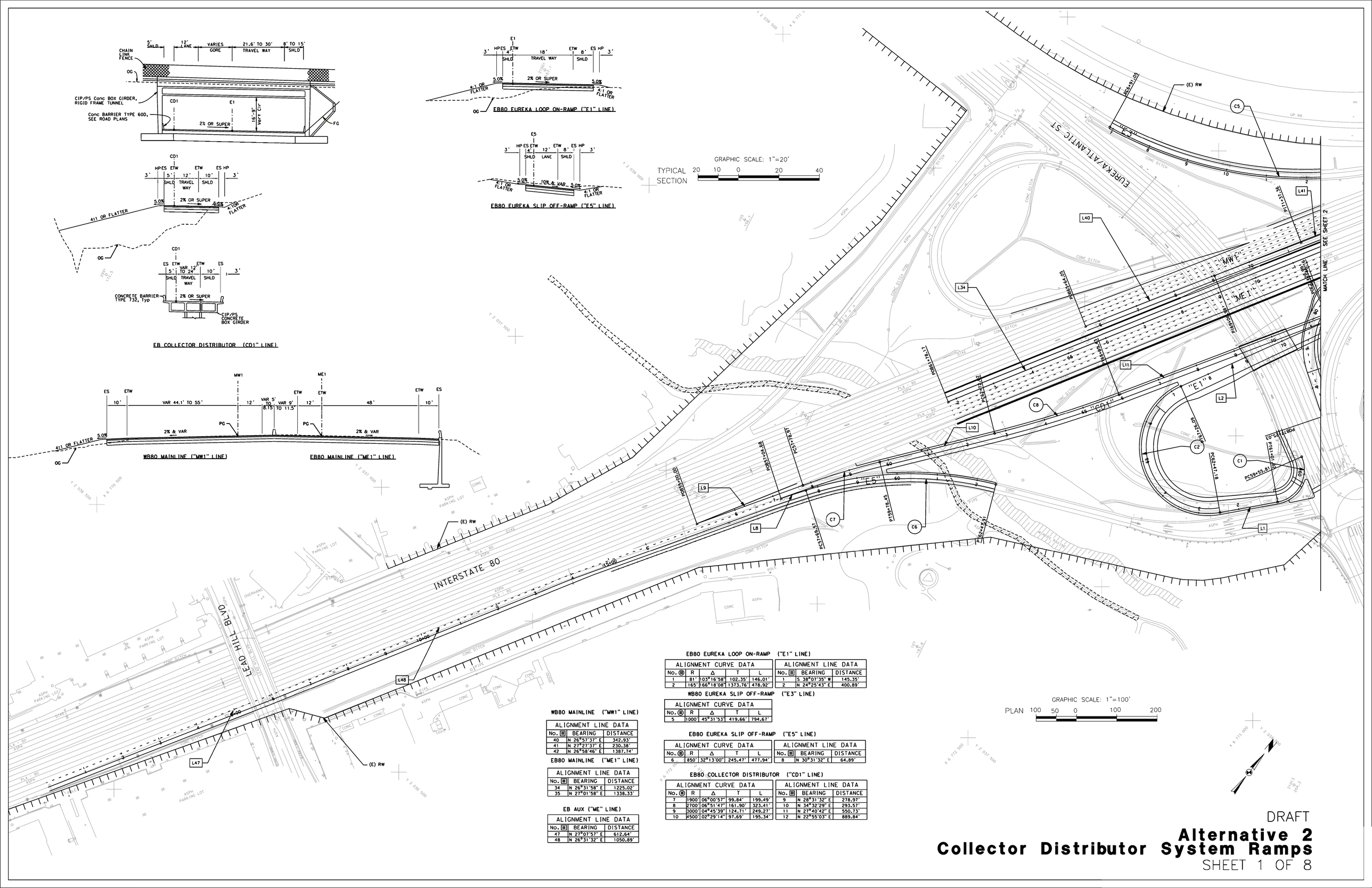
EB80 MAINLINE ("ME1" LINE)

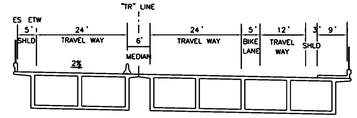
EB80 EUREKA LOOP ON-RAMP ("E1" LINE)

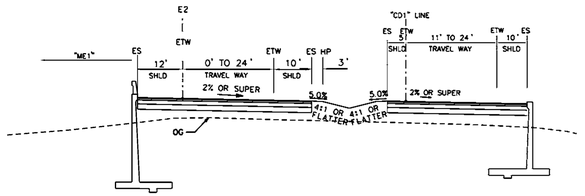
EB80 EUREKA SLIP OFF-RAMP ("E5" LINE)

TYPICAL SECTION

GRAPHIC SCALE: 1"=20'
20 10 0 20 40


(E) RW
EUREKA ATLANTIC ST
UP RR
C5
L41
L40
L34
L11
L10
L9
L8
L48
L47
L2
L1
C8
C7
C6
C2
C1
"MW1"
"ME1"
"E1"
"E5"
"CD1"
INTERSTATE 80
LEAD HILL BLVD
OVERHANG
MATCH LINE SEE SHEET 2
PC39+55.81
PC52+47.18
PC57+18.97
PC62+45.50
PC68+10.58
PC68+54.05
PC68+54.05
PC68+54.05
PC68+81.17
PC68+85.00
PC68+85.00
PC68+85.00





EB COLLECTOR DISTRIBUTOR ("CD1" LINE)

TAYLOR ROAD ("TR" LINE)

EB80 EUREKA ON-RAMP ("E2" LINE)

WB80 EUREKA OFF RAMP ("E3" LINE)

EB COLLECTOR DISTRIBUTOR ("CD3" LINE)

EB80 MAINLINE ("ME1" LINE)

ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. Ⓟ	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
38	2650'	24°28'46"	574.87'	1132.20'	35	N 27°01'58" E	1338.33'
					36	N 26°31'32" E	169.12'
					37	N 51°00'18" E	1547.17'

WB80 MAINLINE ("MW1" LINE)

ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. Ⓟ	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
39	2667'	24°26'48"	577.76'	1137.94'	43	N 26°48'18" E	149.86'
					44	N 26°33'30" E	407.05'
					45	N 51°00'18" E	1238.13'

EB80 EUREKA SLIP ON-RAMP ("E2" LINE)

ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. Ⓟ	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
3	200'	86°48'04"	189.13'	302.99'	3	N 60°16'32" W	114.92'
					4	N 26°31'32" E	474.64'
					5	N 27°01'32" E	755.59'

WB80 EUREKA SLIP OFF-RAMP ("E3" LINE)

ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. Ⓟ	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
5	1000'	45°31'53"	419.66'	794.67'	7	N 31°51'54" E	270.98'

EB80 COLLECTOR DISTRIBUTOR ("CD1" LINE)

ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. Ⓟ	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
9	3000'	04°45'39"	124.71'	249.27'	12	N 22°55'03" E	889.84'
10	4500'	02°29'14"	97.69'	195.34'			

TAYLOR ROAD ("TR" LINE)

ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. ⊙	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
11	1553'	14°06'32"	192.18'	382.42'	13	N 11°52'16" W	249.68'
12	1491'	28°26'05"	377.76'	739.96'	14	N 34°17'17" E	2005.33'
13	3962'	17°43'28"	617.76'	1225.65'			

EB80 TAYLOR OFF-RAMP ("T1" LINE)

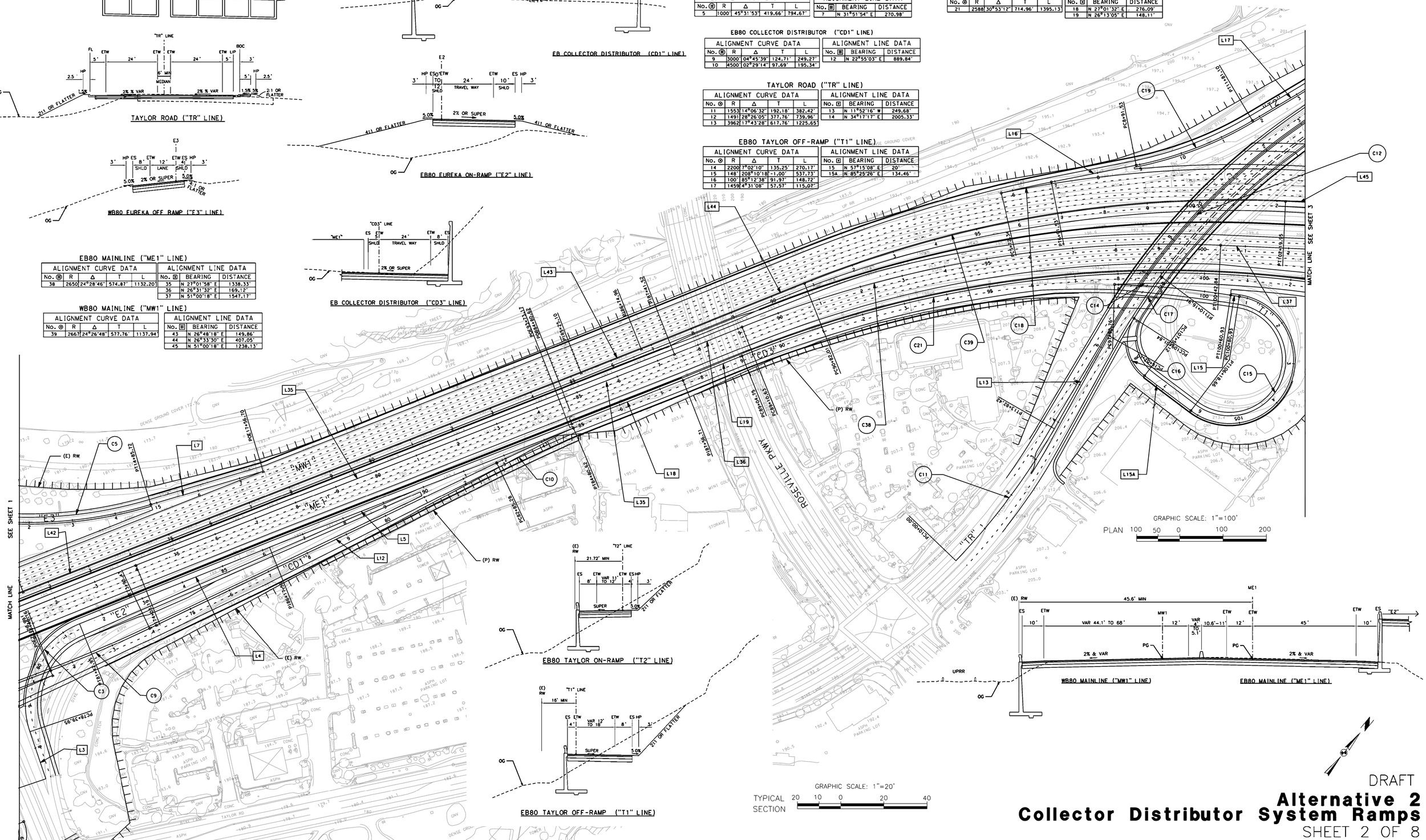
ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. ⊙	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
14	2200'	7°02'10"	135.25'	270.17'	15	N 57°15'08" E	20'
15	148'	208°10'18"	-1.00'	537.73'	15A	N 85°25'26" E	134.46'
16	100'	85°12'38"	91.97'	148.72'			
17	1459'	4°31'08"	57.57'	115.07'			

EB80 TAYLOR OFF-RAMP ("T2" LINE)

ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. ⊙	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
18	3000'	2°16'35"	59.61'	119.19'	16	N 37°13'50" E	200.00'
19	850'	19°31'08"	146.20'	289.57'	17	N 17°42'42" E	206.14'
20	3000'	14°02'55"	369.64'	735.58'			

EB80 COLLECTOR DISTRIBUTOR ("CD3" LINE)

ALIGNMENT CURVE DATA					ALIGNMENT LINE DATA		
No. ⊙	R	Δ	T	L	No. ⊡	BEARING	DISTANCE
21	2588'	30°53'12"	714.96'	1395.13'	18	N 27°01'32" E	276.09'
					19	N 26°13'05" E	148.11'


MATCH LINE SEE SHEET 3
SEE SHEET 1
MATCH LINE
"ME1"
"MW1"
"E2"
"E3"
"CD1"
"CD3"
"TR"
(E) RW
(P) RW
ROSEVILLE PKWY
TAYLOR RD
UPRR
L1
L2
L3
L4
L5
L7
L12
L13
L15
L15A
L16
L17
L18
L19
L35
L36
L37
L42
L43
L44
L45
C3
C5
C9
C10
C11
C12
C14
C15
C16
C17
C18
C19
C21
C38
C39
PC18+39.95
PC28+10.63
PC28+14.73
PC28+85.28
PC28+85.72
PC29+81.52
PC29+91.53
PC102+19.55
PC102+42.84
PC106+18.66
PC106+80.93
PC110+16.58
PC110+80.93
PC111+62.29
PC113+84.15
PC115+00.00
PC115+84.15
PC117+84.15
PC118+85.30
PC119+85.30
PC120+82.09
PC121+74.36
PC122+74.36
PC123+74.36
PC124+74.36
PC125+74.36
PC126+74.36
PC127+74.36
PC128+74.36
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PC154+74.36
PC155+74.36
PC156+74.36
PC157+74.36
PC158+74.36
PC159+74.36
PC160+74.36

EB80 COLLECTOR DISTRIBUTOR ("CD3" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
22	3000'	9°53'37"	259.66'	518.03'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
20	N 57°06'17" E	332.92'
21	N 47°12'40" E	540.75'

SB65 TO WB80 CONNECTOR ("SW" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
23	3000'	03°11'30"	83.58'	167.11'
24	930'	98°34'05"	1080.61'	1599.91'
25	2750'	08°34'58"	206.36'	411.95'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
22	N 49°42'04" E	300.06'
23	N 46°30'34" E	516.84'

EB80 TO NB65 CONNECTOR ("EN" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
26	2700'	3°32'12"	83.36'	166.66'
27	900'	100°42'31"	1086.15'	1581.93'
28	3052'	1°35'31"	42.40'	84.79'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
24	N 53°52'03" E	704.52'
25	N 50°19'51" E	418.77'

TAYLOR ROAD ("TR" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
13	3962'	17°43'28"	617.76'	1225.65'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
14	N 34°17'17" E	2005.33'

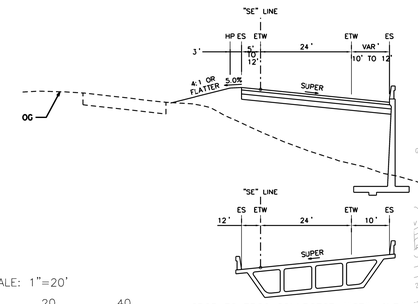
EB80 TAYLOR OFF-RAMP ("T2" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
20	3000'	14°02'55"	369.64'	735.58'

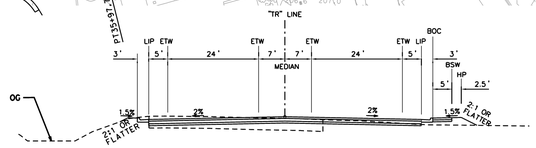
TYPICAL SECTON

GRAPHIC SCALE: 1"=20'

20 10 0 20 40



SB65 TO EB80 CONNECTOR ("SE" LINE)



TAYLOR ROAD ("TR" LINE)

EB80 MAINLINE ("ME1" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
38	N 50°30'18" E	1752.97'
39	N 50°13'23" E	103.73'

WB80 MAINLINE ("MW1" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
40	20000'	2°11'30"	382.58'	765.06'
41	20000'	2°11'30"	382.58'	765.06'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
45	N 53°11'48" E	448.20'
46	N 51°00'18" E	42.91'

EB80 SLIP ON-RAMP ("CD4" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
29	3000'	17°12'45"	454.04'	901.24'
30	3000'	03°11'30"	83.58'	167.11'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
26	N 46°10'05" E	1599.33'
27	N 49°21'34" E	300.12'

HOV CONNECTOR ("HOV" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
31	880'	104°22'22"	1133.94'	1603.05'
32	3012'	20°48'21"	552.96'	1093.74'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
28	N 51°00'18" E	882.36'

WB80 TO NB65 CONNECTOR ("WN" LINE)

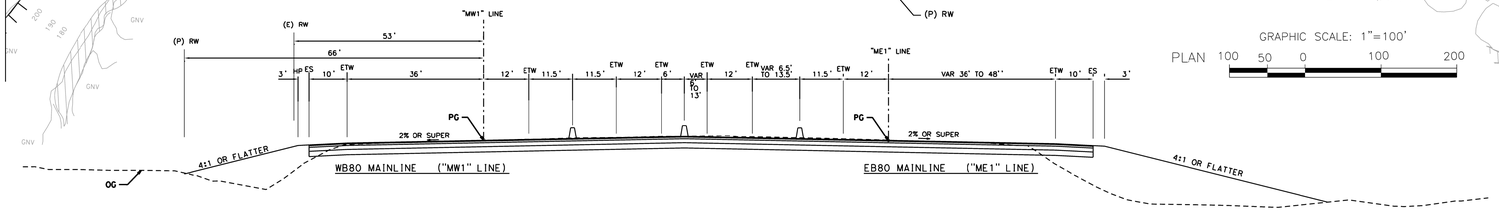
ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
33	920'	69°07'01"	633.68'	1109.81'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
29	S 57°00'56" E	639.15'
30	N 53°52'03" E	429.19'

SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
34	860'	30°50'35"	237.23'	462.95'
35	930'	133°10'04"	2147.44'	2161.52'
36	930'	22°35'15"	185.73'	366.63'
37	3000'	6°46'42"	177.67'	354.92'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
31	S 26°20'20" E	350.00'
32	N 20°29'36" E	578.36'
33	N 49°51'34" E	300.12'



WB80 MAINLINE ("MW1" LINE)

EB80 MAINLINE ("ME1" LINE)

GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

MATCH LINE SEE SHEET 2

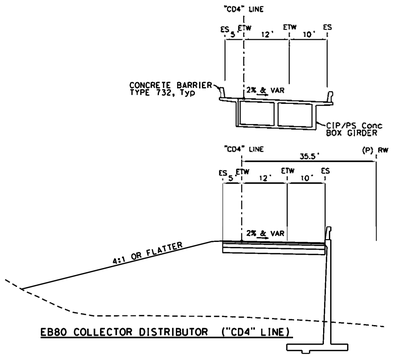
MATCH LINE SEE SHEET 4

DRAFT

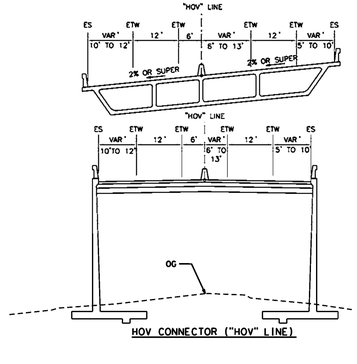
Alternative 2

Collector Distributor System Ramps

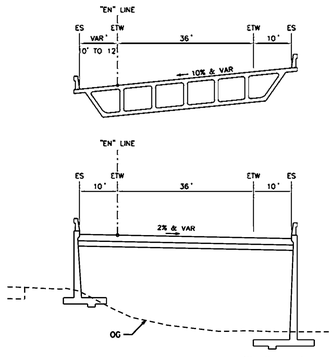
SHEET 3 OF 8



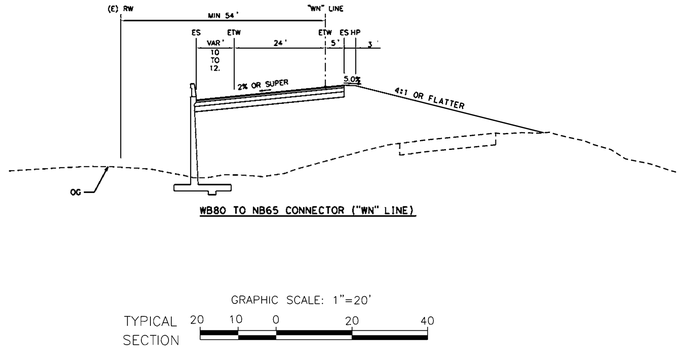
EB80 COLLECTOR DISTRIBUTOR ("CD4" LINE)



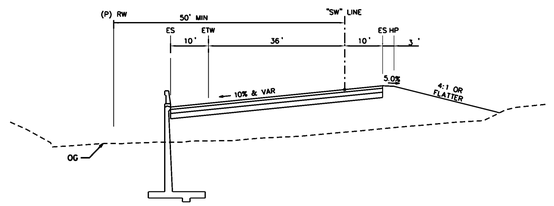
HOV CONNECTOR ("HOV" LINE)

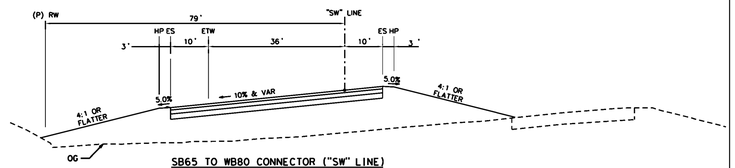


EB80 TO NB65 CONNECTOR ("EN" LINE)



WB80 TO NB65 CONNECTOR ("WN" LINE)

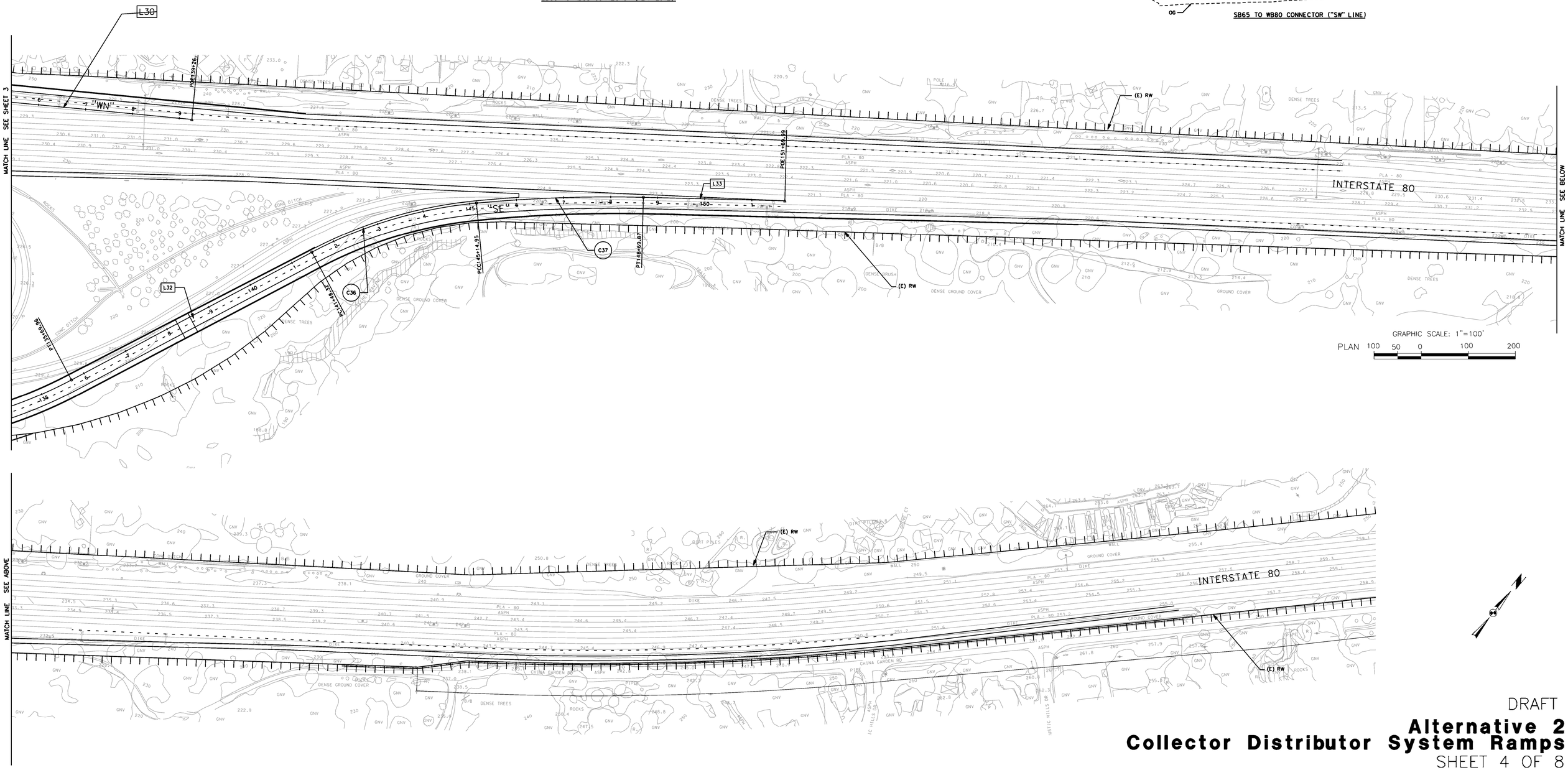




SB65 TO WB80 CONNECTOR ("SW" LINE)

TYPICAL SECTION

GRAPHIC SCALE: 1"=20'
20 10 0 20 40



GRAPHIC SCALE: 1"=100'
PLAN 100 50 0 100 200

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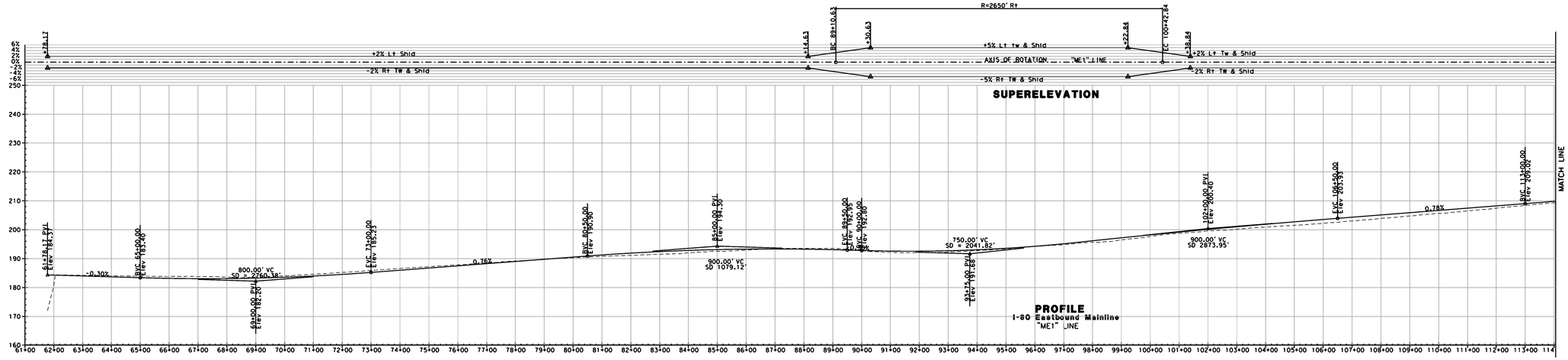
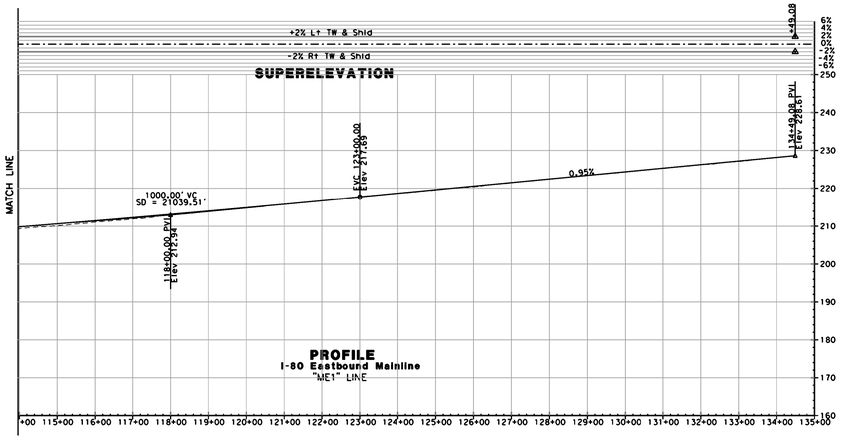
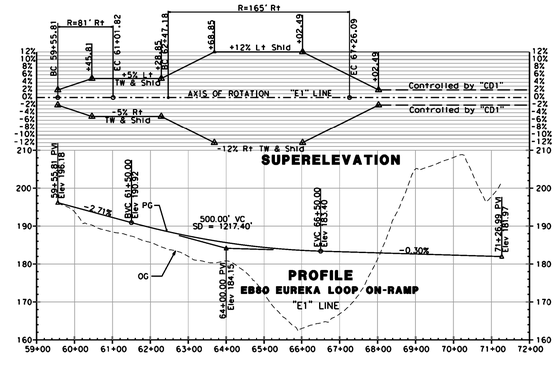
Alternative 2
Collector Distributor System Ramps

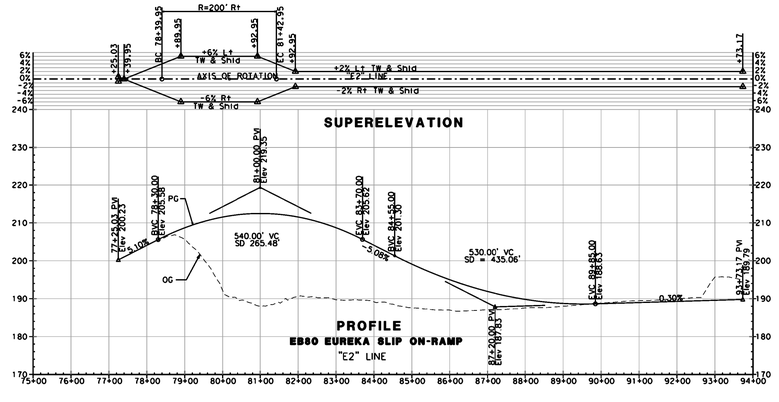
SHEET 4 OF 8

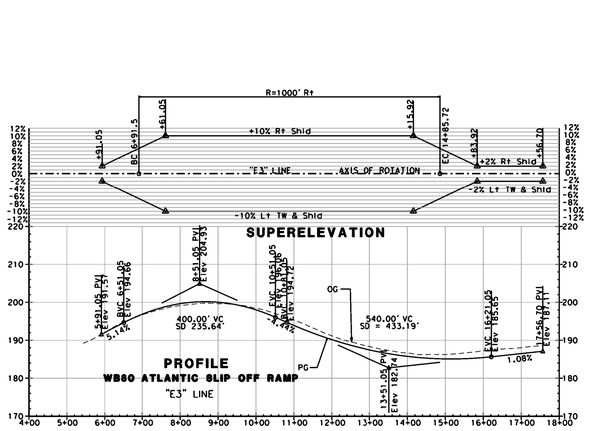


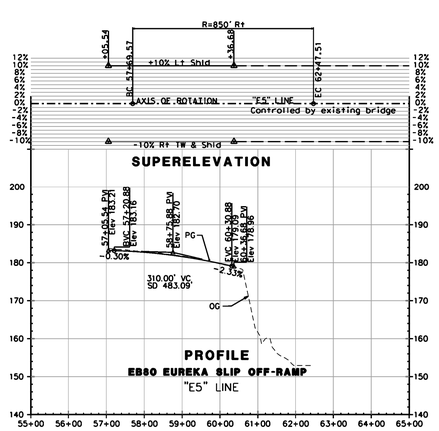
GRAPHIC SCALE: 1"=200'
100 50 0 100 200
PROFILE

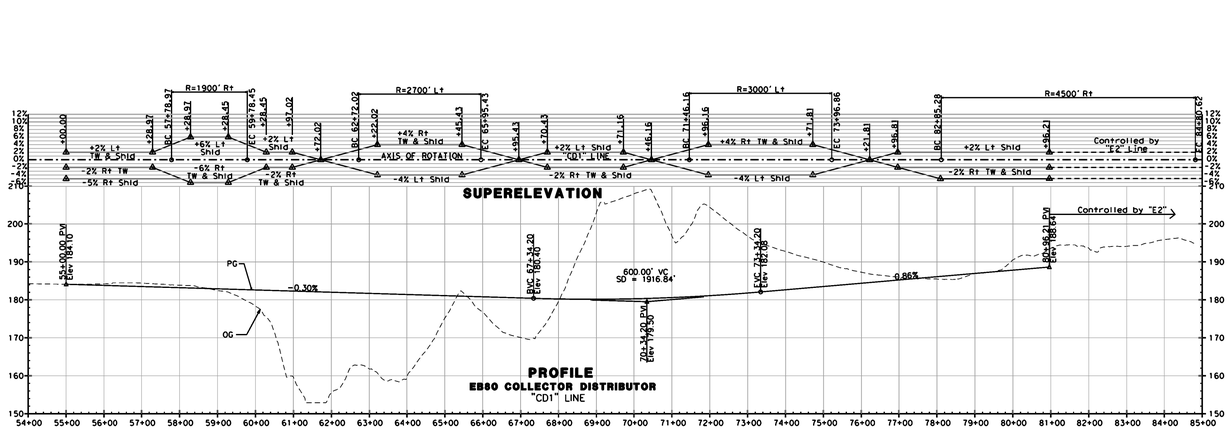












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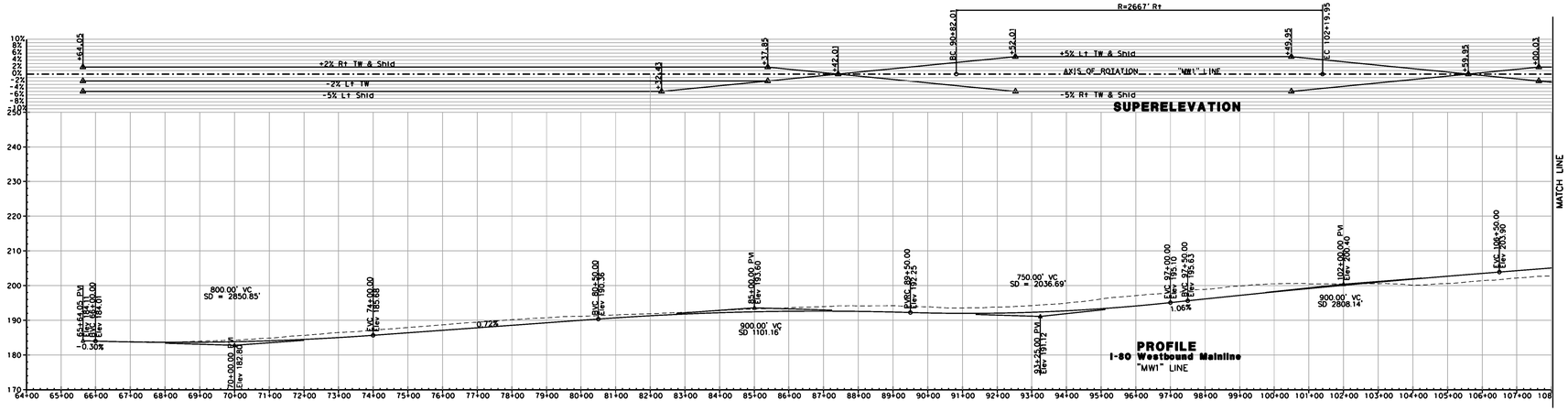
Alternative 2
Collector Distributor System Ramps

SHEET 5 OF 8



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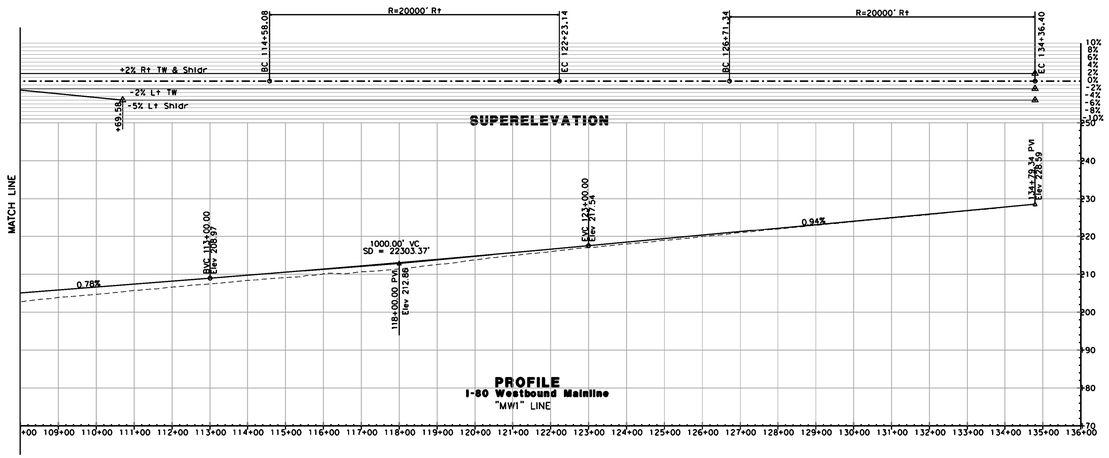

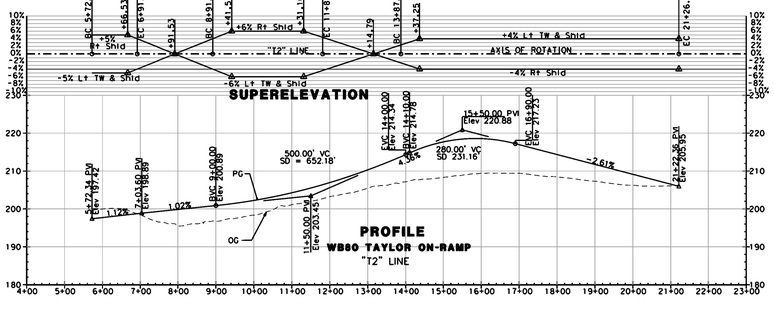

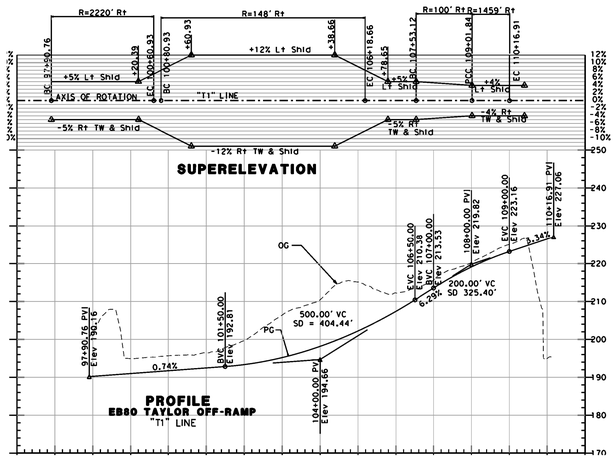

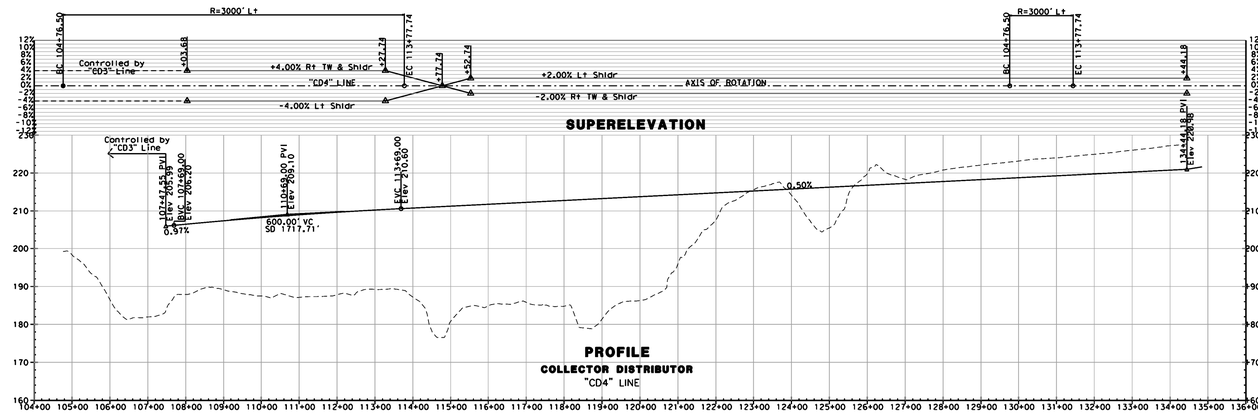

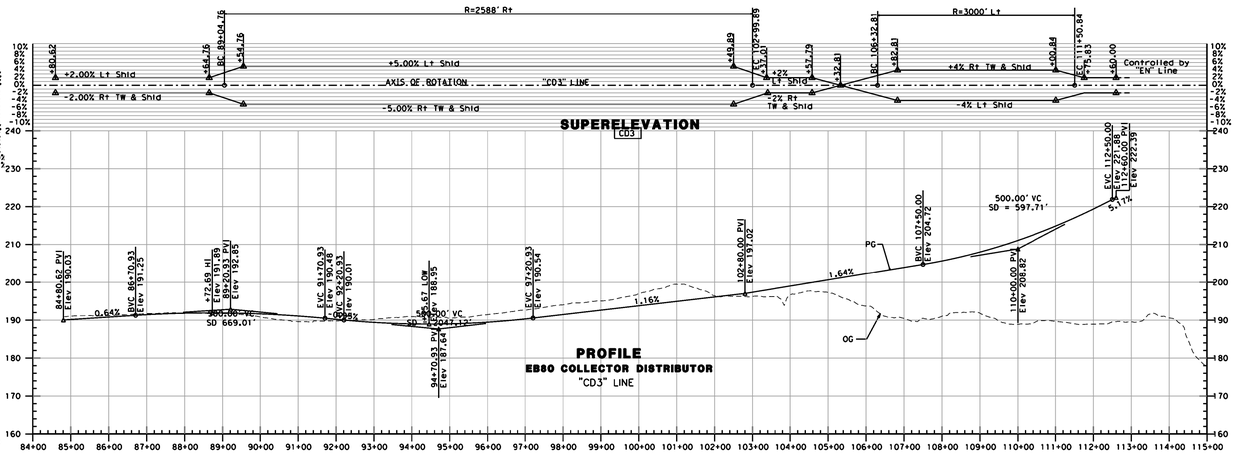

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Alternative 2
Collector Distributor System Ramps

GRAPHIC SCALE: 1"=200'
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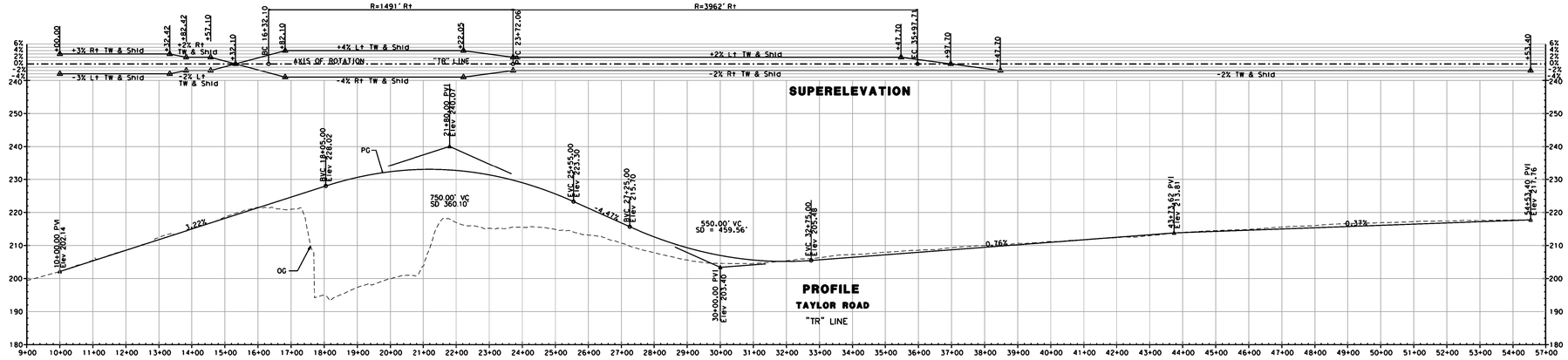
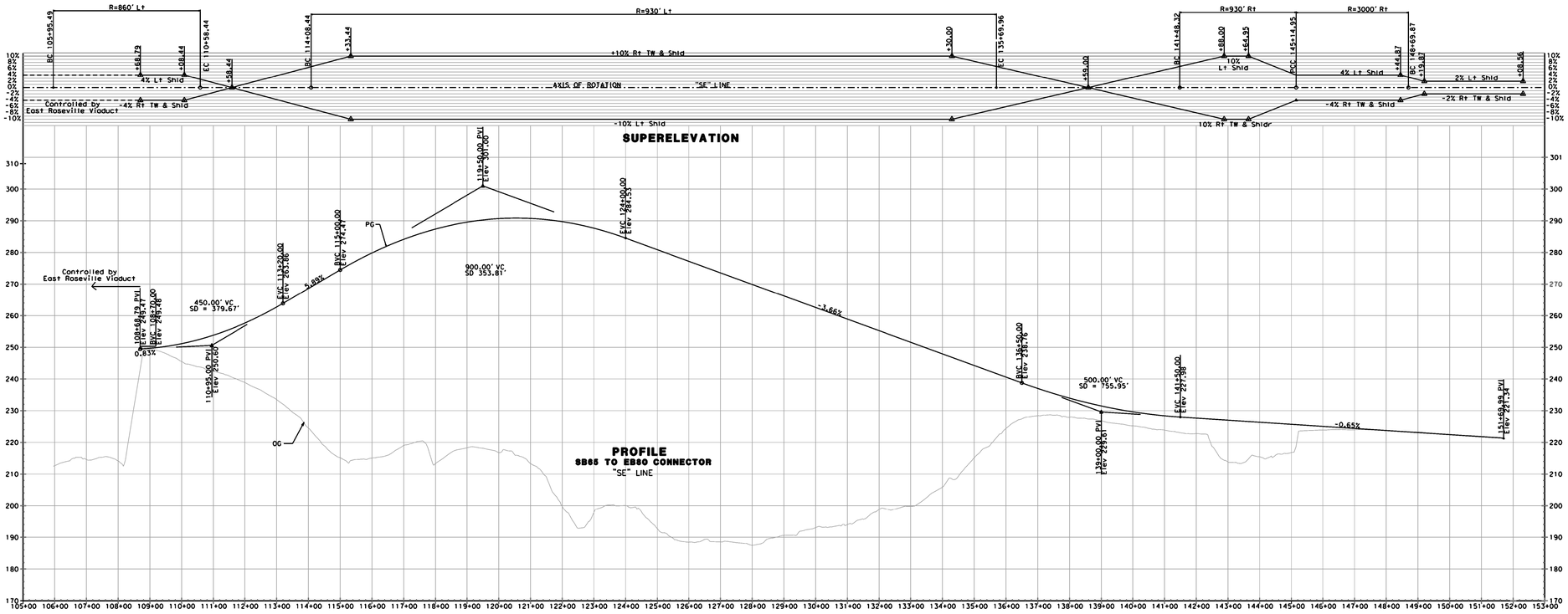
PROFILE





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Alternative 2
Collector Distributor System Ramps

SHEET 7 OF 8

GRAPHIC SCALE: 1"=200'
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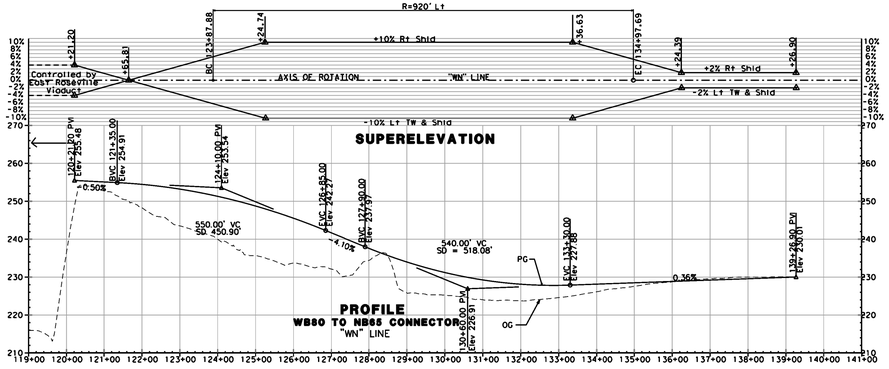
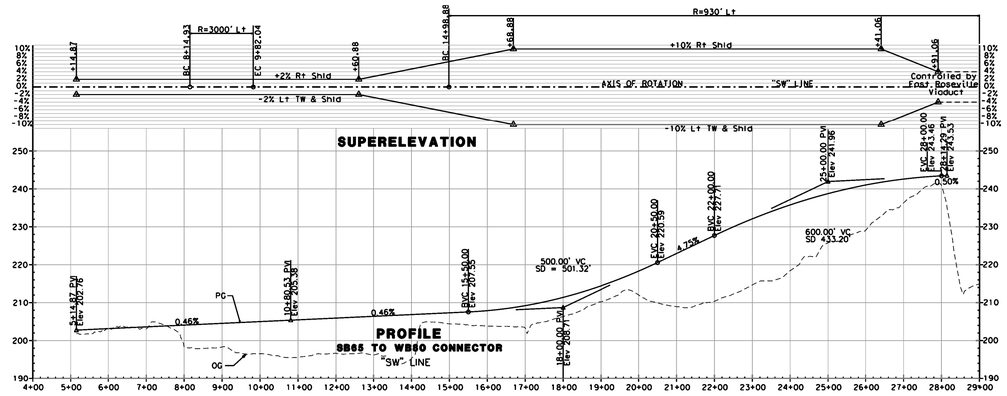
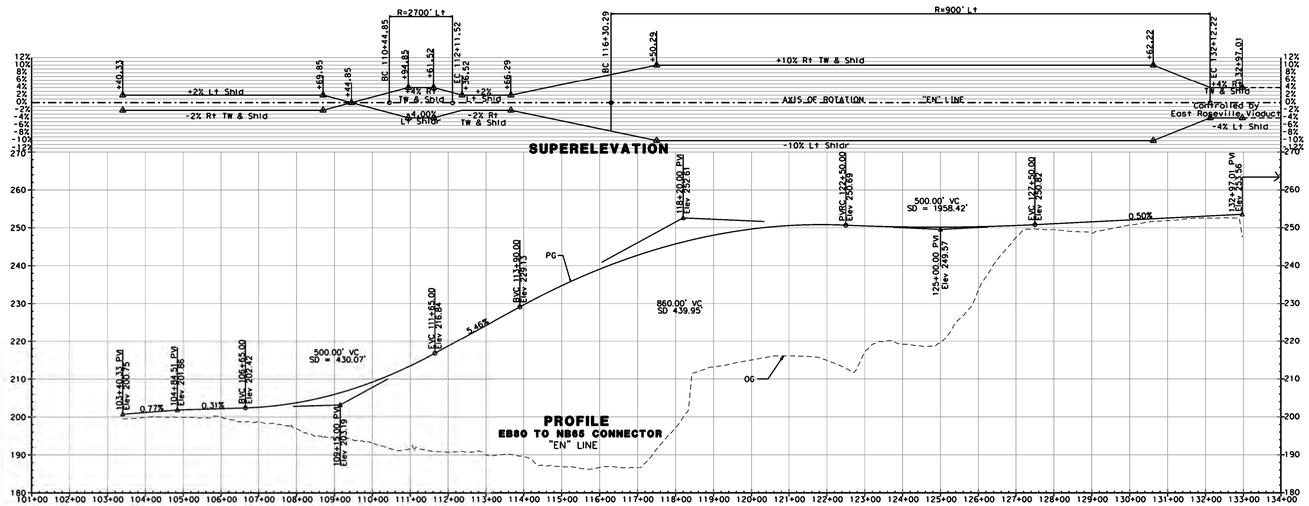
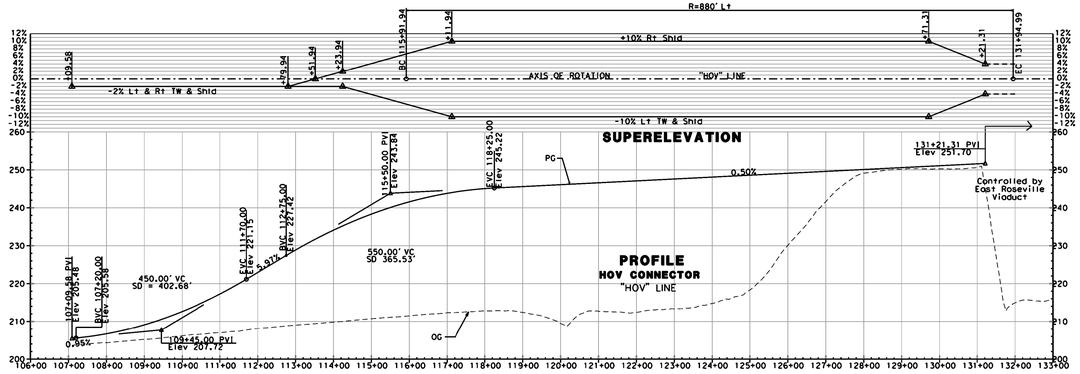
PROFILE









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Alternative 2

Collector Distributor System Ramps

SHEET 8 OF 8

EB80 EUREKA LOOP ON-RAMP ("E1" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
1	556'	15°55'38"	77.78'	154.56'
2	180'	132°14'56"	406.66'	415.47'
3	3000'	04°54'11"	128.44'	256.72'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
1	N 27°01'32" E	1342.90'

WB80 EUREKA SLIP OFF-RAMP ("E3" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
6	1000'	45°31'53"	419.66'	794.67'

EB80 EUREKA SLIP OFF-RAMP ("E5" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
7	900'	33°23'23"	269.92'	524.48'
8	600'	26°12'17"	139.65'	274.41'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
4	N 29°21'09" E	415.92'
5	N 62°44'32" E	327.06'
6	N 36°32'15" E	327.06'

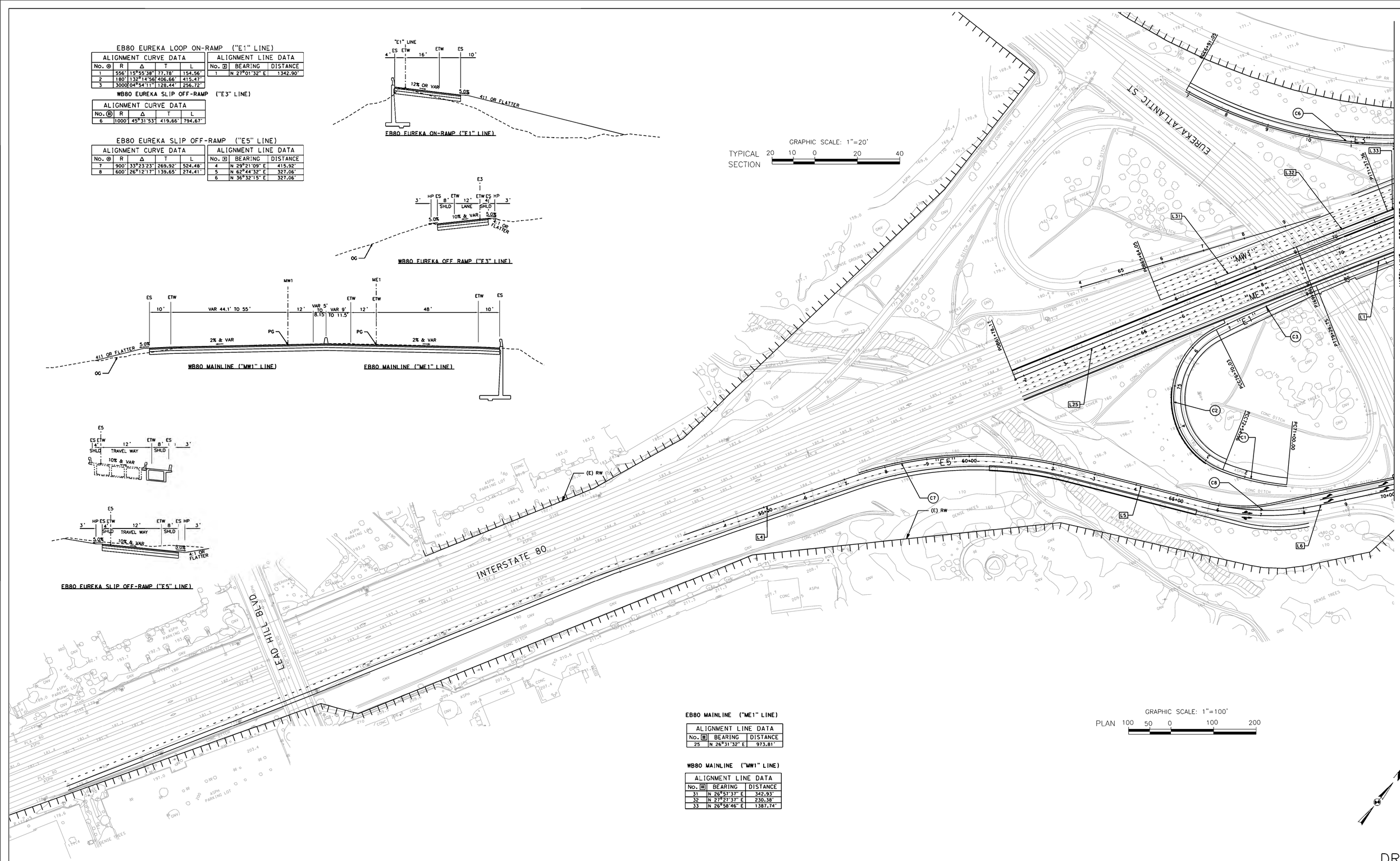
EB80 EUREKA ON-RAMP ("E1" LINE)

WB80 EUREKA OFF RAMP ("E3" LINE)

WB80 MAINLINE ("MW1" LINE)

EB80 MAINLINE ("ME1" LINE)

EB80 EUREKA SLIP OFF-RAMP ("E5" LINE)



EB80 MAINLINE ("ME1" LINE)

ALIGNMENT LINE DATA		
No. ⊞	BEARING	DISTANCE
25	N 26°31'32" E	973.81'

WB80 MAINLINE ("MW1" LINE)

ALIGNMENT LINE DATA		
No. ⊞	BEARING	DISTANCE
31	N 26°57'37" E	342.93'
32	N 27°27'37" E	230.38'
33	N 26°58'46" E	1387.74'

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Alternative 3
Taylor Road Interchange Eliminated

SHEET 1 of 7

EB80 EUREKA SLIP ON-RAMP ("E2" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
4	335'	70°34'59"	237.12'	412.69'
5	4500'	02°40'28"	105.04'	210.05'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
2	N 24°21'01" E	703.73'

EB80 COLLECTOR DISTRIBUTOR ("CD3" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
9	2588'	30°53'13"	714.96'	1395.13'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
7	N 27°01'43" E	478.31'
8	N 26°13'05" E	148.04'
10	N 57°06'17" E	332.92'

TAYLOR ROAD ("TR" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
25	1553'	14°06'32"	192.18'	382.42'
26	1491'	28°26'05"	377.76'	739.96'
27	3962'	17°43'28"	617.76'	1225.65'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
21	N 11°52'16" W	249.68'

WB80 EUREKA SLIP OFF-RAMP ("E3" LINE)

WB80 EUREKA SLIP OFF-RAMP ("E3" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
3	N 31°51'54" E	270.98'

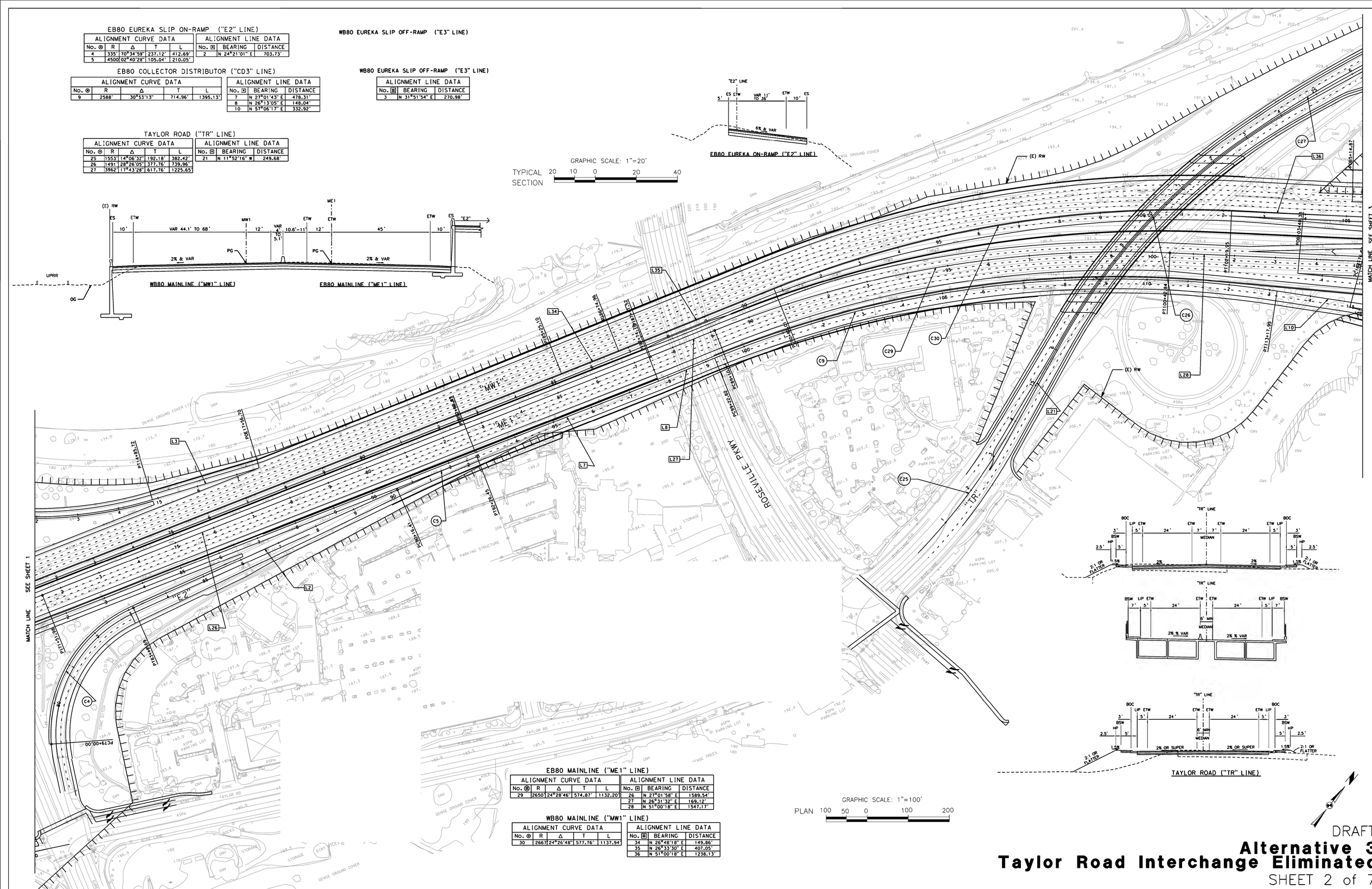
EB80 EUREKA ON-RAMP ("E2" LINE)

WB80 MAINLINE ("MW1" LINE)

EB80 MAINLINE ("ME1" LINE)

GRAPHIC SCALE: 1"=20'

TYPICAL SECTION 20 10 0 20 40



TAYLOR ROAD ("TR" LINE)

EB80 MAINLINE ("ME1" LINE)

ALIGNMENT CURVE DATA				
No. ⊕	R	Δ	T	L
29	2650'	24°28'46"	574.87'	1132.20'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
26	N 27°01'58" E	1589.54'
27	N 26°31'32" E	169.12'
28	N 51°00'18" E	1547.17'

WB80 MAINLINE ("MW1" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
30	2667'	24°26'48"	577.76'	1137.94'

ALIGNMENT LINE DATA		
No. ⊞	BEARING	DISTANCE
34	N 26°48'18" E	149.86'
35	N 26°33'30" E	407.05'
36	N 51°00'18" E	1238.13'

GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

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Alternative 3
Taylor Road Interchange Eliminated

SHEET 2 of 7

GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

GRAPHIC SCALE: 1"=20'

TYPICAL SECTION 20 10 0 20 40

EB80 COLLECTOR DISTRIBUTOR ("CD3" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
10	3000'	09°53'37	259.66'	518.03'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
11	N 47°12'40" E	540.75'

TAYLOR ROAD ("TR" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
22	N 34°17'17" E	2005.33'

EB80 MAINLINE ("ME1" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
29	N 50°30'18" E	1752.97'
30	N 50°13'18" E	103.73'

WB80 MAINLINE ("MW1" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
31	20000'	2°11'30"	382.58'	765.06'
32	20000'	2°11'30"	382.58'	765.06'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
37	N 53°11'48" E	448.20'
38	N 51°00'18" E	42.91'

SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
4	930'	23°42'13"	195.17'	384.75'
5	3000'	07°08'40"	187.28'	374.08'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
3	N 19°00'41" E	520.27'
4	N 49°51'34" E	300.12'

EB80 SLIP ON-RAMP ("CD4" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
11	3000'	17°12'45"	454.04'	901.24'
12	3000'	03°11'30"	83.58'	167.11'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
12	N 48°10'05" E	1599.33'
13	N 49°21'34" E	300.12'

EB80 TO NB65 CONNECTOR ("EN" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
13	2700'	3°32'12"	83.36'	166.66'
14	900'	100°42'31"	1086.15'	1581.93'
15	3052'	01°35'31"	42.40'	84.79'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
14	N 53°52'03" E	704.52'
15	N 50°19'51" E	418.77'

SB65 TO WB80 CONNECTOR ("SW" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
16	3000'	03°11'30"	83.58'	167.11'
17	930'	98°34'05"	1080.61'	1599.91'
18	2750'	8°34'58"	206.36'	411.95'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
15	N 49°42'04" E	300.06'
16	N 46°30'34" E	516.84'

SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
19	860'	30°50'35"	237.23'	462.95'
20	930'	133°10'04"	2147.44'	2161.52'
21	930'	22°35'15"	185.73'	366.63'
22	3000'	6°46'42"	177.67'	354.92'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
17	S 26°20'20" E	350.00'
18	N 20°29'36" E	578.36'
19	N 49°51'34" E	300.12'

HOV CONNECTOR ("HOV" LINE)

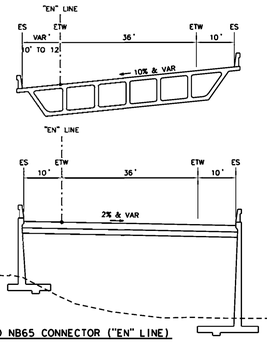
ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
23	880'	104°22'22"	1133.94'	1603.05'
24	3012'	20°48'21"	552.96'	1093.74'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
20	N 51°00'18" E	882.36'

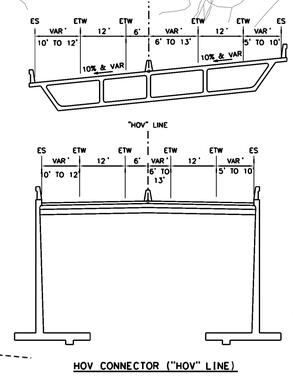
WB80 TO NB65 CONNECTOR ("WN" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
28	920'	69°07'01"	633.68'	1109.81'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
23	S 57°00'56" E	639.15'
24	N 53°52'03" E	429.19'



EB80 TO NB65 CONNECTOR ("EN" LINE)



HOV CONNECTOR ("HOV" LINE)

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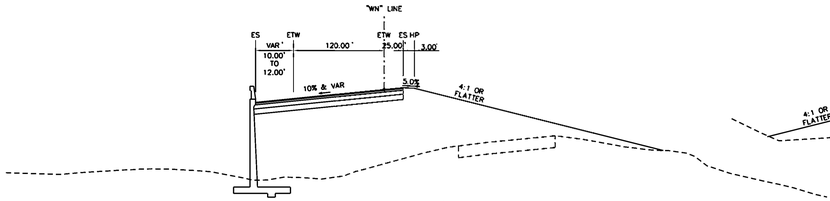
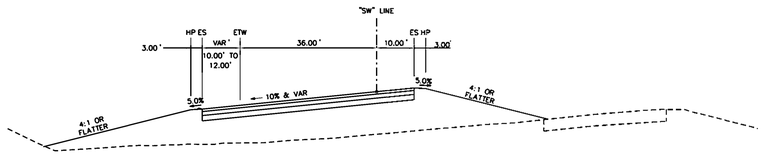
Alternative 3
Taylor Road Interchange Eliminated

SHEET 3 of 7

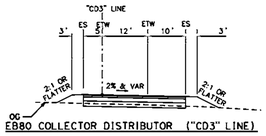
MATCH LINE SEE SHEET 2
MATCH LINE SEE SHEET 4



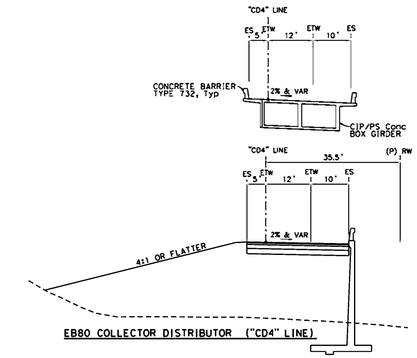
WB80 TO NB65 CONNECTOR ("WN" LINE)



SB65 TO WB80 CONNECTOR ("SW" LINE)



EB80 COLLECTOR DISTRIBUTOR ("CD3" LINE)



EB80 COLLECTOR DISTRIBUTOR ("CD4" LINE)

TYPICAL SECTION

GRAPHIC SCALE: 1"=20'

20 10 0 20 40

MATCH LINE SEE SHEET 3

MATCH LINE SEE BELOW

INTERSTATE 80

(E) RW

POE 139+26.88

POE 151+69.99

PCC 145+14.95

PT 148+69.87

C21

C22

L19

GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

MATCH LINE SEE ABOVE

INTERSTATE 80

(E) Rw

(E) RW

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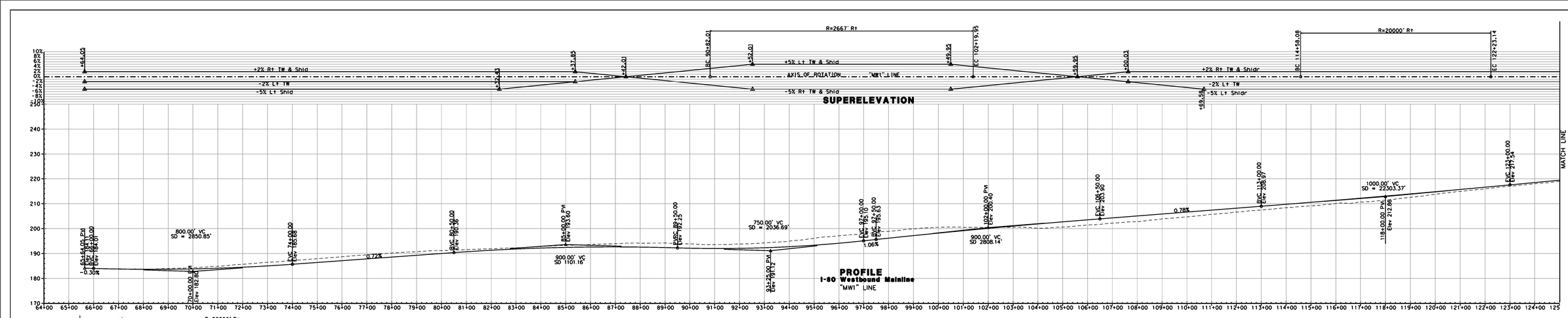
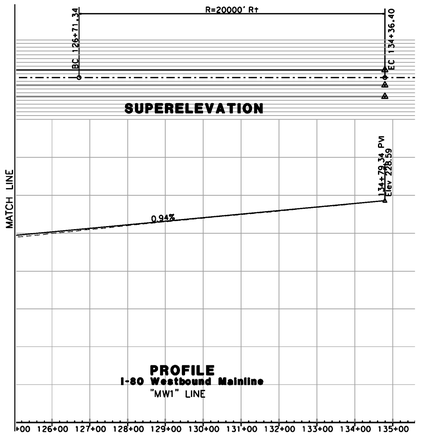
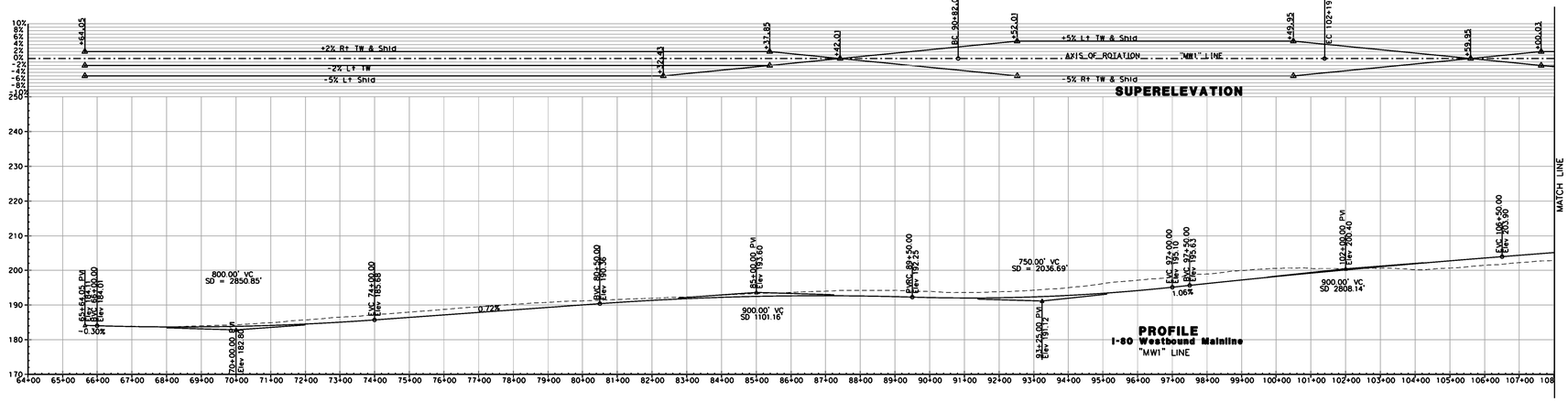
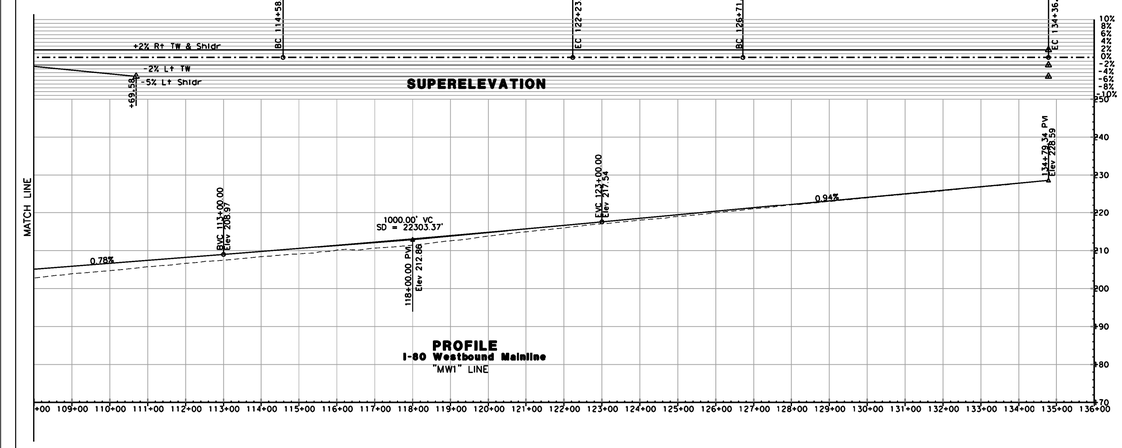
Alternative 3
Taylor Road Interchange Eliminated

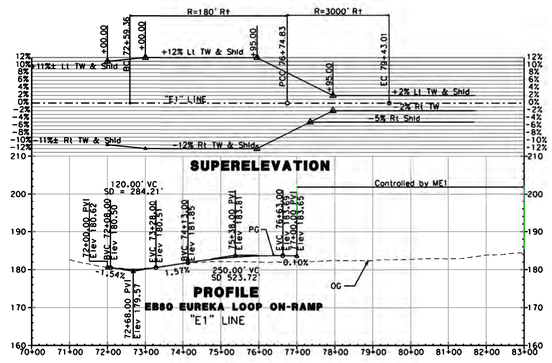
SHEET 4 of 7

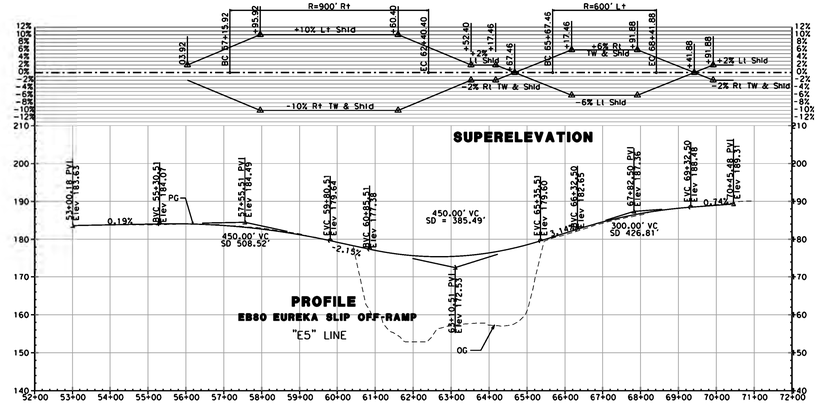












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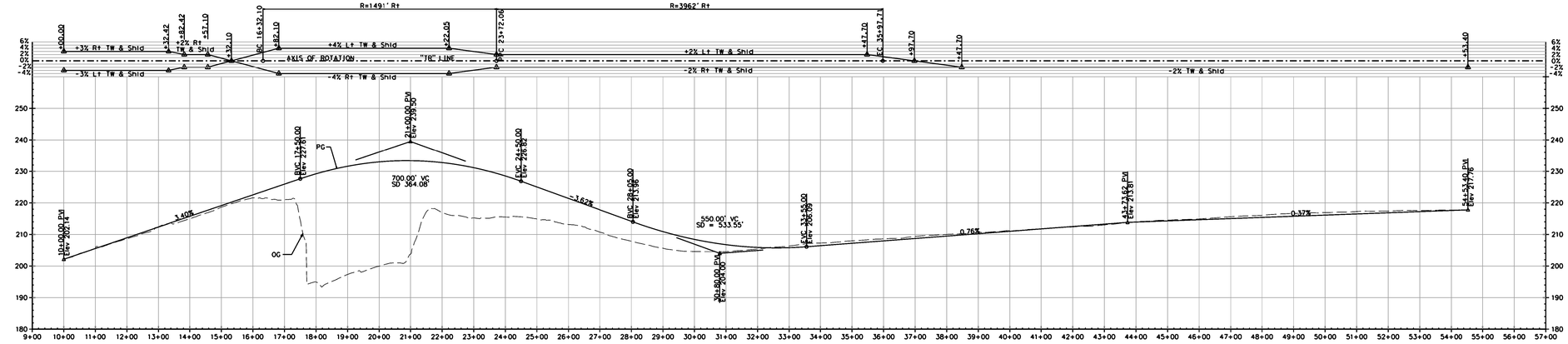
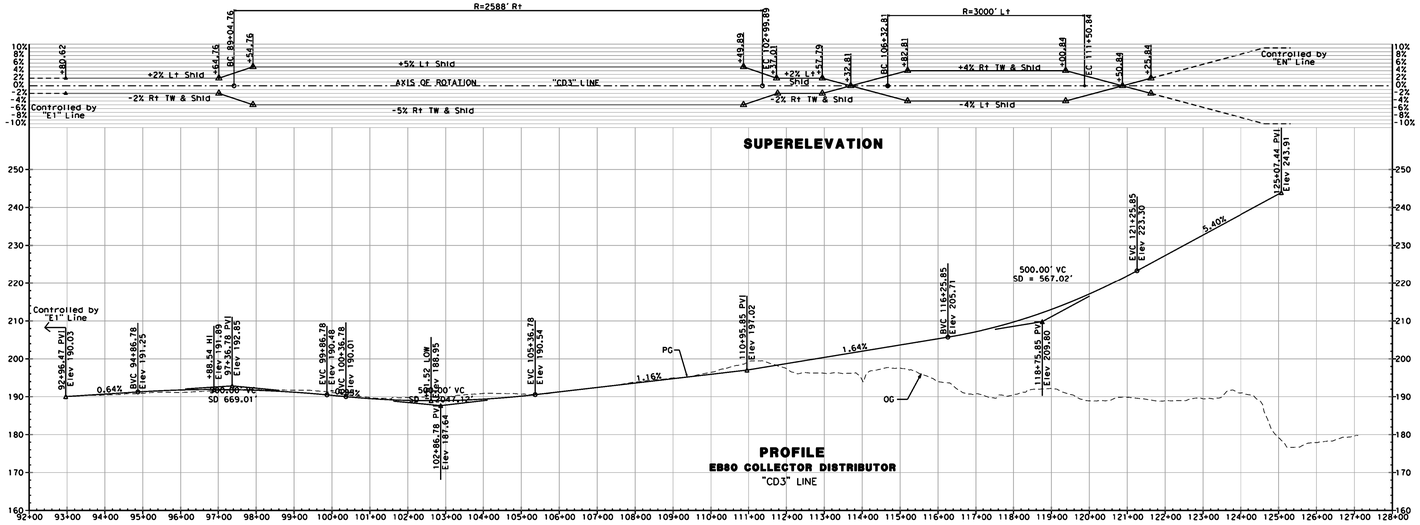
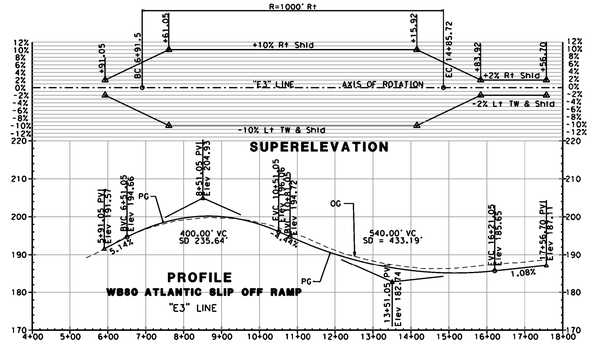
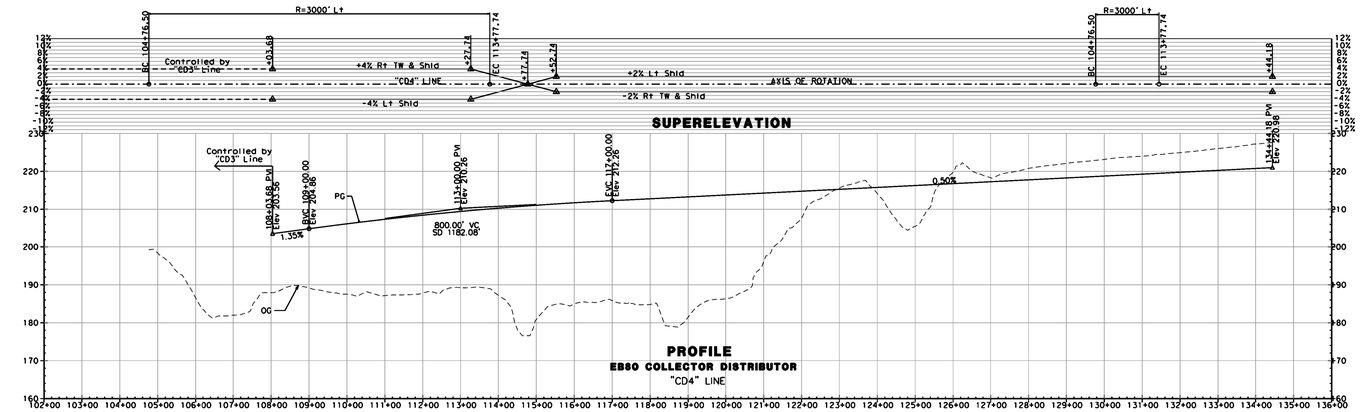
Alternative 3
Taylor Road Interchange Eliminated

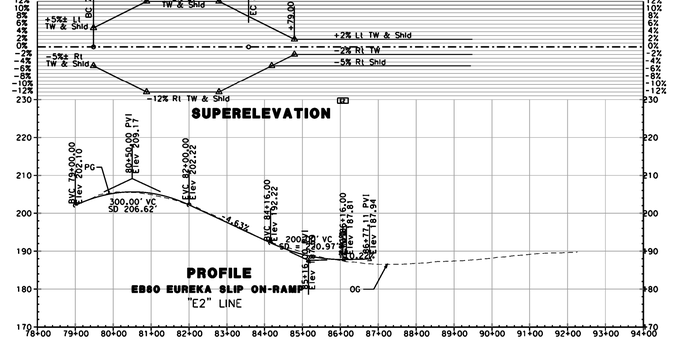
SHEET 5 of 7











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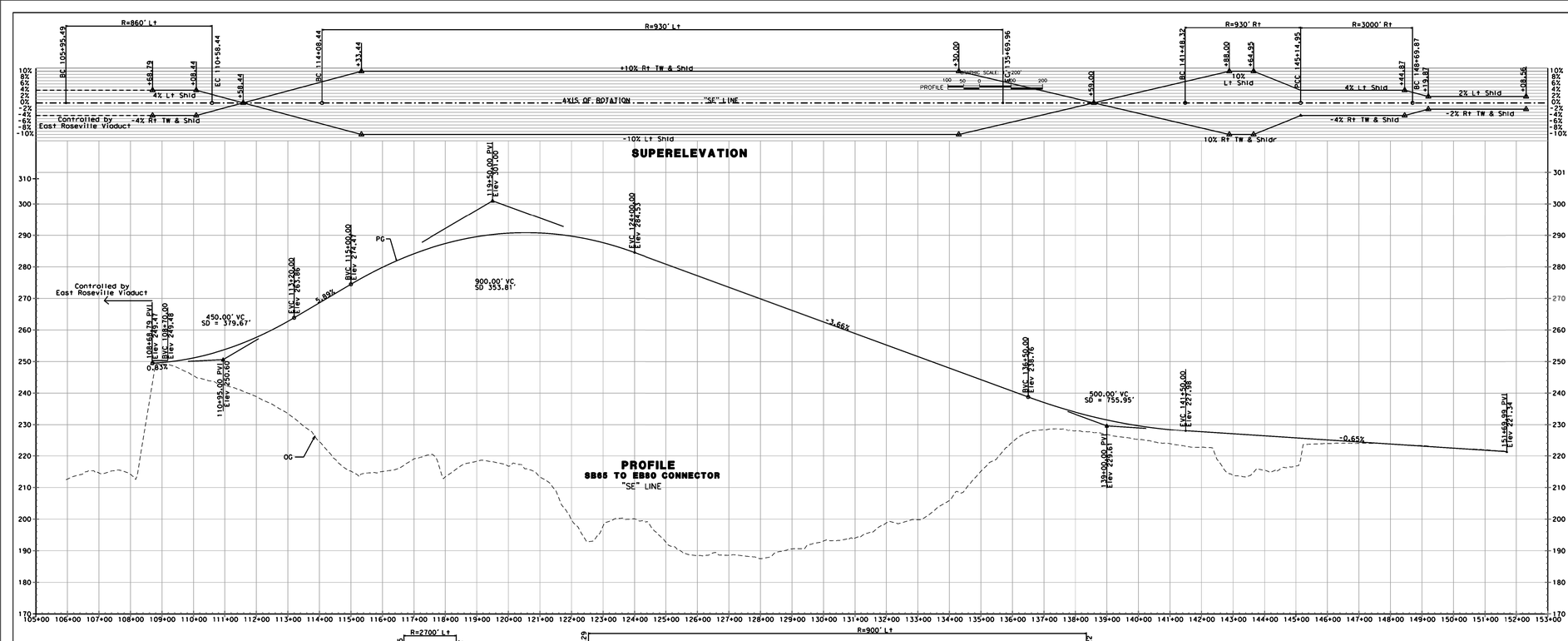
Alternative 3
Taylor Road Interchange Eliminated

SHEET 6 of 7



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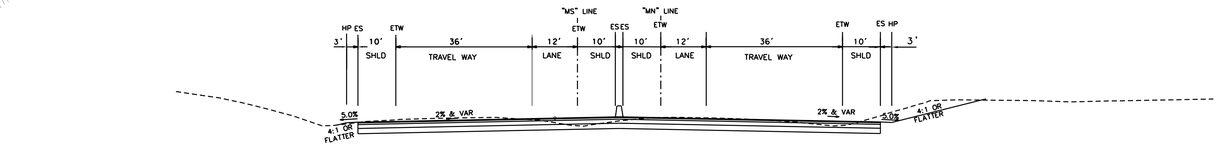
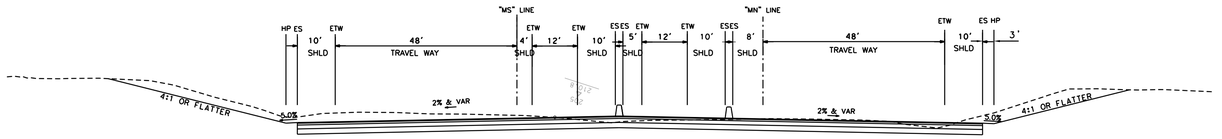
Alternative 3
Taylor Road Interchange Eliminated

SHEET 7 of 7





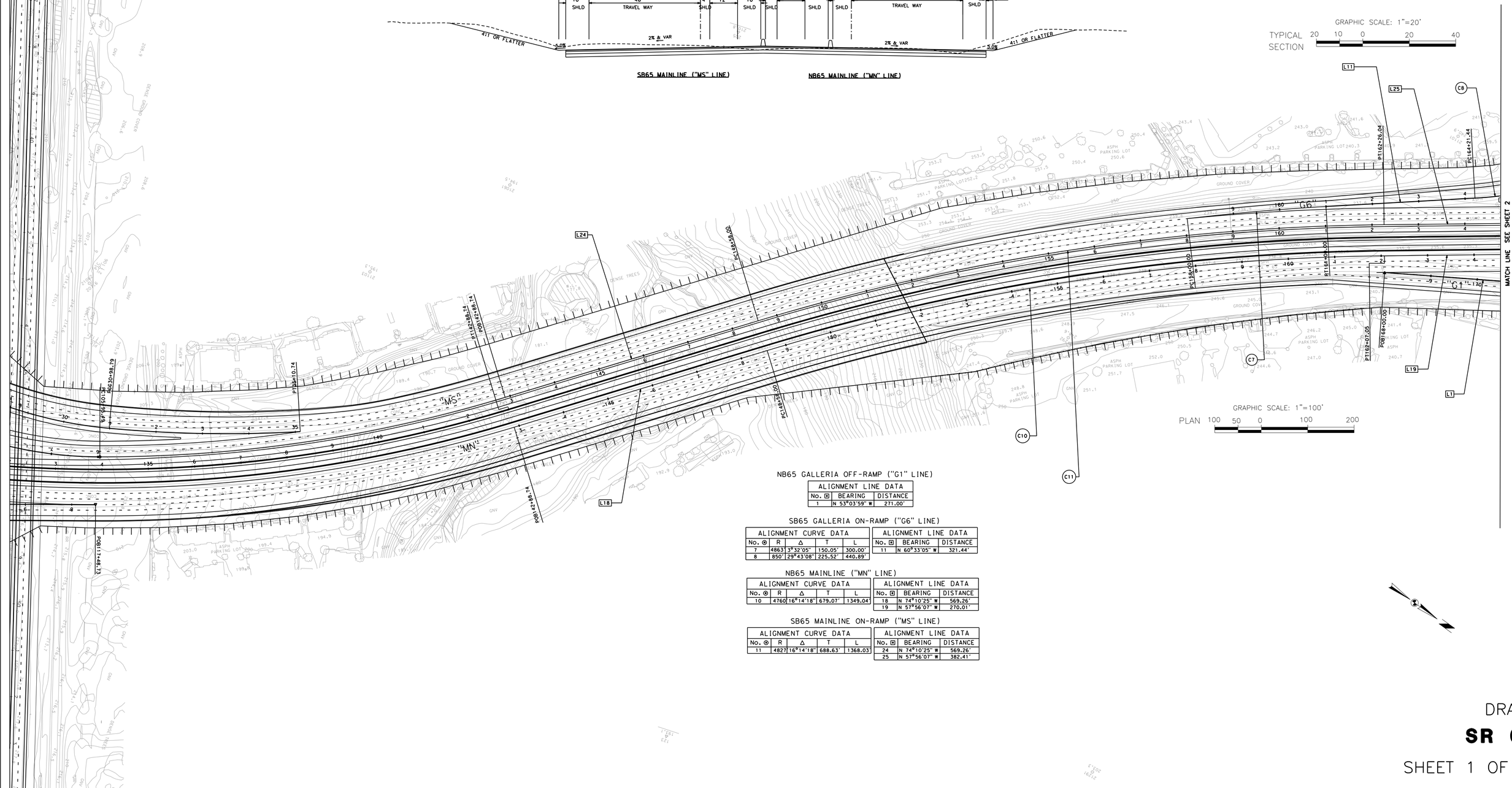
SB65 MAINLINE ("MS" LINE)

NB65 MAINLINE ("MN" LINE)

TYPICAL SECTION

GRAPHIC SCALE: 1"=20'

20 10 0 20 40



GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

NB65 GALLERIA OFF-RAMP ("G1" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
1	N 53°03'59" W	271.00'

SB65 GALLERIA ON-RAMP ("G6" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
7	4863'	3°32'05"	150.05'	300.00'
8	850'	29°43'08"	225.52'	440.89'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
11	N 60°33'05" W	321.44'

NB65 MAINLINE ("MN" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
10	4760'	16°14'18"	679.07'	1349.04'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
18	N 74°10'25" W	569.26'
19	N 57°56'07" W	270.01'

SB65 MAINLINE ON-RAMP ("MS" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
11	4827'	16°14'18"	688.63'	1368.03'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
24	N 74°10'25" W	569.26'
25	N 57°56'07" W	382.41'

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SHEET 1 OF 5

NB65 GALLERIA OFF-RAMP ("G1" LINE)

ALIGNMENT CURVE DATA				
No.	R	Δ	T	L
1	7825'	2°45'56"	188.45'	376.83'
2	1127.44'	23°11'10"	231.29'	456.25'

ALIGNMENT LINE DATA		
No.	BEARING	DISTANCE
2	N 55°42'42" W	279.35'

NB65 GALLERIA OFF-RAMP ("G2" LINE)

ALIGNMENT CURVE DATA				
No.	R	Δ	T	L
3	13330'	2°33'07"	296.92'	593.74'

ALIGNMENT LINE DATA		
No.	BEARING	DISTANCE
3	N 60°34'50" W	279.33'
4	N 58°01'53" W	294.46'

NB65 TAYLOR ON-RAMP ("G3" LINE)

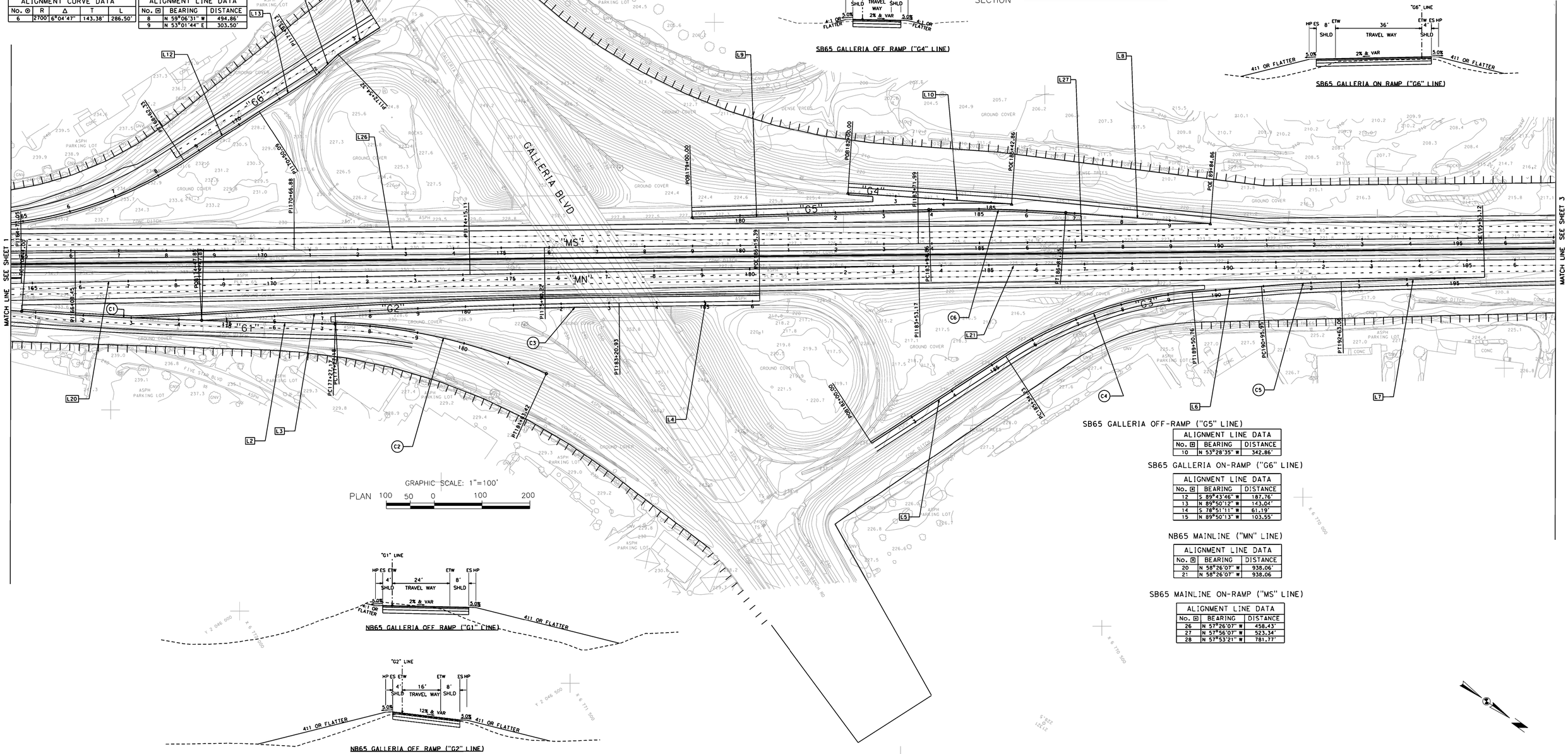
ALIGNMENT CURVE DATA				
No.	R	Δ	T	L
4	850'	28°04'35"	212.53'	416.52'
5	3000'	3°11'30"	83.58'	167.11'

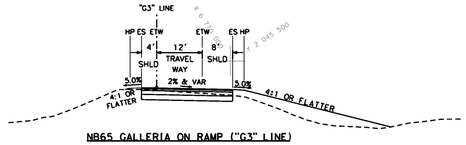
ALIGNMENT LINE DATA		
No.	BEARING	DISTANCE
5	S 86°41'19" W	334.23'
6	N 86°41'19" W	145.19'
7	N 59°02'37" W	300.06'

SB65 GALLERIA OFF-RAMP ("G4" LINE)

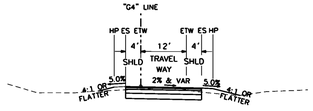
ALIGNMENT CURVE DATA				
No.	R	Δ	T	L
6	2700	6°04'47"	143.38'	286.50'

ALIGNMENT LINE DATA		
No.	BEARING	DISTANCE
8	N 59°06'31" W	494.86'
9	N 53°01'44" E	303.50'





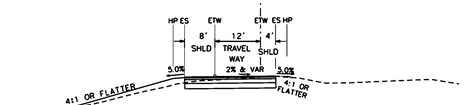
NB65 GALLERIA ON RAMP ("G3" LINE)



SB65 GALLERIA OFF RAMP ("G4" LINE)

TYPICAL SECTION

GRAPHIC SCALE: 1"=20'
20 10 0 20 40



SB65 GALLERIA OFF RAMP ("G5" LINE)

SB65 GALLERIA ON RAMP ("G6" LINE)

SB65 GALLERIA OFF-RAMP ("G5" LINE)

ALIGNMENT LINE DATA		
No.	BEARING	DISTANCE
10	N 53°28'35" W	342.86'

SB65 GALLERIA ON-RAMP ("G6" LINE)

ALIGNMENT LINE DATA		
No.	BEARING	DISTANCE
12	S 89°43'46" W	187.76'
13	N 89°50'12" W	143.04'
14	S 76°51'11" W	61.19'
15	N 89°50'13" W	103.55'

NB65 MAINLINE ("MN" LINE)

ALIGNMENT LINE DATA		
No.	BEARING	DISTANCE
20	N 58°26'07" W	938.06'
21	N 58°26'07" W	938.06

SB65 MAINLINE ON-RAMP ("MS" LINE)

ALIGNMENT LINE DATA		
No.	BEARING	DISTANCE
26	N 57°26'07" W	458.43'
27	N 57°56'07" W	523.34'
28	N 57°53'21" W	781.77'

NB65 GALLERIA OFF RAMP ("G1" LINE)

NB65 GALLERIA OFF RAMP ("G2" LINE)

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NB65 MAINLINE ("MN" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
22	N 57°53'52" W	1899.12

SB65 MAINLINE ON-RAMP ("MS" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
29	N 57°53'52" W	1899.31'

TYPICAL SECTION

GRAPHIC SCALE: 1"=20'
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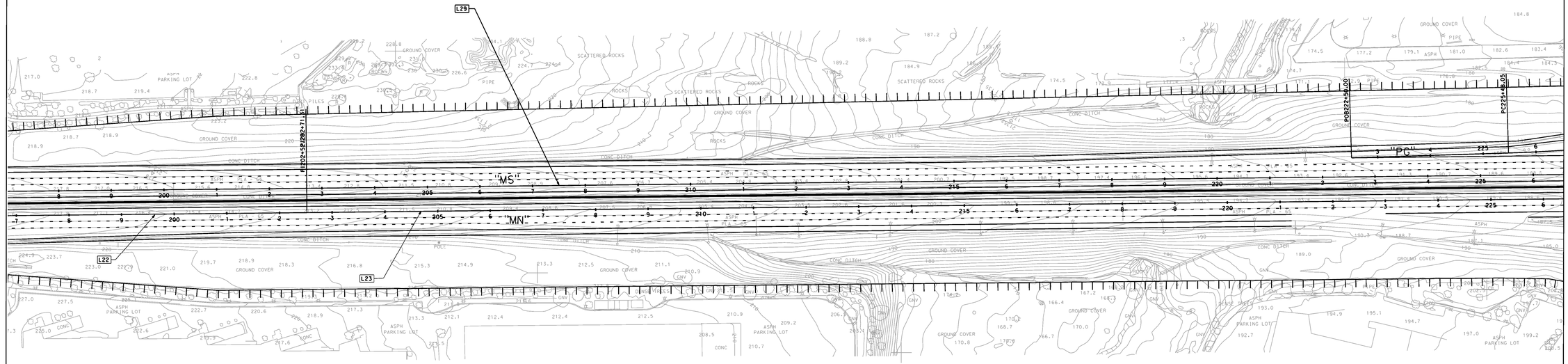

GRAPHIC SCALE: 1"=100'
PLAN 100 50 0 100 200

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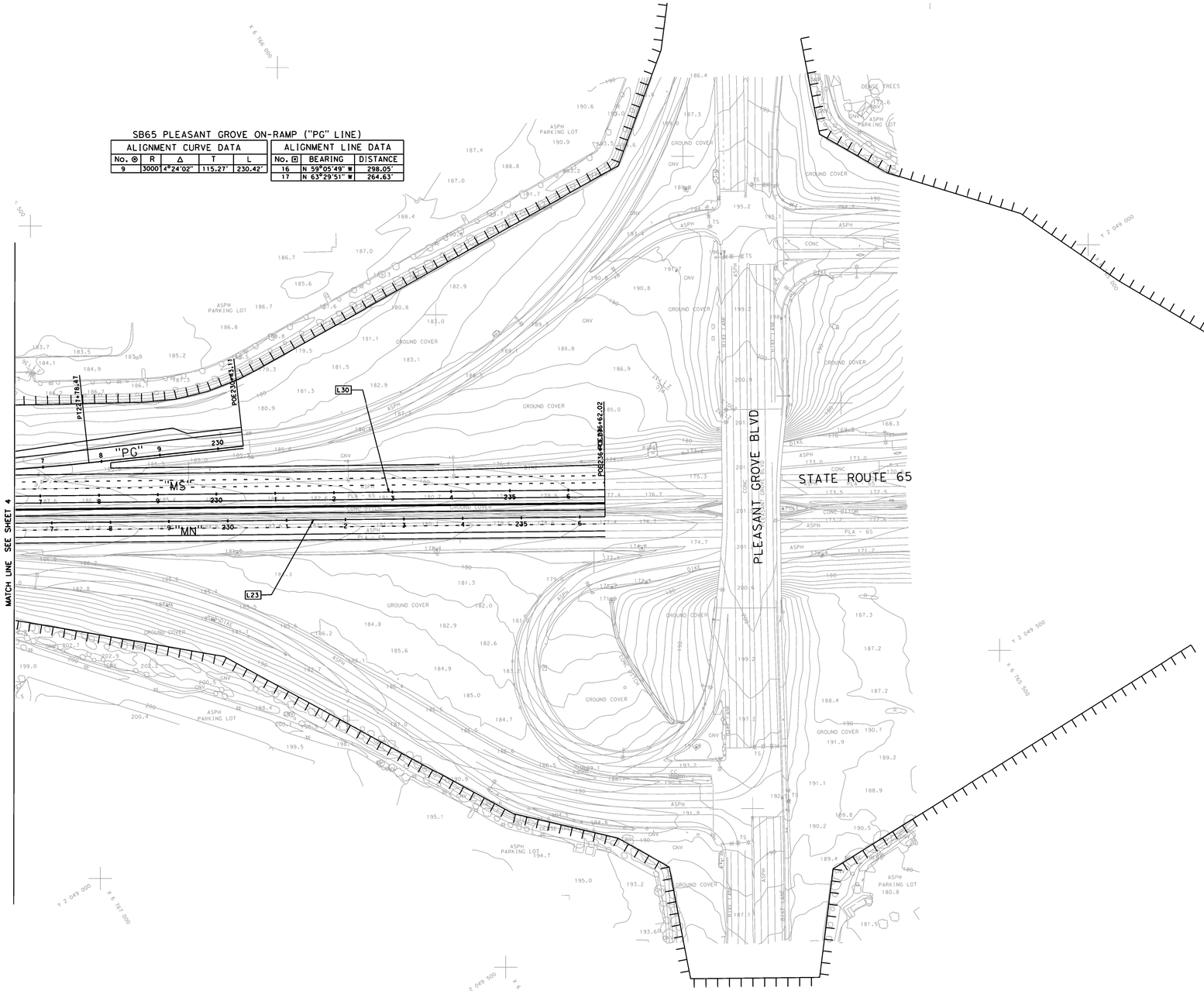
SHEET 3 OF 5

SB65 PLEASANT GROVE ON-RAMP ("PG" LINE)

ALIGNMENT CURVE DATA				
No. ⊙	R	Δ	T	L
9	3000	4°24'02"	115.27'	230.42'

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
16	N 59°05'49" W	298.05'
17	N 63°29'51" W	264.63'



TYPICAL SECTION

GRAPHIC SCALE: 1"=20'

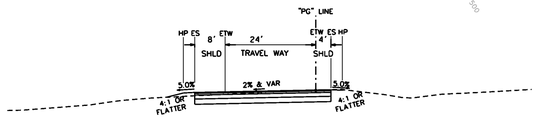
20 10 0 20 40

NB65 MAINLINE ("MN" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
23	N 57°57'04" W	3390.75'

SB65 MAINLINE ON-RAMP ("MS" LINE)

ALIGNMENT LINE DATA		
No. ⊡	BEARING	DISTANCE
30	N 57°57'04" W	3390.71'



SB65 PLEASANT GROVE ON RAMP ("PG" LINE)

PLAN GRAPHIC SCALE: 1"=100'

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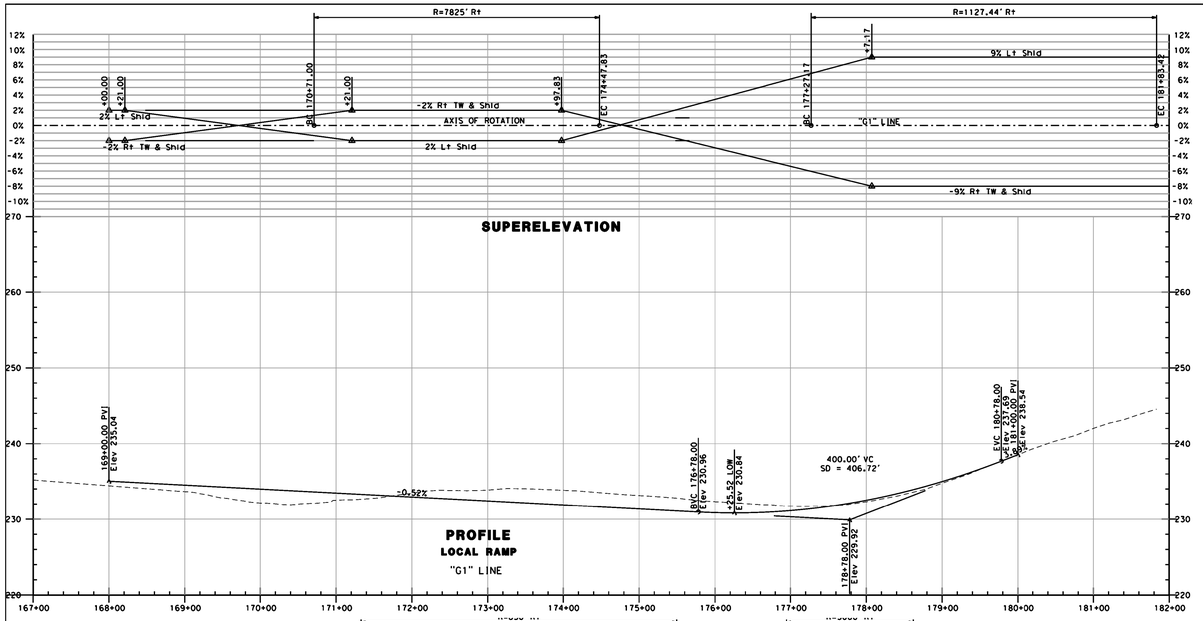
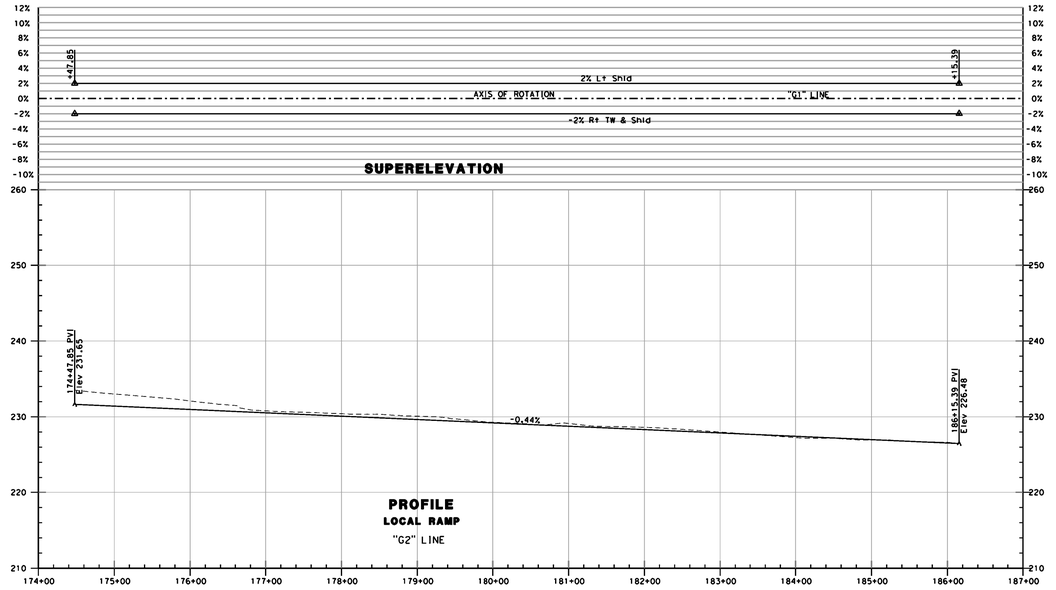
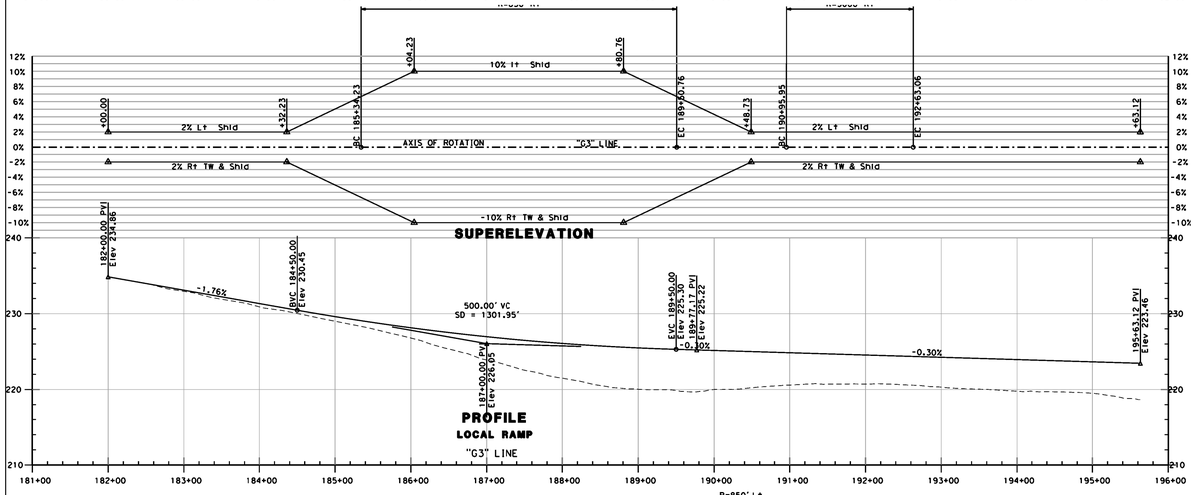
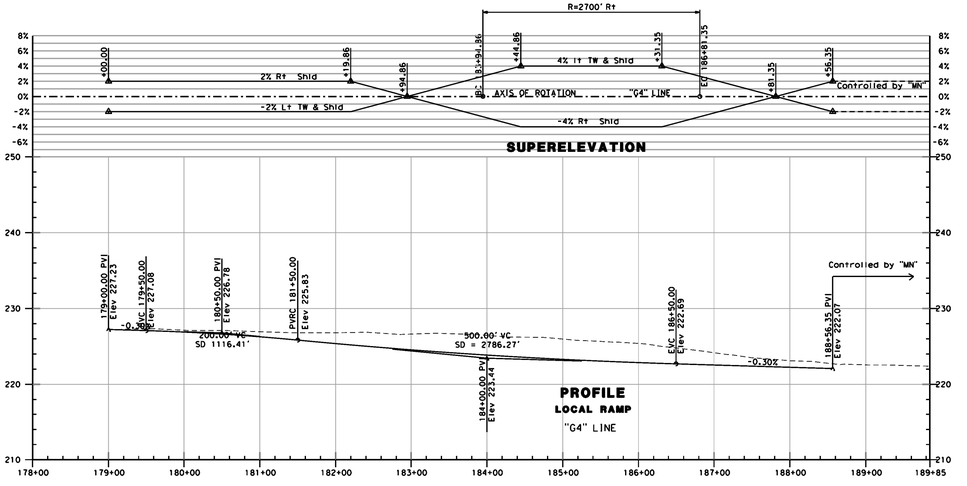
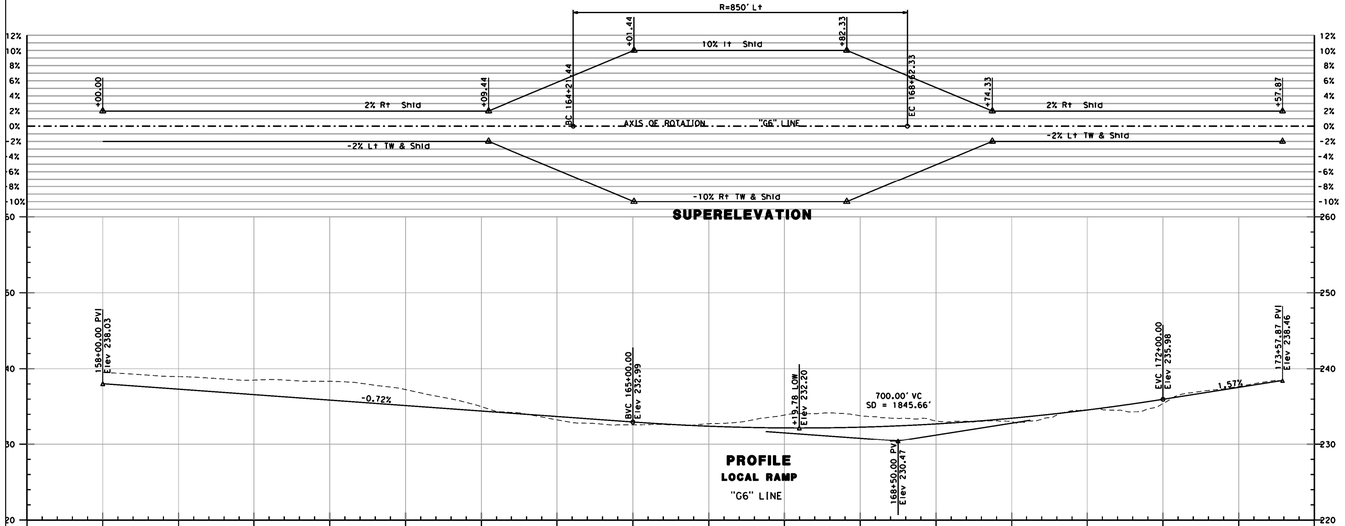
SHEET 4 OF 5

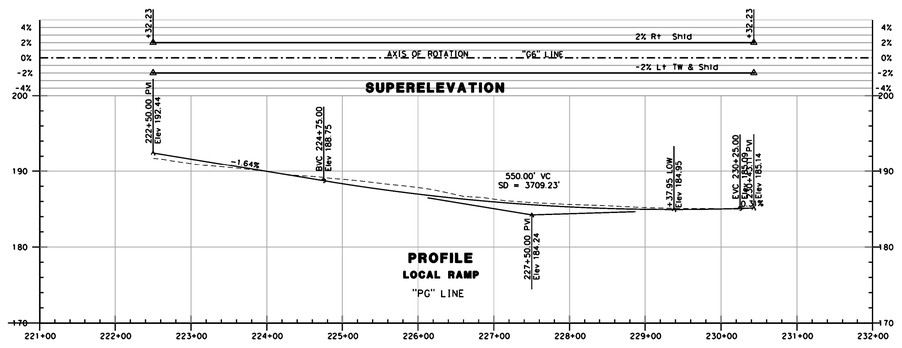












GRAPHIC SCALE: 1"=200'

PROFILE 100 50 0 100 200

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SR 65

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Attachment E
Advance Planning Studies

Advance Planning Study

For

I-80/SR-65 Interchange Improvements Project

Alternative 1
Taylor Road Full Access Interchange

Prepared for:

Placer County Tranportation Planning Agency

Submitted by:

CH2MHILL

2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833

December, 2014

I-80/SR-65 Interchange Improvements
Rocklin, California

Alternative 1
Taylor Road Full Access Interchange

Contents

	Page No.
Introduction	2
Proposed Structure Types	2
Structure Descriptions	3
Corridor Aesthetics	5
Design Assumptions	6
Preliminary Structure Foundations	7
Construction Cost Summary	8

Attachments

A Consultant Prepared Advance Planning Study (APS) Checklist

B Advance Planning Study Cost Estimates

C Advance Planning Study Plans

Introduction

The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes to improve the Interstate 80/State Route 65 (I-80/SR 65) interchange in Placer County, California, in order to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards. Construction of the proposed improvements has independent utility. The project is not dependent on other projects or improvements to meet the purpose and need.

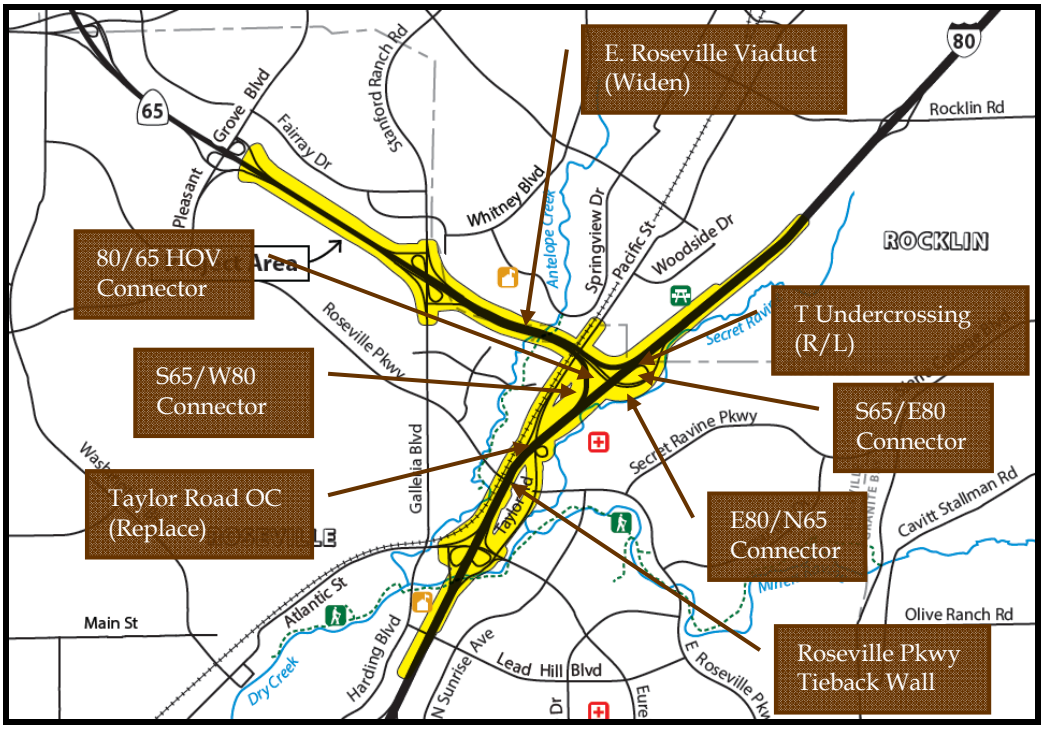
This memorandum outlines the design considerations used in the preparation of Advance Planning Studies for the I-80/SR-65 Interchange Improvements Project. The project includes three alternatives which are briefly described as follows:

- Alternative 1 - Taylor Road Full Access Interchange
- Alternative 2 - Collector-Distributor System Ramps
- Alternative 3 - Taylor Road Access Eliminated

This memorandum addresses Alternative 1.

Proposed Structure Types

Eight bridge structures and one tie-back wall are proposed for this alternative. Details of the structures are outlined below. Bridge structures are proposed to be cast-in-place, post-tensioned concrete box girder superstructures, unless noted otherwise. Abutments are short seat abutments supported with pile or spread foundations. Bents are supported on pile or spread foundations where feasible, or supported on large diameter drilled shafts where foundation space is limited (in the I-80 median or at outriggers) or near waterways.



Location of Structures

Structure Descriptions

- E80/N65 Connector
  Construct new Eastbound I-80 to Northbound SR-65 connector.
  - Total structure length = 1585', 3 frames, 9 spans (maximum span length 215')
  - Structure depth = 8'-6", Structure width = 60'-10"
  - Two column bents, 5'-6" x 8'-3" rectangular columns with corner notches
  - Outrigger bent where alignment crosses Secret Ravine
  - 900' radius curve

- 80/65 HOV Connector
  Construct new connector that joins HOV lanes in the median of I-80 to median of SR-65.
  - Total structure length = 1465', 3 frames, 9 spans (maximum span length 185')
  - Structure depth = 7'-6", Structure width = 62'-10" and varies
  - Two column bents, 5'-6" x 8'-3" rectangular columns with corner notches
  - Outriggers at bents where alignment crosses westbound I-80
  - 880' radius curve

- S65/E80 Connector
  Construct new Southbound SR-65 to Eastbound I-80 connector.
  - Total structure length = 2750', 4 frames, 18 spans (maximum span length 180')
  - Structure depth varies from 5'-6" to 7'-3", Structure width = 48'-10"
  - Single column bents, 7'-0" x 10'-6" rectangular columns with corner notches
  - Bents 2 and 18 have deep set foundations with isolation casings around the columns to provide consistent stiffness within the frame
  - 950' radius curve

- S65/W80 Connector
  Construct new Southbound SR-65 to Westbound I-80 connector.
  - Single Span = 190'
  - Structure depth = 9'-0"
  - Structure width = 60'-10"
  - 930' radius curve

- T Undercrossing (R/L)
  Construct new parallel bridge on I-80 over Taylor Road.
  - Single Span = 165'-9"
  - Structure depth = 7'-6"
  - Structure widths = 70'-10" (Left) and 84'-10" (Right)

- Taylor Road Overcrossing (Replace)
  Remove and replace the existing overcrossing over I-80. Construct in two stages.
  - Two spans (225', 235')
  - Structure depth = 9'-6", Structure width = 72'-5"
  - Three column bents for final configuration, 5'-6" x 8'-3" rectangular columns with corner notches
  - High skew (between 32° and 50°) at pier and abutments

- East Roseville Viaduct (Widen)

Construct left widen, right widen, and median closure of existing right and left structures.

- Total structure length = 2044', 5 frames, 14 spans (maximum span length 155'). Proposed widening matches existing spans & frames.
- Existing & proposed structure depth = 6'-0"
- Left (SB) widening is proposed to be supported by round columns, flared in the longitudinal direction. Median closure (HOV) and Right (NB) widen are proposed to be supported by oblong columns, flared longitudinally and transversely to match existing.
- Left (SB) widening width is increased to accommodate minimum width (1' overhang, 1' girders & 5'6" cell width to develop reinforcement of a 5'-6"round column).
- A portion of Frame 1 is replaced on the Left (SB) structure with a constant 4% cross slope to maximize vertical clearance over the railroad. Vertical clearance over the UPRR line is constrained.
- Sound walls are proposed on both NB and SB edges of deck.

- Roseville Parkway Tieback Wall
  Construct new tieback wall on south side of Roseville Parkway OC over I-80.
  - Length of wall = 130'-8"
  - Maximum height = 8'-6"

Corridor Aesthetics

I-80 Corridor

The I-80 corridor (Atlantic Street OC, Roseville Parkway OC, Taylor Road OC, and SR-65 Interchange) is composed of cast-in-place, post-tensioned concrete box girder bridges. Exterior girders have a vertical face. Columns are rectangular with corner notches, reinforced with interlocking spirals, and are flared longitudinally.

I-80 at Atlantic Ave

I-80 at Roseville Parkway

SR-65 Corridor

The existing East Roseville Viaduct structure is a cast-in-place, post-tensioned concrete box girder. The columns are oblong with two-way flares. Exterior girders are sloped 3:1 and are rounded at the soffit line.

Sound wall aesthetics will be determined during PS&E phase.

Design Assumptions

The following design assumptions were used in the development of the Advanced Planning Studies:

- Outriggers are used at locations where it is not feasible to place a column directly under the superstructure, or to avoid a waterway under the structure
- A minimum depth-to-span ratio of 0.04 is used for continuous spans, and 0.045 is used for single spans per Bride Design Aids (BDA) 10-26.
- Typical section and overhang dimensions are detailed per Memo to Designers (MTD) 10-20.
- Per roadway design, an opening for four mixed-use lanes will be provided in each direction on I-80. Approximate depth of falsework was determined using BDA Table 10-2. Is it assumed that falsework tunnels (maximum falsework depth of 4'-0") will be used at Taylor Rd Overcrossing due to the high skew and staged construction.
- Bridge design will follow most current Caltrans standard and design guidelines including Load and Resistance Factor Design (LRFD) Specifications and Seismic Design Criteria.
- Seismic retrofit requirements will be considered during the design phase for the structures being widened. The existing East Roseville Viaduct was constructed in 1985. As-builts indicate confined columns, developed reinforcement, reasonable abutment seat widths, and restrained hinges. The adequacy of the entire widened viaduct will be confirmed during Type Selection and Final Design. Additional potential concerns that will be investigated are: integral column flares, displacement capacity of columns, and the stiffness irregularities of the ultimate widened structure due to column configuration.
- Falsework platforms are proposed over protected waterways to avoid disturbance inside waterway limits.
- The UPRR right-of-way perpendicular to E. Roseville Parkway (near Taylor Road) is 400 feet wide. Existing Bents 2 & 3 and Abutment 1 are within the ROW. The widening will require UPRR coordination. Proposed columns are aligned with existing bents and the proposed abutment is extended along the same bearing as the existing abutment to minimize impact.
- A minimal vertical clearance of 16'-6" is met by all structures. A minimum temporary 15'-0" vertical clearance is provided under falsework.
- The only utilities anticipated on the freeway structures are Corridor Operating System (COS) and lighting. Taylor Road UC has sufficient depth to accommodate utilities should they be identified during the PS&E phase.

Preliminary Structure Foundations

Soil and groundwater conditions are variable throughout the project area which makes different foundation types better suited for each structure location. The following table summarizes the suitable foundation types anticipated for each planned structure location. Subsurface investigation will need to be completed to verify suitable foundation types and design parameters.

PRELIMINARY STRUCTURE FOUNDATION TYPES		
Structure	**Proposed Abutment Type**	**Proposed Bent Type**
E80/N65 Connector	Driven H-piles.	Driven H-piles for Bent 2 and Bents 6 thru 9. Spread footings for Bents 3 thru 5. Large diameter shaft in median and adjacent to I-80.
80/65 HOV Connector	Driven H-piles.	Driven H-piles. Large diameter shaft in median and adjacent to I-80. MSE wall at approach/abutment.
S65/E80 Connector	Driven H-piles at Abut 1. Spread footing at Abut 19.	Driven H-piles from Bent 2 to Bent 8. Spread footings from Bent 9 to Bent 18.
S65/W80 Connector	Driven H-piles.	N/A
T Undercrossing (R/L)	Spread footings.	N/A
Taylor Road Overcrossing (Replace)	Driven H-Piles.	Large diameter CIDHs.
E. Roseville Viaduct (Widen)	Driven H-Piles.	Driven H-Piles.

Construction Cost Summary

A summary of relative construction costs is provided below. Given the funding constraints for this project, significant time may occur between construction stages. Project costs, including structure costs, should be re-evaluated and revised when the complete construction schedule is determined.

Structure costs listed below are based on 2013 Caltrans Statistics (current at the time of estimate).

Structure	Area (Sq. Ft.)	Cost / Sq. Ft.	Demolition Cost	Total Cost
E80/N65 Connector	97,761	$ 205	$ 190,530	$ 20,190,000
80/65 HOV Connector	92,049	$ 210	$ -	$ 19,287,000
S65/E80 Connector	135,563	$ 195	$ 138,330	$ 26,540,000
S65/W80 Connector	11,314	$ 247	$ -	$ 2,789,000
T Undercrossing (R/L)	26,323	$ 216	$ -	$ 5,678,000
Taylor Road Overcrossing (Replace)	33,352	$ 232	$ 338,550	$ 8,091,000
E. Roseville Viaduct (Widen)	248,355	$ 250	$ 553,395	$ 62,611,000
Roseville Parkway Tieback Wall	1,184	$ 95	$ -	$ 112,000

Attachment A

Consultant Prepared Advance Planning Study (APS) Checklist

Consultant Prepared Advance Planning Study (APS) Checklist

Date: 12/16/14	Consultant Firm (for structures): CH2M HILL		Phone No: 916-920-0300
Designed by: Jennifer Elwood			Phone No: 916-286-0267
EA:	County: Pla	Rte: 80 / 65	PM
Project Description: I-80/SR-65 Interchange Improvements Alternative 1 - Taylor Road Full Access Interchange			
Bridge No(s):	Bridge Name(s): E80 / N65 Connector 80 / 65 HOV Connector S65 / E80 Connector S65 / W80 Connector T Undercrossing (R/L) Taylor Road OC (Replace) E. Roseville Viaduct (Widen)		
Total number of bridges in project: 7		APS Alternative Letter or Number (if more than one): 1	
Purpose of this APS:	Initial APS Cost & Feasibility ☒	Revised scope ☐	Update cost ☐

Part A Items to collect and considerations prior to beginning the APS

All items listed in Part A are to be made available and submitted if requested by the Liaison Engineer.
(Mark **N/A** if not applicable)

☒ Preliminary profile grade of proposed structure.

☒ Typical section of the proposed structure. (Including barrier type, sidewalks, cross slope %, etc.)

☒ Grades or spot elevations of roadway below the structure.

N/A Typical section of roadway below the structure. (Including shoulders, gutters, embankment slope.)

N/A Site map: including horizontal alignment of new structure and the roadway below, topo, contours, etc.

☒ Stage construction or detour plan for traffic <u>on the structure.</u>
(number of lanes to remain open, Temp Railing, etc.)

☒ Stage construction or detour plan for the roadway <u>below the structure</u>.
(falsework openings for each stage and any restrictions.)

☒ "As Built" plans for existing structures.

☒ Future widening plans of upper and lower roadway (verify with Route Concept Report).

☒ Site aerial photograph (at the proposed structure).

☒ Environmental and/or permit requirements (areas of potential impact, construction windows, etc.)

☒ Overhead and underground utility plans

N/A Any other information that you feel is necessary to complete the study. (Other concerns that may affect the APS: local agency requirements such as aesthetics, improvements in vicinity of structure, airspace usage, other obstructions, etc.)

Consultant Prepared Advance Planning Study (APS) Checklist

Part B Considerations during the APS design and cost estimate preparation

1.	Has this project been discussed with:	the OSFP Liaison Engineer?	Yes ☒ No ☐
		the Caltrans District Project Manager?	Yes ☒ No ☐
		the roadway consultant?	Yes ☒ No ☐
2.	Have the Caltrans Structures Maintenance records been reviewed?		Yes ☒ No ☐
	If the records recommend any work for the structure, is it included in the APS?		Yes ☐ No ☒
3.	Are there special aesthetic considerations?		Yes ☒ No ☐
4.	(Widenings and Modifications)		
	Has this project been reviewed for seismic retrofit requirements?		Yes ☒ No ☐
	Are seismic retrofit requirements included in the APS?		Yes ☐ No ☒
5.	Any special Railroad requirements?		Yes ☒ No ☐
	Shoofly required?		Yes ☐ No ☒
	Cost of shoofly included as a separate item in the project cost estimate?		Yes ☐ No ☒
6.	Any special foundation requirements, including scour critical work, special excavation such as Type A, Type D, and/or hazardous or contaminated material?		Yes ☐ No ☒
7.	Any special construction requirements, including limited site accessibility or seasonal work?		Yes ☒ No ☐
8.	Other items to be included in the cost such as slope paving, approach slabs, and/or adjacent retaining walls?		Yes ☒ No ☐
9.	Remove existing bridge? Total Deck Area: 81,387 SQ FT		Yes ☒ No ☐
10.	Any other unusual or special requirements?		Yes ☒ No ☐
11.	Provide and attach a consultant prepared Design Memo to summarize and document any important assumptions, discussions, decisions, unusual items, local agency requirements such as aesthetics, improvements in vicinity of the structure, airspace usage, other obstructions, or any items noted above.	Summary attached?	Yes ☒ No ☐

Designer: (Printed Name)	Designer's Signature:	Date:
Jennifer Elwood	Jennifer Elwood	12/16/14

Attachment B

Advance Planning Study Cost Estimates

	GENERAL PLAN ESTIMATE		x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	E80/N65 Connector - Alternative 1	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 1,585.00 **WIDTH:** 60.83 **AREA (SF)=** 97,761

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M.Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	1,290	$ 100.00	$ 129,037.04
2	STRUCTURE BACKFILL (BRIDGE)		CY	625	$ 80.00	$ 50,035.56
3	FURNISH STEEL PILING (HP 14 X 89)		LF	8,500	$ 50.00	$ 425,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	250	$ 3,500.00	$ 875,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	360	$ 3,000.00	$ 1,080,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 600,000.00	$ 600,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	628	$ 500.00	$ 313,950.59
8	STRUCTURAL CONCRETE, BRIDGE		CY	8,264	$ 800.00	$ 6,611,534.56
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	135	$ 750.00	$ 101,388.83
10	JOINT SEAL (MR = $1\ ^{1}/_{2}$")		FT	126	$ 50.00	$ 6,300.00
11	JOINT SEAL ASSEMBLY (MR=4")		FT	126	$ 330.00	$ 41,580.00
12	BAR REINFORCING STEEL (BRIDGE)		LB	1,686,775	$ 1.50	$ 2,530,162.35
13	CONCRETE BARRIER	Type 732	FT	3,290	$ 100.00	$ 329,000.00
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SUBTOTAL	$ 13,092,989
TIME RELATED OVERHEAD	$ 1,309,299
MOBILIZATION (@ 10 %)	$ 1,600,254
SUBTOTAL BRIDGE ITEMS	$ 16,002,542
CONTINGENCIES (@ 25%)	$ 4,000,636
BRIDGE TOTAL COST	$ 20,003,178
COST PER SQ. FOOT	$ 204.61
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$ 190,530
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 20,193,708
BUDGET ESTIMATE AS OF	**$ 20,190,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$20,190,000
2	$20,190,000
3	$20,190,000

Years Beyond Midpoint	Escalated Budget Est.
4	$20,190,000
5	$20,190,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	80/65 HOV Connector - Alternative 1	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 1,465.00 **WIDTH:** 62.83 **AREA (SF)=** 92,049

DESIGN SECTION:	CH2M HILL
# OF STRUCTURES IN PROJECT :	**EST. NO.**
PRICES BY :	M. Brady **COST INDEX:** 2013
PRICES CHECKED BY :	J. Elwood **DATE:** Dec-14
QUANTITIES BY:	M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	1,672	$100.00	$167,170.37
2	STRUCTURE BACKFILL (BRIDGE)		CY	781	$80.00	$62,471.11
3	FURNISH STEEL PILING (HP 14 X 89)		LF	11,600	$50.00	$580,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	344	$3,500.00	$1,204,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	120	$3,000.00	$360,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$560,000.00	$560,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	844	$500.00	$422,098.74
8	STRUCTURAL CONCRETE, BRIDGE		CY	7,425	$800.00	$5,940,104.15
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	140	$750.00	$104,722.17
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	128	$50.00	$6,400.00
11	JOINT SEAL ASSEMBLY (MR=4")		LF	128	$330.00	$42,240.00
12	BAR REINFORCING STEEL (BRIDGE)		LB	1,551,136	$1.50	$2,326,704.05
13	CONCRETE BARRIER	TYPE 732	LF	3,050	$100.00	$305,000.00
14	CONCRETE BARRIER	TYPE 60	LF	1,525	$110.00	$167,750.00
15	MECHANICLLY STABILIZED EMBANKMENT	LOCATION A	SQ FT	7,510	$50.00	$375,500.00
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SUBTOTAL	$12,624,161
TIME RELATED OVERHEAD	$1,262,416
MOBILIZATION (@ 10 %)	$1,542,953
SUBTOTAL BRIDGE ITEMS	$15,429,530
CONTINGENCIES (@ 25%)	$3,857,382
BRIDGE TOTAL COST	$19,286,912
COST PER SQ. FOOT	$209.53
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$19,286,912
BUDGET ESTIMATE AS OF	**$19,287,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$19,287,000
2	$19,287,000
3	$19,287,000
4	$19,287,000
5	$19,287,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: S65/E80 Connector - Alternative 1 **BR. No.:** 19-XXXX **DISTRICT:** 03

TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65

CU: **CO:** Pla

EA: **PM:**

LENGTH: 2,750.00 **WIDTH:** 48.83 **AREA (SF)=** 135,563

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	5,495	$ 100.00	$ 549,496.30
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,906	$ 80.00	$ 152,478.52
3	FURNISH STEEL PILING (HP 14 X 89)		LF	17,700	$ 50.00	$ 885,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	558	$ 3,500.00	$ 1,953,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 1,020,000.00	$ 1,020,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	3,477	$ 500.00	$ 1,738,395.04
7	STRUCTURAL CONCRETE, BRIDGE		CY	8,863	$ 800.00	$ 7,090,119.25
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	109	$ 750.00	$ 81,388.83
9	JOINT SEAL (MR = 1 1/2")		LF	102	$ 50.00	$ 5,100.00
10	JOINT SEAL ASSEMBLY (MR=4")		LF	153	$ 330.00	$ 50,490.00
11	BAR REINFORCING STEEL (BRIDGE)		LBS	2,128,979	$ 1.50	$ 3,193,468.28
12	CONCRETE BARRIER	Type 732	LF	5,620	$ 100.00	$ 562,000.00
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SUBTOTAL	$	17,280,936
TIME RELATED OVERHEAD	$	1,728,094
MOBILIZATION (@ 10 %)	$	2,112,114
SUBTOTAL BRIDGE ITEMS	$	21,121,144
CONTINGENCIES (@ 25%)	$	5,280,286
BRIDGE TOTAL COST	$	26,401,430
COST PER SQ. FOOT	$	194.75
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	138,330
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	26,539,760
BUDGET ESTIMATE AS OF	**$**	**26,540,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$26,540,000
2	$26,540,000
3	$26,540,000
4	$26,540,000
5	$26,540,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: S65/W80 Connector - Alternative 1 **BR. No.:** 19-XXXX **DISTRICT:** 03

TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65

CU: **CO:** Pla

EA: **PM:**

LENGTH: 190.00 **WIDTH:** 60.83 **AREA (SF)=** 11,314

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	337	$ 100.00	$ 33,703.70
2	STRUCTURE BACKFILL (BRIDGE)		CY	275	$ 80.00	$ 22,026.67
3	FURNISH STEEL PILING (HP 14 X 89)		LF	3,000	$ 50.00	$ 150,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	60	$ 3,500.00	$ 210,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 75,000.00	$ 75,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	95	$ 500.00	$ 47,283.93
7	STRUCTURAL CONCRETE, BRIDGE		CY	1,051	$ 800.00	$ 840,909.53
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	135	$ 750.00	$ 101,388.83
9	JOINT SEAL (MR = 1 $^{1}/_{2}$")		FT	126	$ 50.00	$ 6,300.00
10	BAR REINFORCING STEEL (BRIDGE)		LB	192,668	$ 1.50	$ 289,002.66
11	CONCRETE BARRIER	Type 732	FT	500	$ 100.00	$ 50,000.00
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SUBTOTAL	$	1,825,615
TIME RELATED OVERHEAD	$	182,562
MOBILIZATION (@ 10 %)	$	223,131
SUBTOTAL BRIDGE ITEMS	$	2,231,308
CONTINGENCIES (@ 25%)	$	557,827
BRIDGE TOTAL COST	$	2,789,135
COST PER SQ. FOOT	$	246.52
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	2,789,135
BUDGET ESTIMATE AS OF	**$**	**2,789,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$2,789,000
2	$2,789,000
3	$2,789,000
4	$2,789,000
5	$2,789,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

[ ] GENERAL PLAN ESTIMATE [x] ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE: T Undecrossing (R/L) - Alternative 1 **BR. No.:** 19-XXXX **DISTRICT:** 03
TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65
CU: **CO:** Pla
EA: **TOTAL** **PM:**
LENGTH: 165.75 **WIDTH:** 155.67 **AREA (SF)=** 26,323

DESIGN SECTION: CH2M HILL
 # OF STRUCTURES IN PROJECT : **EST. NO.**
PRICES BY : M. Brady **COST INDEX:** 2013
PRICES CHECKED BY : J. Elwood **DATE:** Dec-14
QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	337	$ 100.00	$ 33,703.70
2	STRUCTURE BACKFILL (BRIDGE)		CY	218	$ 80.00	$ 17,406.67
3	FURNISH STEEL PILING (HP 14 X 89)		LF	7,000	$ 50.00	$ 350,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	140	$ 3,500.00	$ 490,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 200,000.00	$ 200,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	259	$ 500.00	$ 129,711.13
7	STRUCTURAL CONCRETE, BRIDGE		CY	2,029	$ 800.00	$ 1,623,508.59
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	362	$ 750.00	$ 271,654.73
9	JOINT SEAL (MR = 1 1/2")		LF	320	$ 50.00	$ 16,000.00
10	BAR REINFORCING STEEL (BRIDGE)		LBS	329,561	$ 1.50	$ 494,340.90
11	CONCRETE BARRIER	Type 732	LF	903	$ 100.00	$ 90,300.00
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SUBTOTAL	$	3,716,626
TIME RELATED OVERHEAD	$	371,663
MOBILIZATION (@ 10 %)	$	454,254
SUBTOTAL BRIDGE ITEMS	$	4,542,543
CONTINGENCIES (@ 25%)	$	1,135,636
BRIDGE TOTAL COST	$	5,678,178
COST PER SQ. FOOT	$	215.71
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	5,678,178
BUDGET ESTIMATE AS OF	**$**	**5,678,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$5,678,000
2	$5,678,000
3	$5,678,000
4	$5,678,000
5	$5,678,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	Taylor Road OC (Replace)-Alternative 1	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 460.00 **WIDTH:** 72.00 **AREA (SF)=** 33,352

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	535	$ 100.00	$ 53,525.20
2	STRUCTURE BACKFILL (BRIDGE)		CY	346	$ 80.00	$ 27,676.18
3	FURNISH STEEL PILING (HP 14 X 89)		LF	5,100	$ 50.00	$ 255,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	102	$ 3,500.00	$ 357,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	180	$ 3,000.00	$ 540,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 235,000.00	$ 235,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	157	$ 500.00	$ 78,686.80
8	STRUCTURAL CONCRETE, BRIDGE		CY	2,927	$ 800.00	$ 2,341,927.81
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	223	$ 750.00	$ 167,045.29
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	200	$ 50.00	$ 10,022.72
11	BAR REINFORCING STEEL (BRIDGE)		LBS	531,753	$ 1.50	$ 797,628.81
12	CONCRETE BARRIER	TYPE 26	LF	520	$ 175.00	$ 91,000.00
13	CONCRETE BARRIER	TYPE 732	LF	520	$ 100.00	$ 52,000.00
14	CHAIN LINK RAILING	TYPE 7	LF	1,040	$ 65.00	$ 67,600.00
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SUBTOTAL	$	5,074,113
TIME RELATED OVERHEAD	$	507,411
MOBILIZATION (@ 10 %)	$	620,169
SUBTOTAL BRIDGE ITEMS	$	6,201,693
CONTINGENCIES (@ 25%)	$	1,550,423
BRIDGE TOTAL COST	$	7,752,117
COST PER SQ. FOOT	$	232.43
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	338,550
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	8,090,667
BUDGET ESTIMATE AS OF	**$**	**8,091,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$8,091,000
2	$8,091,000
3	$8,091,000

Years Beyond Midpoint	Escalated Budget Est.
4	$8,091,000
5	$8,091,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	East Roseville Viaduct (Widen) Median-Alt 1	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 2,043.97 **WIDTH:** 56.50 **AREA (SF)=** 115,871

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	2,818	$ 100.00	$ 281,829.63
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,256	$ 80.00	$ 100,473.88
3	FURNISH STEEL PILING (HP 14 X 89)		LF	18,600	$ 50.00	$ 930,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	580	$ 3,500.00	$ 2,030,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 1,060,000.00	$ 1,060,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,481	$ 500.00	$ 740,370.37
7	STRUCTURAL CONCRETE, BRIDGE		CY	10,791	$ 800.00	$ 8,632,756.81
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	269	$ 750.00	$ 201,666.67
9	JOINT SEAL (MR = 1 1/2")		LF	125	$ 50.00	$ 6,250.00
10	JOINT SEAL ASSEMBLY (MR=4")		LF	250	$ 330.00	$ 82,500.00
11	BAR REINFORCING STEEL (BRIDGE)		LBS	2,051,249	$ 1.50	$ 3,076,873.08
12	CONCRETE BARRIER	TYPE 60	LF	2,104	$ 110.00	$ 231,440.00
13	BRIDGE REMOVAL (PORTION)		LS	1	$ 76,000.00	$ 76,000.00
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SUBTOTAL	$ 17,450,160
TIME RELATED OVERHEAD	$ 1,745,016
MOBILIZATION (@ 10 %)	$ 2,132,797
SUBTOTAL BRIDGE ITEMS	$ 21,327,974
CONTINGENCIES (@ 25%)	$ 5,331,993
BRIDGE TOTAL COST	$ 26,659,967
COST PER SQ. FOOT	$ 230.08
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 26,659,967
BUDGET ESTIMATE AS OF	**$ 26,660,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$26,660,000
2	$26,660,000
3	$26,660,000
4	$26,660,000
5	$26,660,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	East Roseville Viaduct (Widen) NB-Alternative 1	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:		**AVG.**		**PM:**	
	LENGTH: 2,043.97	**WIDTH:**	41.45	**AREA (SF)=**	84,727

DESIGN SECTION:	CH2M HILL
# OF STRUCTURES IN PROJECT :	**EST. NO.**
PRICES BY :	M. Brady **COST INDEX:** 2013
PRICES CHECKED BY :	J. Elwood **DATE:** Dec-14
QUANTITIES BY:	M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	3,155	$ 100.00	$ 315,500.89
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,219	$ 80.00	$ 97,554.71
3	FURNISH STEEL PILING (HP 14 X 89)		LF	13,700	$ 50.00	$ 685,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	430	$ 3,500.00	$ 1,505,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 610,000.00	$ 610,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,869	$ 500.00	$ 934,530.37
7	STRUCTURAL CONCRETE, BRIDGE		CY	5,511	$ 800.00	$ 4,408,791.42
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	177	$ 750.00	$ 132,886.67
9	JOINT SEAL (MR = 1 1/2")		LF	84	$ 50.00	$ 4,186.60
10	JOINT SEAL ASSEMBLY (MR=4")		LF	130	$ 330.00	$ 43,048.17
11	BAR REINFORCING STEEL (BRIDGE)		LBS	1,261,162	$ 1.50	$ 1,891,742.59
12	CONCRETE BARRIER	Type 736	LF	2,104	$ 110.00	$ 231,440.00
13	SOUND WALL (MASONRY BLOCK)		SQ FT	23,845	$ 25.00	$ 596,115.80
14	BRIDGE REMOVAL (PORTION)		LS	1	$ 38,000.00	$ 38,000.00
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SUBTOTAL	$ 11,493,797
TIME RELATED OVERHEAD	$ 1,149,380
MOBILIZATION (@ 10 %)	$ 1,404,797
SUBTOTAL BRIDGE ITEMS	$ 14,047,974
CONTINGENCIES (@ 25%)	$ 3,511,994
BRIDGE TOTAL COST	$ 17,559,968
COST PER SQ. FOOT	$ 207.25
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 17,559,968
BUDGET ESTIMATE AS OF	**$ 17,560,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$17,560,000
2	$17,560,000
3	$17,560,000
4	$17,560,000
5	$17,560,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	East Roseville Viaduct (Widen) SB-Alternative 1	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVERAGE**	**PM:**	
	LENGTH: 2,043.97	**WIDTH:**	23.36	**AREA (SF)=**	47,757

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	3,771	$ 100.00	$ 377,135.89
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,802	$ 80.00	$ 144,161.07
3	FURNISH STEEL PILING (HP 14 X 89)		LF	14,800	$ 50.00	$ 740,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	444	$ 3,500.00	$ 1,554,000.00
5	144" CAST-IN_DRILLED_HOLE CONCRETE PILING		LF	180	$ 3,500.00	$ 630,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 425,000.00	$ 425,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,917	$ 500.00	$ 958,580.37
8	STRUCTURAL CONCRETE, BRIDGE		CY	5,332	$ 800.00	$ 4,265,963.07
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	161	$ 750.00	$ 120,555.83
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	149	$ 50.00	$ 7,433.35
11	JOINT SEAL ASSEMBLY (MR=4")		LF	112	$ 330.00	$ 37,045.80
12	BAR REINFORCING STEEL (BRIDGE)		LBS	1,234,032	$ 1.50	$ 1,851,047.79
13	CONCRETE BARRIER	Type 736	LF	2,104	$ 110.00	$ 231,440.00
14	SOUND WALL (MASONRY BLOCK)		SQ FT	15,429	$ 25.00	$ 385,715.80
15	BRIDGE REMOVAL (PORTION)		LS	1	$ 38,000.00	$ 38,000.00
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SUBTOTAL	$	11,766,079
TIME RELATED OVERHEAD	$	1,176,608
MOBILIZATION (@ 10 %)	$	1,438,076
SUBTOTAL BRIDGE ITEMS	$	14,380,763
CONTINGENCIES (@ 25%)	$	3,595,191
BRIDGE TOTAL COST	$	17,975,954
COST PER SQ. FOOT	$	376.40
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	553,395
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	18,529,349
BUDGET ESTIMATE AS OF	**$**	**18,529,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$18,529,000
2	$18,529,000
3	$18,529,000

Years Beyond Midpoint	Escalated Budget Est.
4	$18,529,000
5	$18,529,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE: East Roseville Viaduct (Widen) (Total)-Alternative 1 **BR. No.:** 19-XXXX **DISTRICT:** 03
TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65
CU: **CO:** Pla
EA: **PM:**

AVERAGE
LENGTH: 2,043.97 **WIDTH:** 121.51 **AREA (SF)=** 248,355

DESIGN SECTION: CH2M HILL
 # OF STRUCTURES IN PROJECT : **EST. NO.**
PRICES BY : M. Brady **COST INDEX:** 2013
PRICES CHECKED BY : J. Elwood **DATE:** Dec-14
QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	9,744	$ 100.00	$ 974,400.00
2	STRUCTURE BACKFILL (BRIDGE)		CY	4,277	$ 80.00	$ 342,160.00
3	FURNISH STEEL PILING (HP 14 X 89)		LF	47,100	$ 50.00	$ 2,355,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	1,454	$ 3,500.00	$ 5,089,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	180	$ 3,000.00	$ 540,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 2,095,000.00	$ 2,095,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	5,267	$ 500.00	$ 2,633,500.00
8	STRUCTURAL CONCRETE, BRIDGE		CY	21,634	$ 800.00	$ 17,307,200.00
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	607	$ 750.00	$ 455,250.00
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	358	$ 50.00	$ 17,900.00
11	JOINT SEAL ASSEMBLY (MR=4")		LF	492	$ 330.00	$ 162,360.00
12	BAR REINFORCING STEEL (BRIDGE)		LBS	4,546,443	$ 1.50	$ 6,819,664.50
13	CONCRETE BARRIER	Type 736	LF	4,208.00	$ 110.00	$ 462,880.00
14	CONCRETE BARRIER	TYPE 60	LF	2,104.00	$ 110.00	$ 231,440.00
15	SOUND WALL (MASONRY BLOCK)		SQ FT	39,274	$ 25.00	$ 981,850.00
16	BRIDGE REMOVAL (PORTION)		LS	1	$ 152,000.00	$ 152,000.00
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SUBTOTAL	$ 40,619,605
TIME RELATED OVERHEAD	$ 4,061,960
MOBILIZATION (@ 10 %)	$ 4,964,618
SUBTOTAL BRIDGE ITEMS	$ 49,646,183
CONTINGENCIES (@ 25%)	$ 12,411,546
BRIDGE TOTAL COST	$ 62,057,729
COST PER SQ. FOOT	$ 249.88
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$ 553,395
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 62,611,124
BUDGET ESTIMATE AS OF	**$ 62,611,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$62,611,000
2	$62,611,000
3	$62,611,000
4	$62,611,000
5	$62,611,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:**

OUT EST:

BRIDGE: Roseville Parkway Tieback Wall-Alternative 1 **BR. No.:** **DISTRICT:** 03

TYPE: Tie Back Wall **RTE:** 80

CU: **CO:** PLA

EA: **PM:**

LENGTH: 130.67 **WIDTH:** **AREA (SF)=** 1,184

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	TIE BACK RETAINING WALL		SQ FT	1,184	$50.00	$59,200.00
2	CABLE RAILING		LF	131	$30.00	$3,930.00
3	CONCRETE BARRIER	TYPE 60D	LF	131	$80.00	$10,480.00
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SUBTOTAL	$73,610
TIME RELATED OVERHEAD	$7,361
MOBILIZATION (@ 10 %)	$8,997
SUBTOTAL BRIDGE ITEMS	$89,968
CONTINGENCIES (@ 25%)	$22,492
BRIDGE TOTAL COST	$112,460
COST PER SQ. FOOT	$94.98
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$112,460
BUDGET ESTIMATE AS OF	**$112,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$112,000
2	$112,000
3	$112,000

Years Beyond Midpoint	Escalated Budget Est.
4	$112,000
5	$112,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

Attachment C

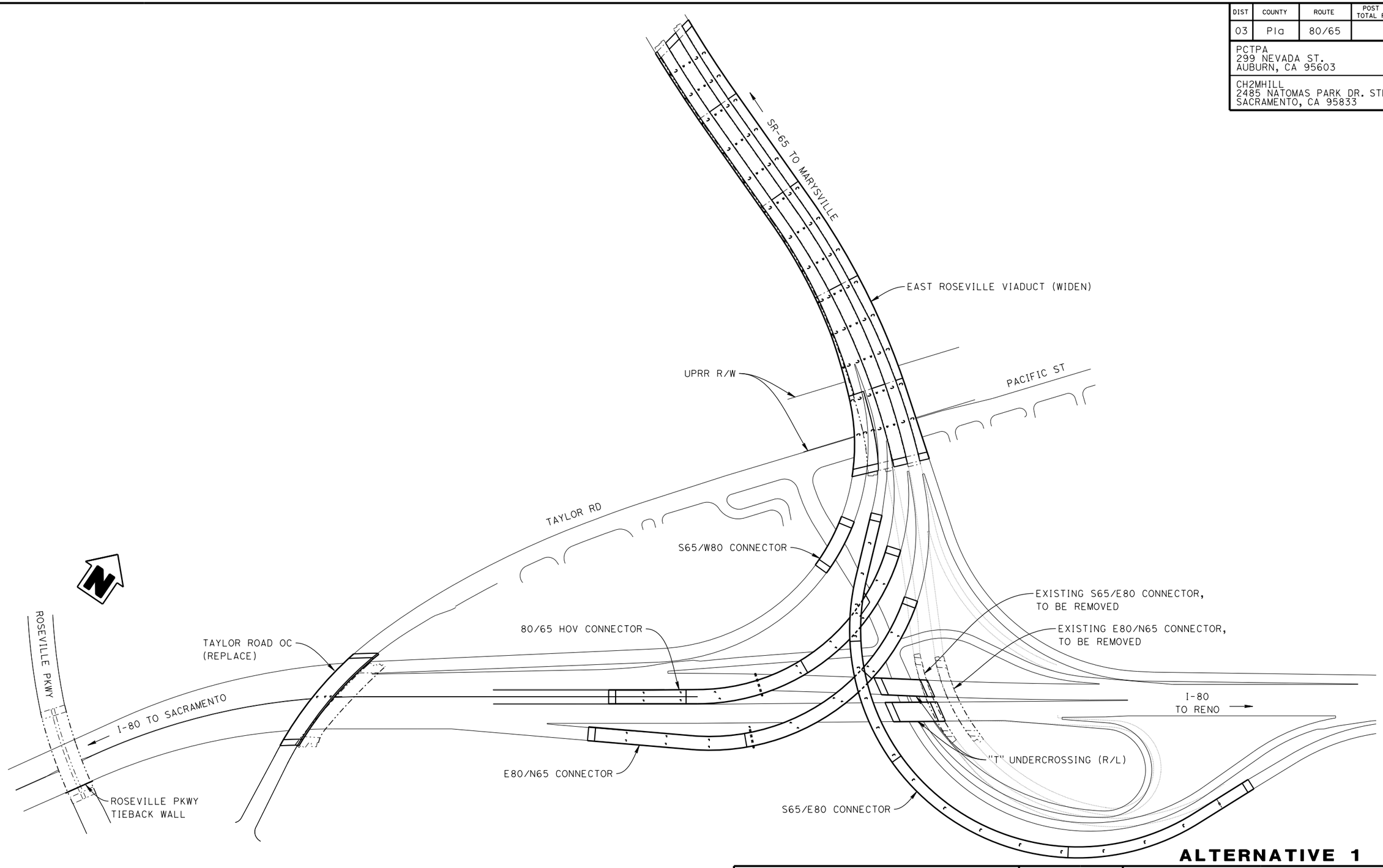
Advance Planning Study Plans

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



ALTERNATIVE 1

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

PLANNING STUDY LOCATION MAP

BRIDGE NO.	UNIT:
SCALE: 1"=200'	PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_glt1_A_LOCATION MAP.dgn

CONTRACT NO.: X

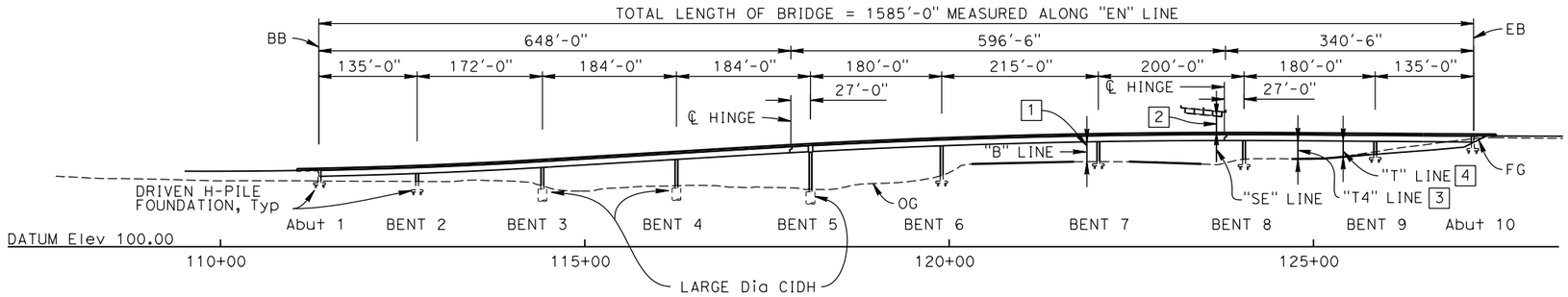
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:31

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

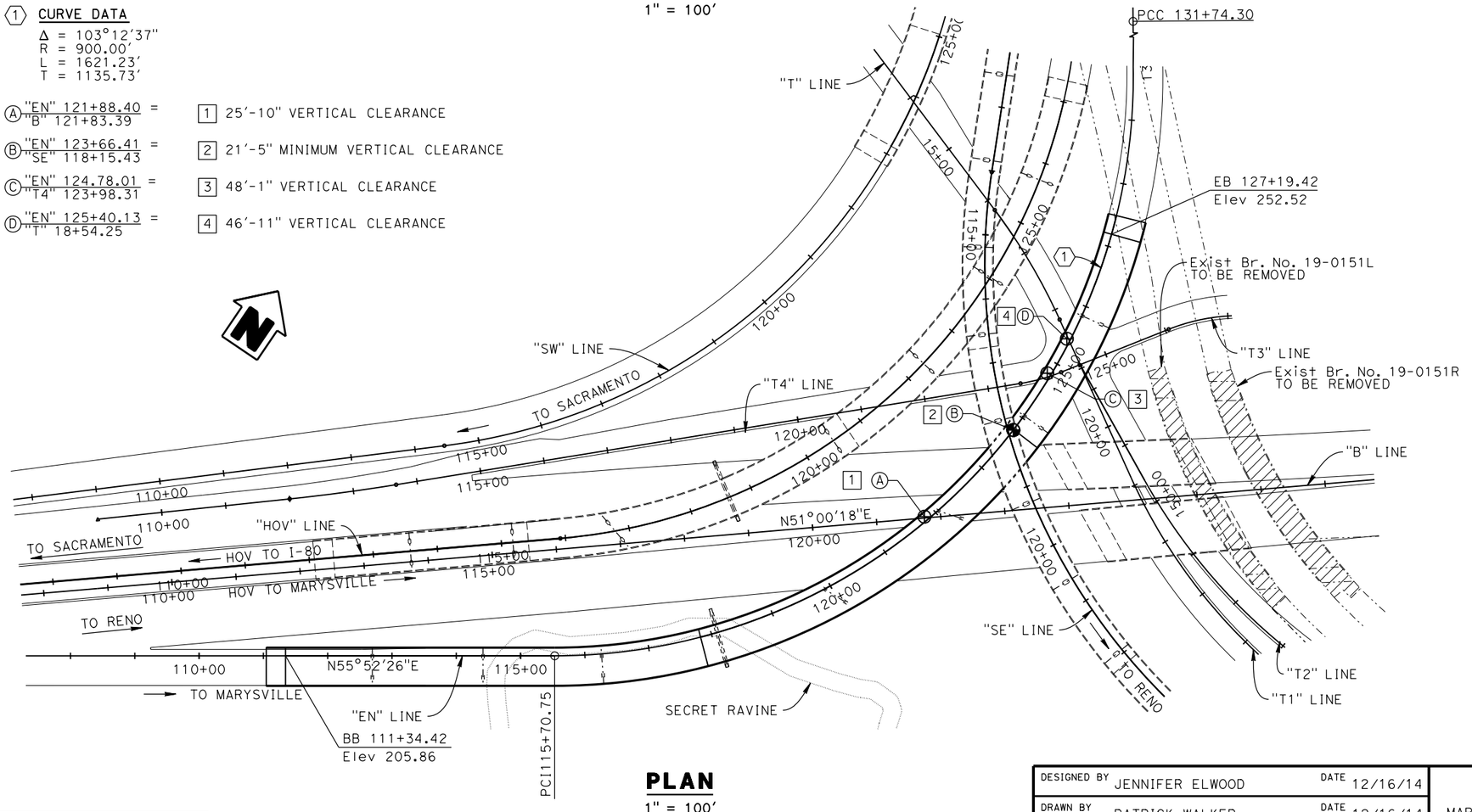
STRUCTURE DEPTH	= 8'-6"	
LENGTH	= 1585'-0"	
WIDTH	= 60'-10"	
AREA	= 97,761 SQ FT	
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 205	
REMOVAL AREA *	= 12,702 SQ FT	
REMOVAL COST / SQ FT	= $ 15	
TOTAL COST	= $ 20,190,000	

* REMOVAL OF BR. NO. 19-0151R

(1) CURVE DATA
Δ = 103°12'37"
R = 900.00'
L = 1621.23'
T = 1135.73'

Ⓐ "EN" 121+88.40 = "B" 121+83.39
Ⓑ "EN" 123+66.41 = "SE" 118+15.43
Ⓒ "EN" 124.78.01 = "T4" 123+98.31
Ⓓ "EN" 125+40.13 = "T" 18+54.25

[1] 25'-10" VERTICAL CLEARANCE
[2] 21'-5" MINIMUM VERTICAL CLEARANCE
[3] 48'-1" VERTICAL CLEARANCE
[4] 46'-11" VERTICAL CLEARANCE



PLAN

1" = 100'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Bridge to be removed

ALTERNATIVE 1

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

PLANNING STUDY

E80/N65 CONNECTOR (1 OF 2)

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

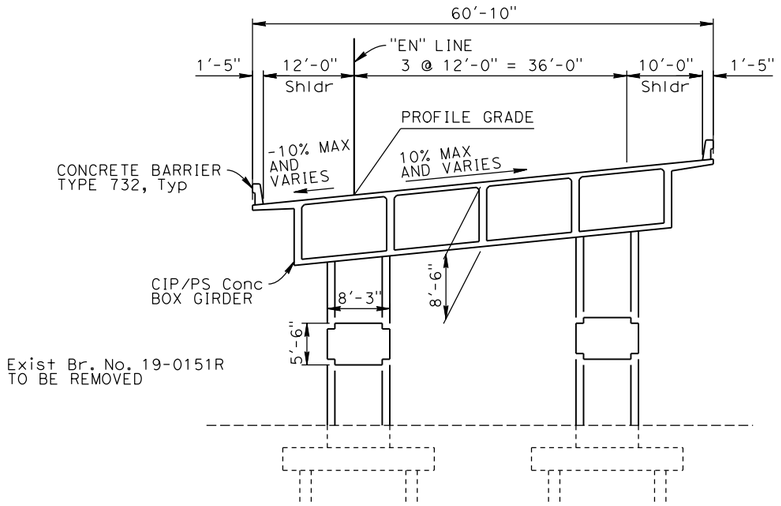
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:19

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

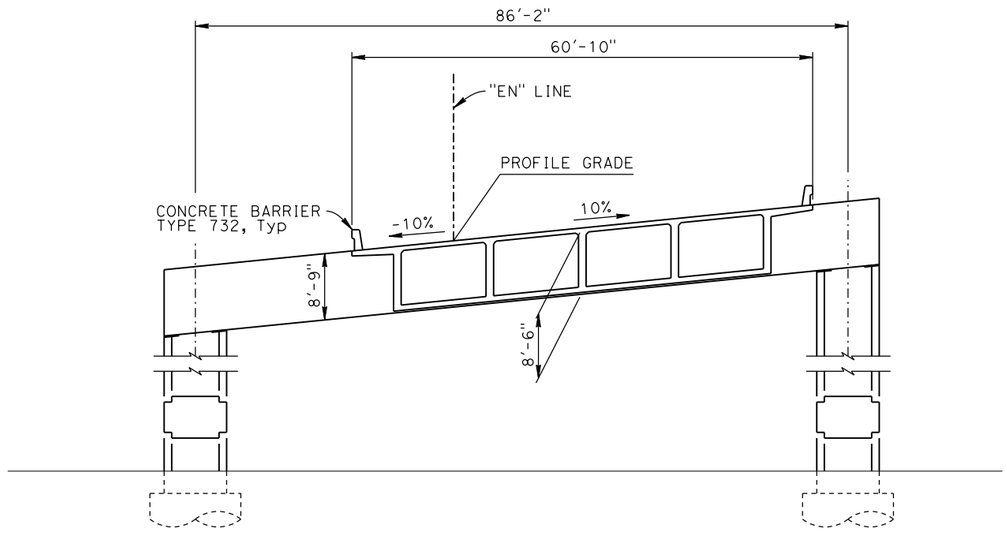
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION

1" = 10'



TYPICAL SECTION AT BENT 5

1" = 10'

LEGEND

-·-·-·- Indicates Existing Structure

——— Indicates New Construction

ALTERNATIVE 1

PLANNING STUDY

E80/N65 CONNECTOR (2 OF 2)

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14	MARK S. BRADY PROJECT ENGINEER
DRAWN BY PATRICK WALKER	DATE 12/16/14	
CHECKED BY MARK BRADY	DATE 12/16/14	
APPROVED	DATE	

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_g1t1_EN-a-gp02.dgn

CONTRACT NO.: X

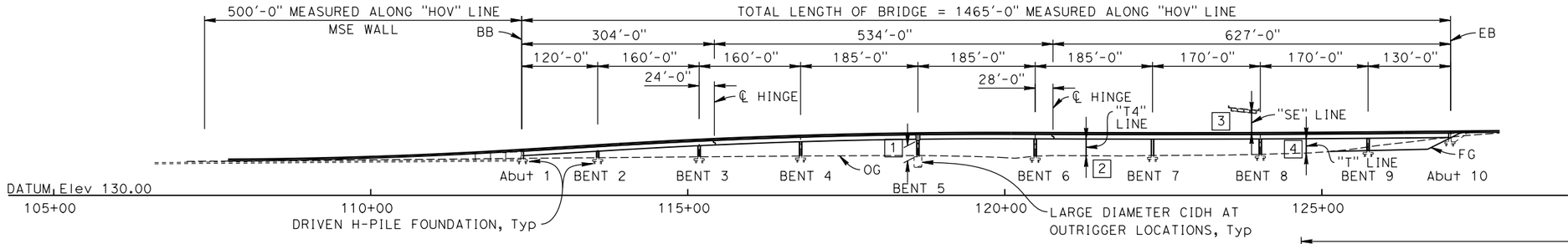
USERNAME =>pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:19

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

① CURVE DATA
Δ = 104°22'22"
R = 880.00'
L = 1603.05'
T = 1133.94'

Ⓐ "HOV" 121+28.30 = "T4" 121+26.04

Ⓑ "HOV" 123+87.92 = "SE" 115+78.22

Ⓒ "HOV" 124+75.68 = "T" 16+69.58

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1465'-0"
WIDTH	= 62'-10" MAX
AREA	= 92,049 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 210
REMOVAL	= $ -
TOTAL COST	= $ 19,287,000

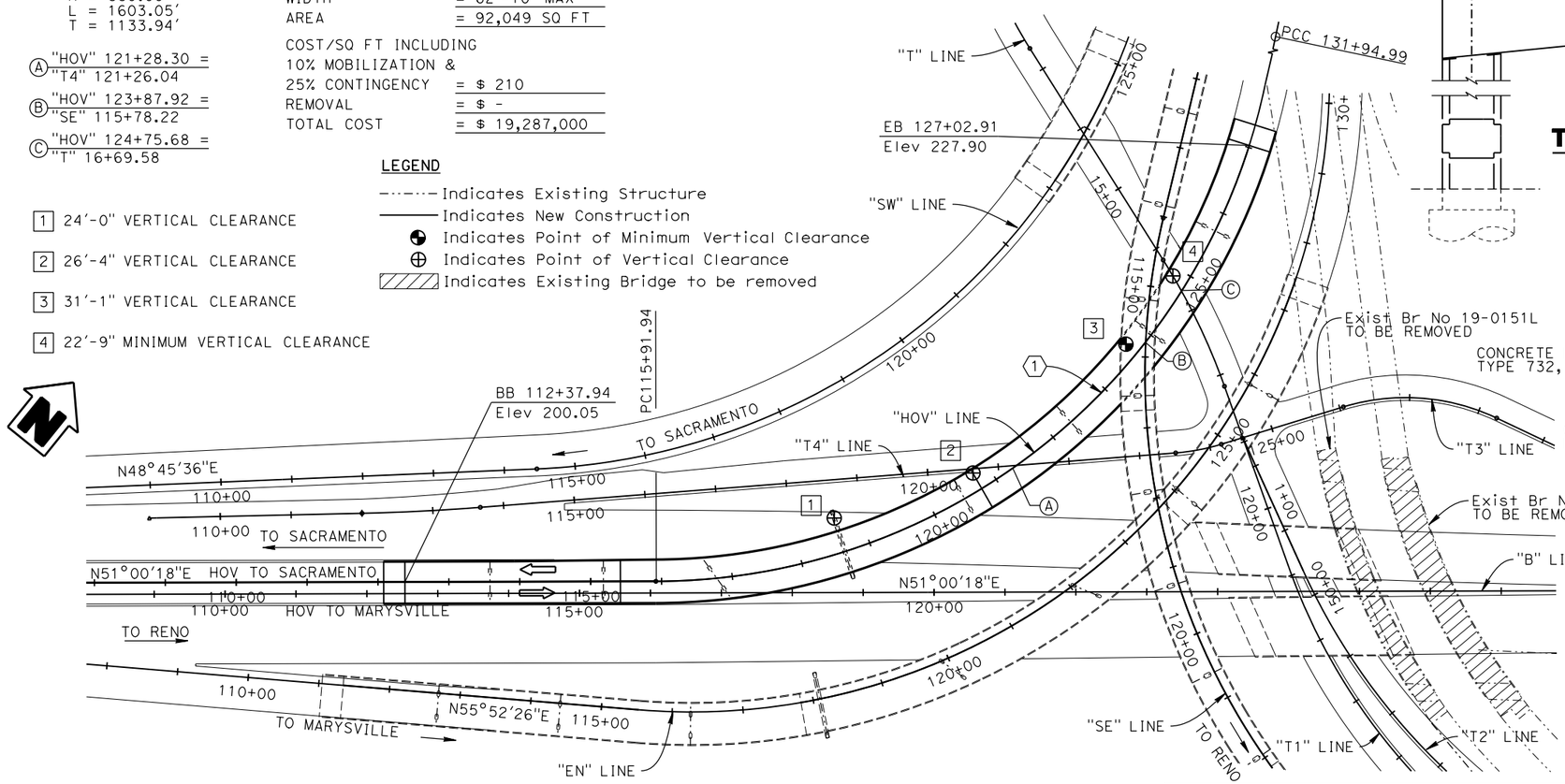
LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Bridge to be removed

1 24'-0" VERTICAL CLEARANCE

2 26'-4" VERTICAL CLEARANCE

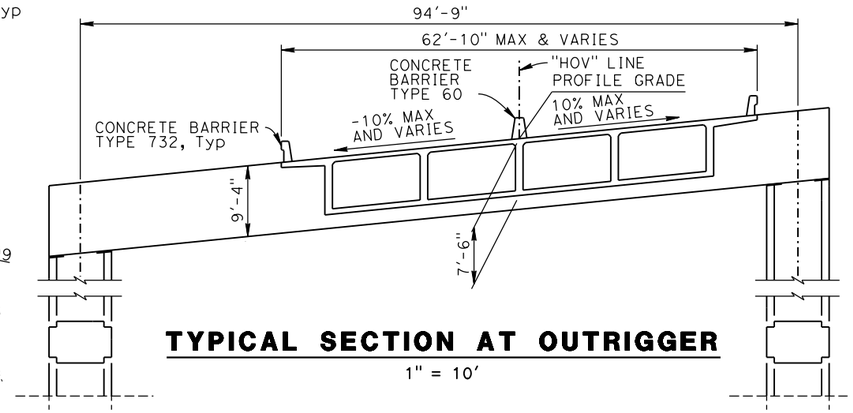
3 31'-1" VERTICAL CLEARANCE

4 22'-9" MINIMUM VERTICAL CLEARANCE



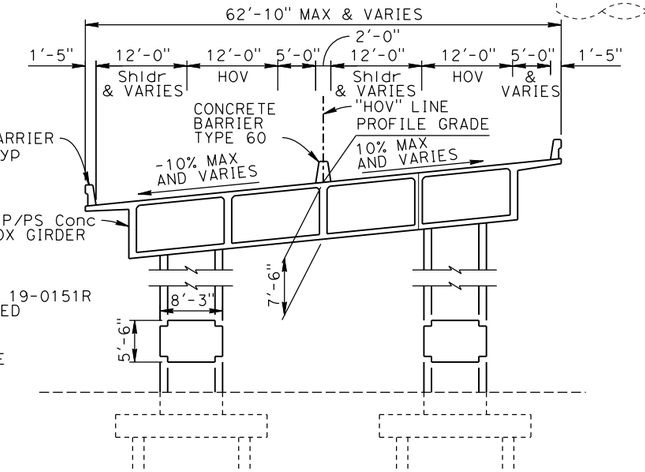
PLAN

1" = 100'



TYPICAL SECTION AT OUTRIGGER

1" = 10'



TYPICAL SECTION

1" = 10'

ALTERNATIVE 1

PLANNING STUDY

80/65 HOV CONNECTOR

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGNED BY	JENNIFER ELWOOD	DATE 12/16/14
DRAWN BY	PATRICK WALKER	DATE 12/16/14
CHECKED BY	MARK BRADY	DATE 12/16/14
APPROVED		DATE

MARK S. BRADY
PROJECT ENGINEER

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

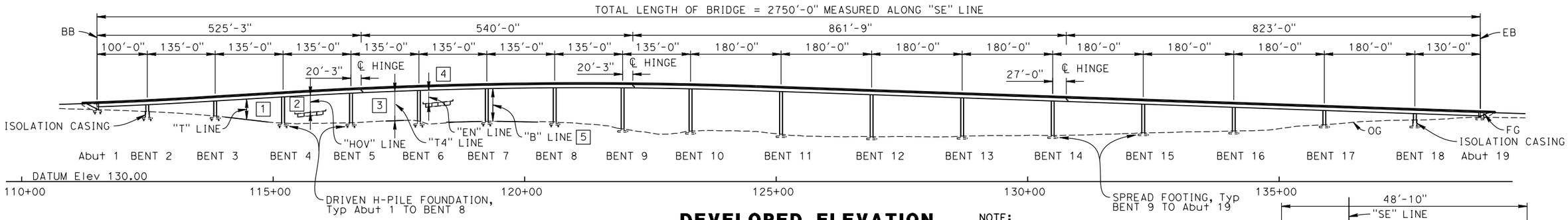
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:19

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

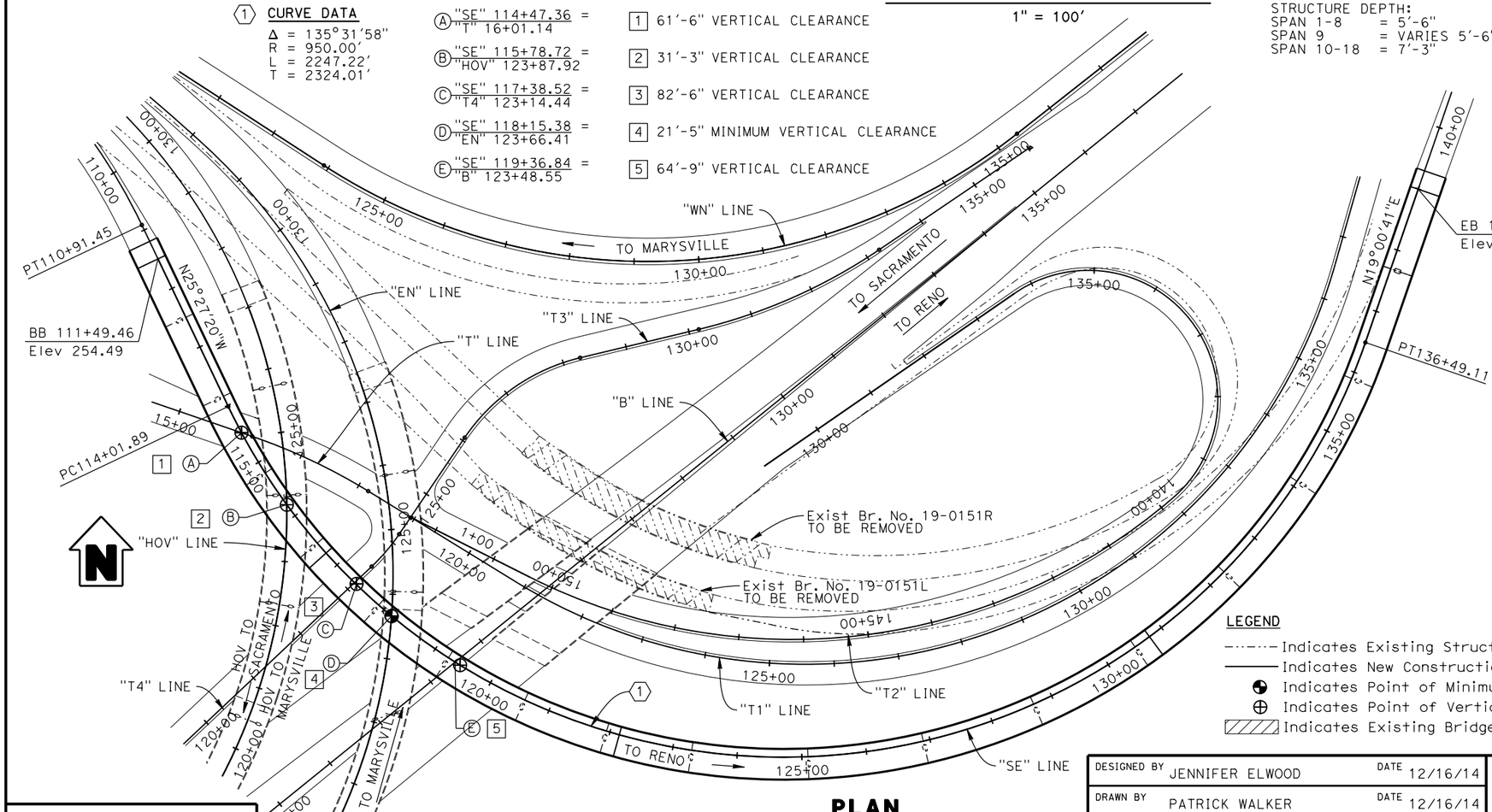
NOTE:

STRUCTURE DEPTH:
SPAN 1-8 = 5'-6"
SPAN 9 = VARIES 5'-6" TO 7'-3"
SPAN 10-18 = 7'-3"

(1) CURVE DATA
Δ = 135°31'58"
R = 950.00'
L = 2247.22'
T = 2324.01'

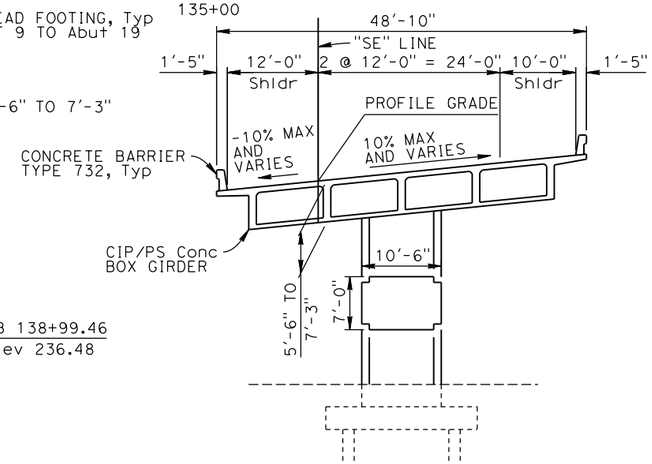
Ⓐ "SE" 114+47.36 = "T" 16+01.14
Ⓑ "SE" 115+78.72 = "HOV" 123+87.92
Ⓒ "SE" 117+38.52 = "T4" 123+14.44
Ⓓ "SE" 118+15.38 = "EN" 123+66.41
Ⓔ "SE" 119+36.84 = "B" 123+48.55

[1] 61'-6" VERTICAL CLEARANCE
[2] 31'-3" VERTICAL CLEARANCE
[3] 82'-6" VERTICAL CLEARANCE
[4] 21'-5" MINIMUM VERTICAL CLEARANCE
[5] 64'-9" VERTICAL CLEARANCE



PLAN

1" = 100'



TYPICAL SECTION

1" = 10'

STRUCTURE DEPTH	= 5'-6" to 7'-3"
LENGTH	= 2750'-0"
WIDTH	= 48'-10"
AREA	= 135,563 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 195
REMOVAL AREA *	= 9,222 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 26,540,000

* REMOVAL OF BR. NO. 19-0151L

LEGEND
Indicates Existing Structure
Indicates New Construction
Indicates Point of Minimum Vertical Clearance
Indicates Point of Vertical Clearance
Indicates Existing Bridge to be removed

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1
PLANNING STUDY
S65/E80 CONNECTOR

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:19

FILE => 418554_alt1_SE-a-gp01.dgn

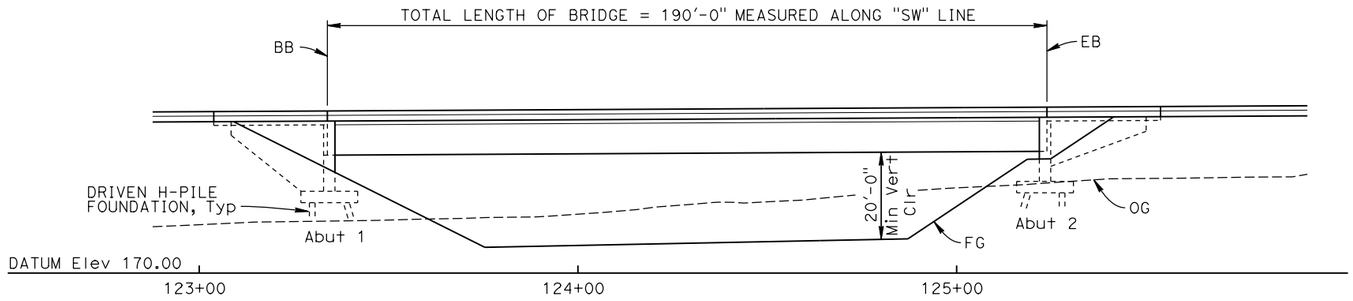
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

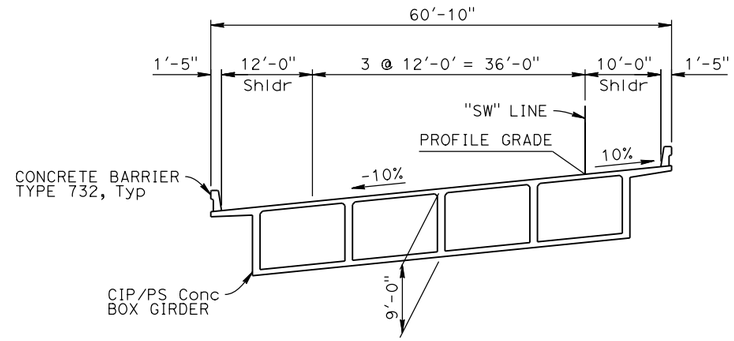
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 20'

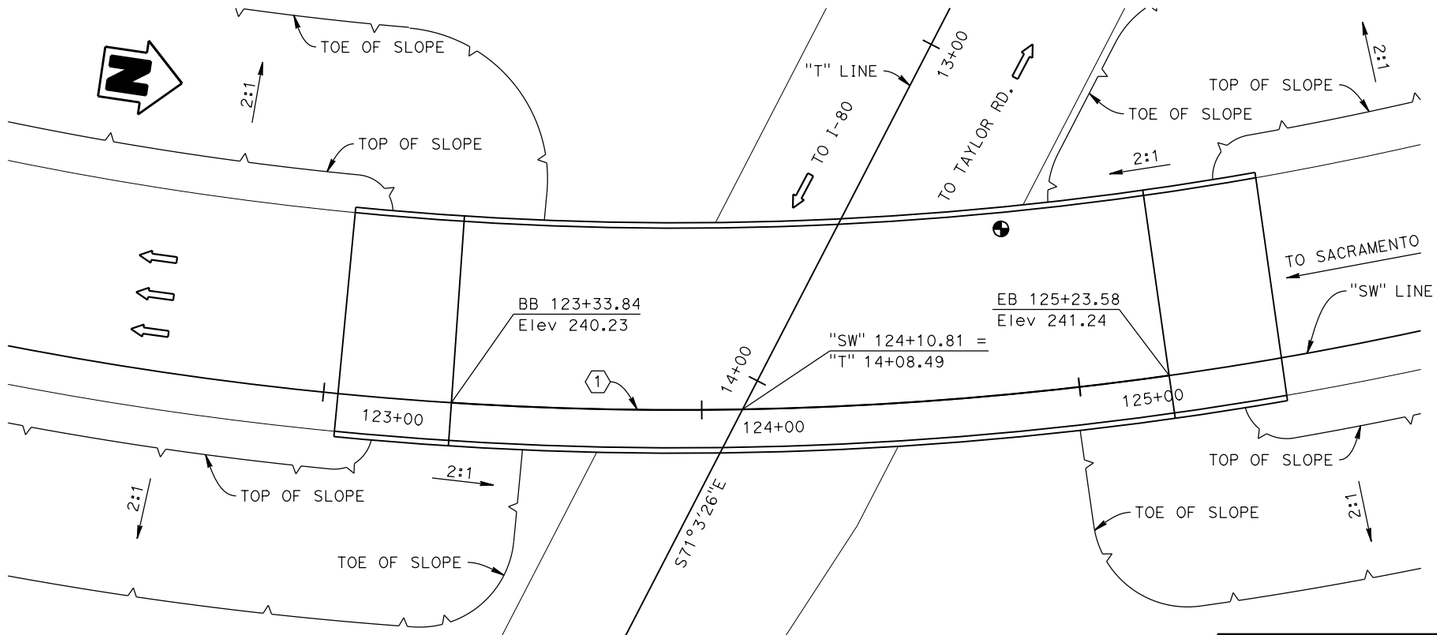
STRUCTURE DEPTH	= 9'-0"
LENGTH	= 190'-0"
WIDTH	= 60'-10"
AREA	= 11,314 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 247
REMOVAL	= $ -
TOTAL COST	= $ 2,789,000



TYPICAL SECTION

1" = 10'

① CURVE DATA
Δ = 101°20'53"
R = 930.00'
L = 1645.04'
T = 1135.19'



PLAN

1" = 20'

LEGEND
——— Indicates New Construction
⊕ Indicates Point of Minimum Vertical Clearance

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1
PLANNING STUDY
S65/W80 CONNECTOR

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

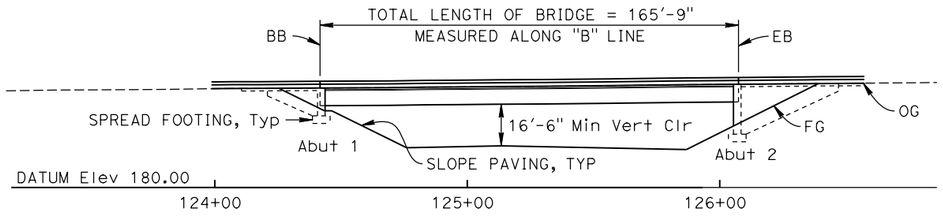
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:19

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

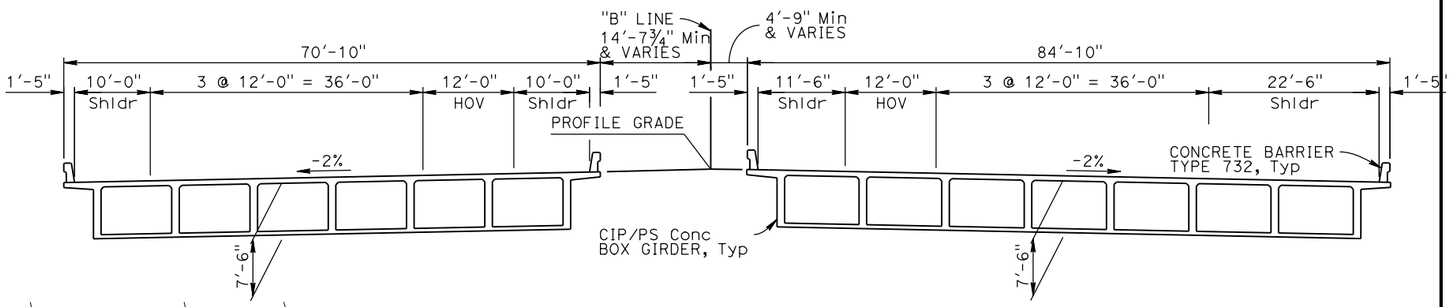
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



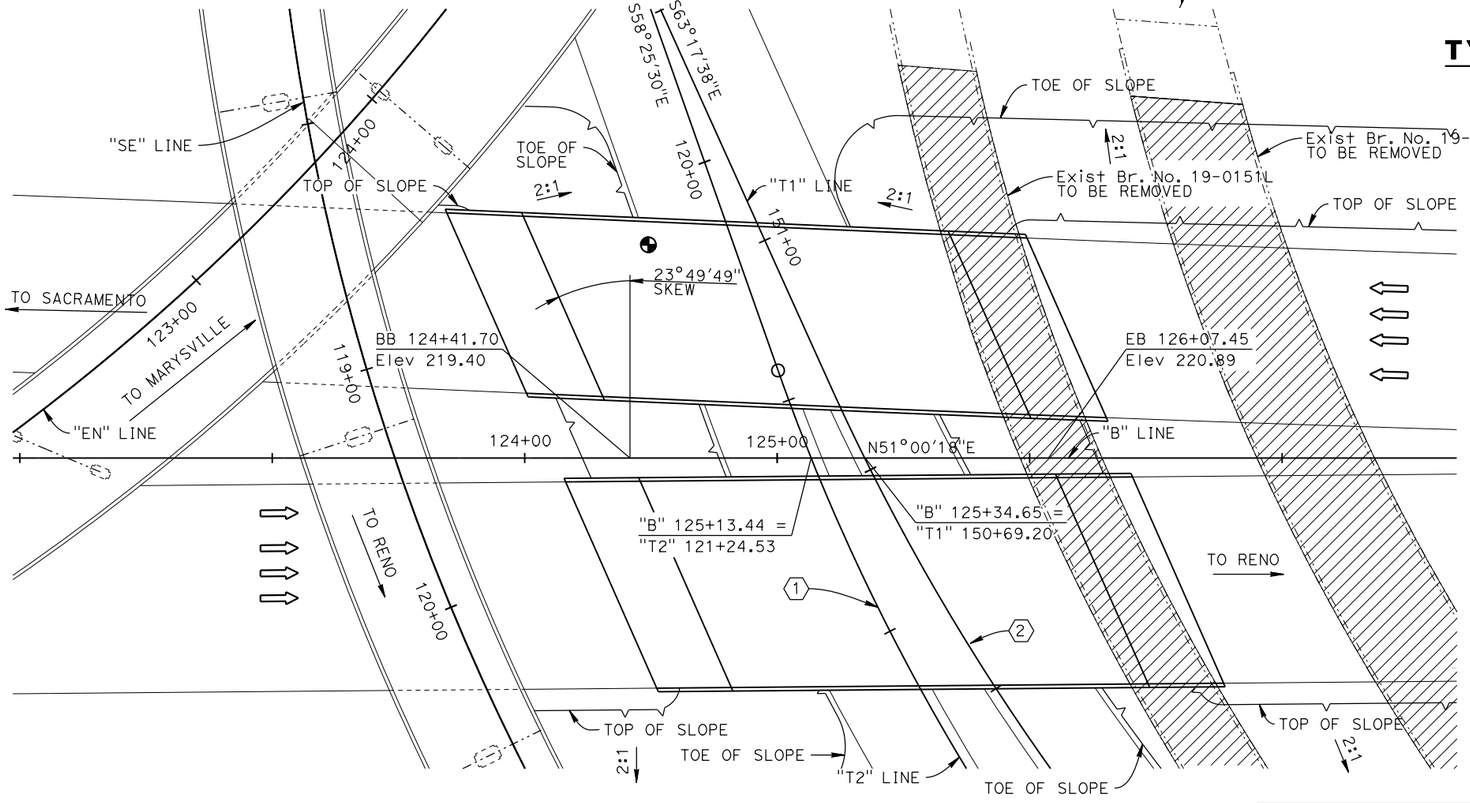
ELEVATION
1" = 30'

LEFT	
STRUCTURE DEPTH	= 7'-6"
LENGTH	= 165'-9"
WIDTH	= 70'-10"
AREA	= 12,315 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 216
REMOVAL	= $ -
TOTAL COST	= $ 2,656,400

RIGHT	
STRUCTURE DEPTH	= 7'-6"
LENGTH	= 165'-9"
WIDTH	= 84'-10"
AREA	= 14,008 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 216
REMOVAL	= $ -
TOTAL COST	= $ 3,021,600



TYPICAL SECTION
1" = 10'



PLAN
1" = 30'

① CURVE DATA
Δ = 105°43'17"
R = 850.00'
L = 1568.41'
T = 1122.30'

② CURVE DATA
Δ = 67°30'32"
R = 900.00'
L = 1060.43'
T = 601.46'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge to be removed

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1
PLANNING STUDY
"T" UNDERCROSSING (R/L)

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt1_T-a-gp01.dgn

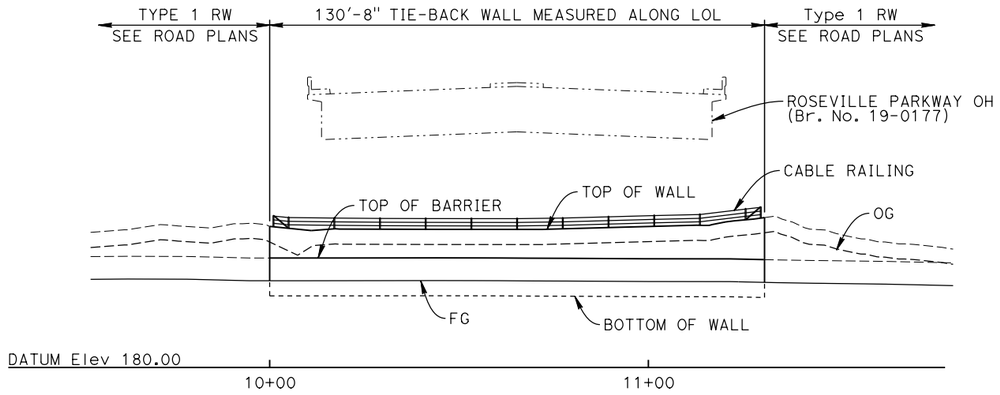
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:19

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

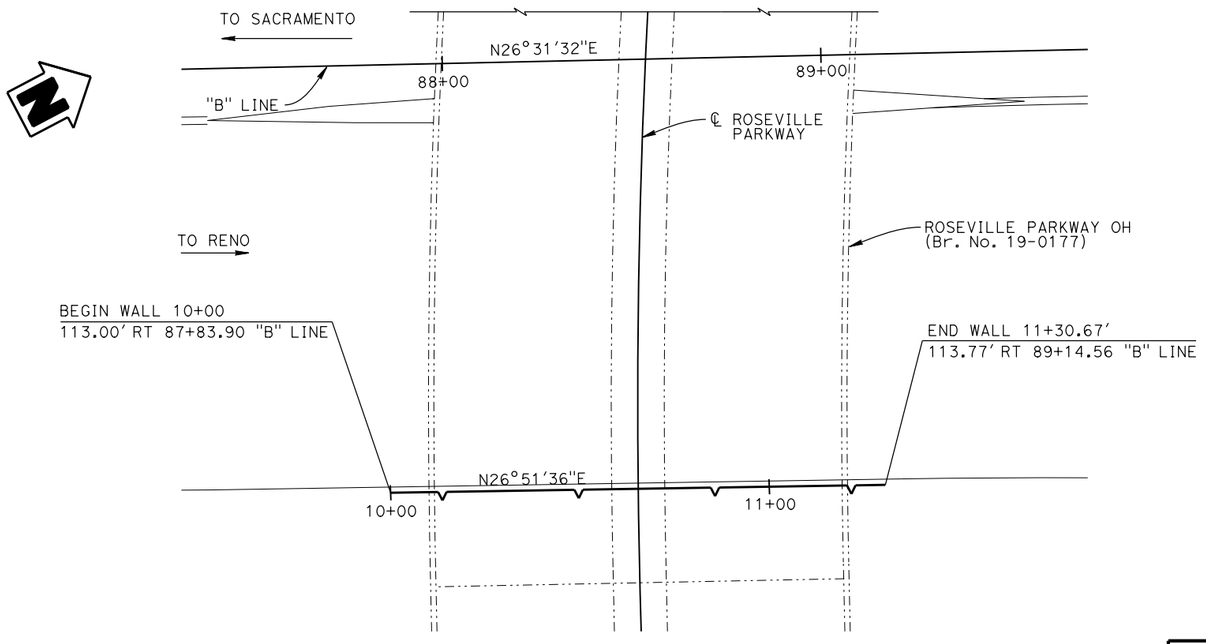
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



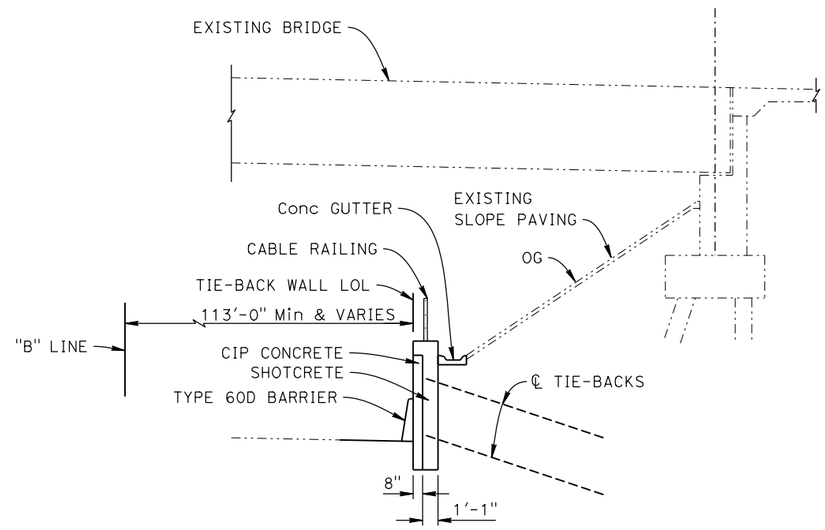
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



PLAN

1" = 20'



TYPICAL SECTION

3/16" = 1'

STRUCTURE LENGTH = 130'-8"
HEIGHT = 8'-0" TO 8'-6"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 95
TOTAL COST = $ 112,000

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1

PLANNING STUDY

ROSEVILLE PKWY TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

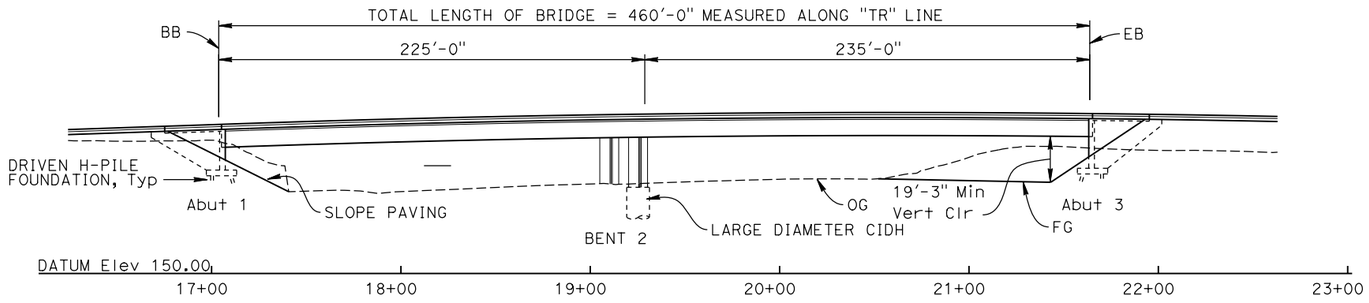
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:19

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

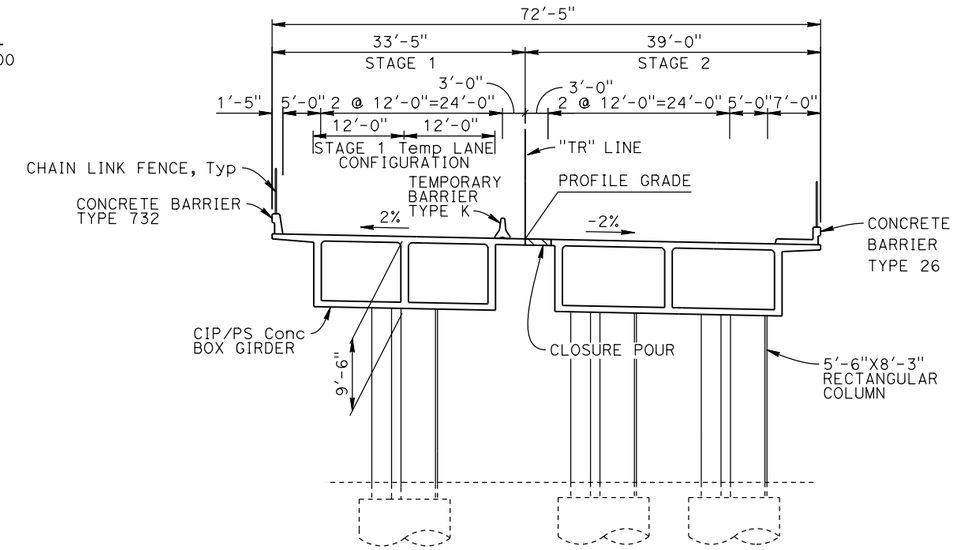
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 40'

STRUCTURE DEPTH	= 9'-6"
LENGTH	= 460'-0"
WIDTH	= 72'-5"
AREA	= 33,352 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 232
REMOVAL AREA	= 22,570 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 8,091,000

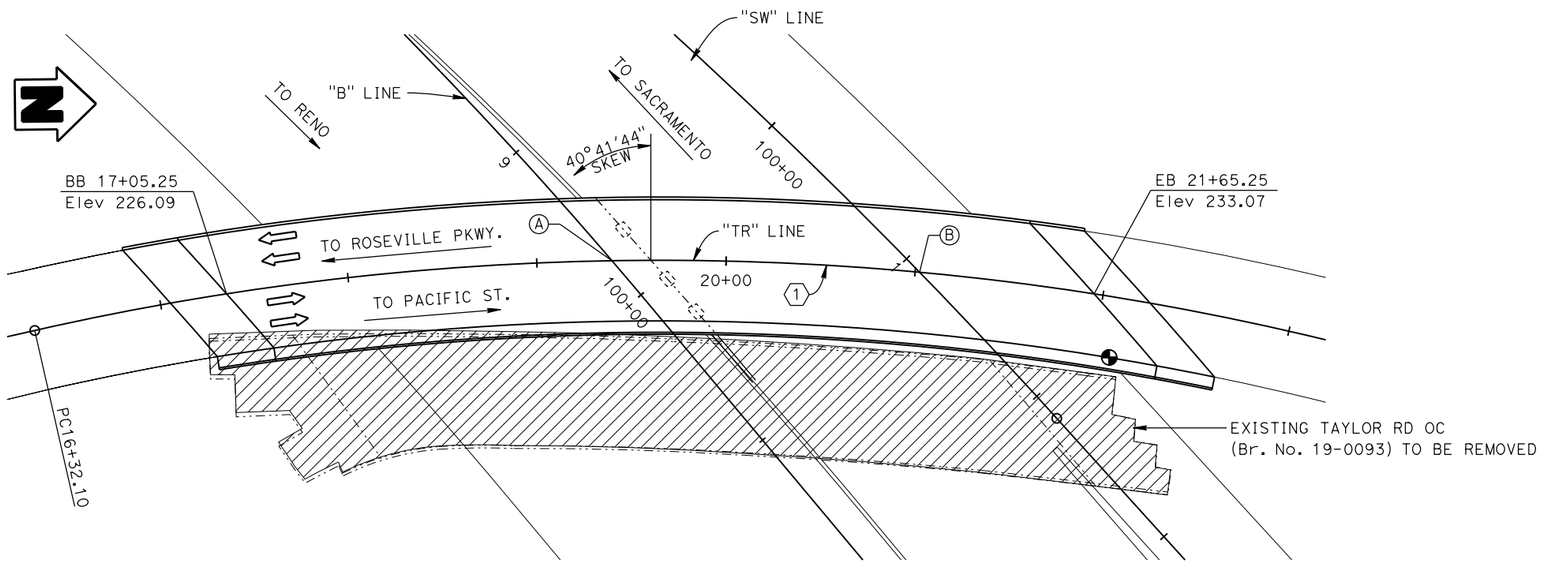


TYPICAL SECTION

1" = 10'

① CURVE DATA
Δ = 28°26'05"
R = 1491.00'
L = 739.96'
T = 377.76'

Ⓐ "TR" 19+39.71 = "B" 99+76.31
Ⓑ "TR" 20+99.58 = "SW" 101+09.89



PLAN

1" = 40'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge to be removed

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1

PLANNING STUDY

TAYLOR ROAD OC (REPLACE)

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:20

FILE => 418554_alt1_TR-a-gp01.dgn

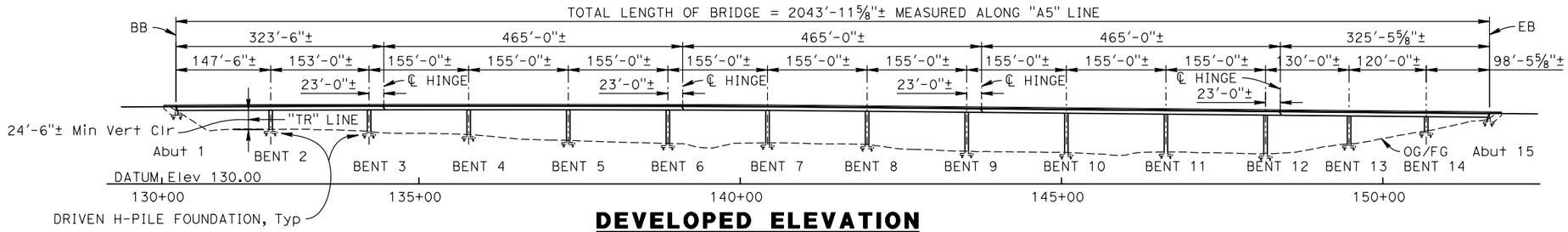
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

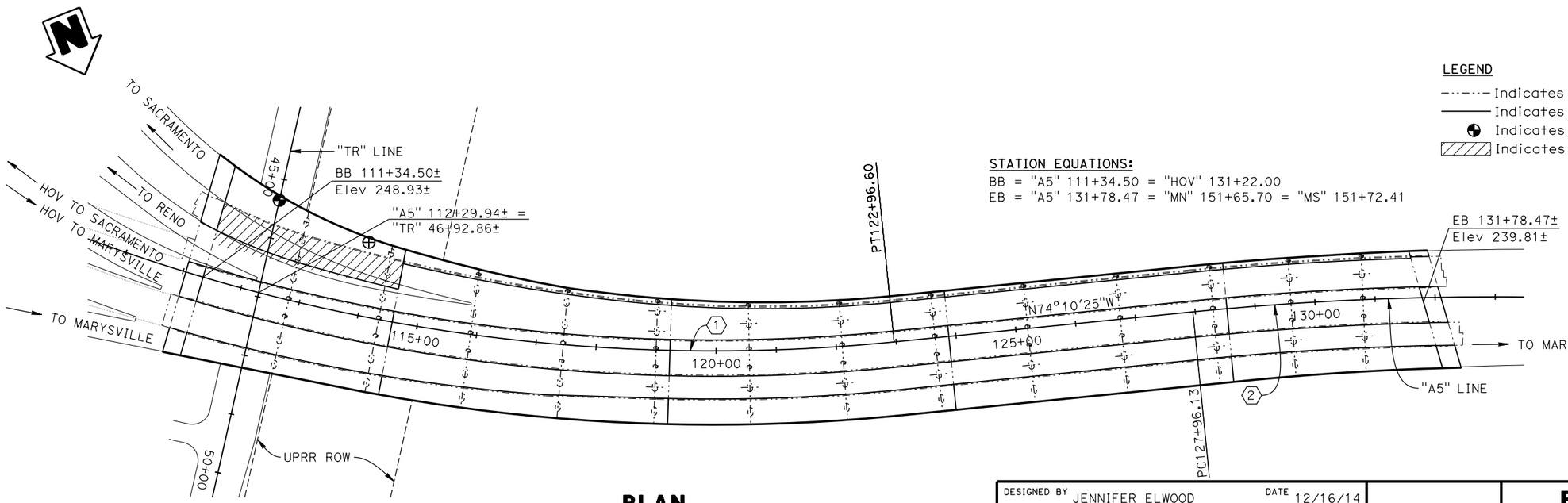


DEVELOPED ELEVATION
1" = 100'

STRUCTURE DEPTH	= 6'-0"
LENGTH	= 2043'-11⅝"±
WIDTH LEFT	= 10'-9" TO 68'-6"
WIDTH CENTER	= 56'-6"
WIDTH RIGHT	= 18'-11" TO 40'-7"
AREA LEFT	= 47,757 SQ FT
AREA CENTER	= 115,871 SQ FT
AREA RIGHT	= 84,727 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 250
REMOVAL AREA	= 36,893 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 62,611,000

① **CURVE DATA**
Δ = 35°10'43"
R = 3000.00'
L = 1841.95'
T = 951.04'

② **CURVE DATA**
Δ = 16°14'18"
R = 5000.00'
L = 1417.06'
T = 713.31'



PLAN
1" = 100'

STATION EQUATIONS:
BB = "A5" 111+34.50 = "HOV" 131+22.00
EB = "A5" 131+78.47 = "MN" 151+65.70 = "MS" 151+72.41

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge Removal (Portion)

NOTE:
For Typical Sections, see E. Roseville Viaduct Widen (2 of 2).

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1
PLANNING STUDY
E. ROSEVILLE VIADUCT (WIDEN) 1 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)
FILE => 418554_alt1_VIADUCT-a-gp01.dgn
CONTRACT NO.: X

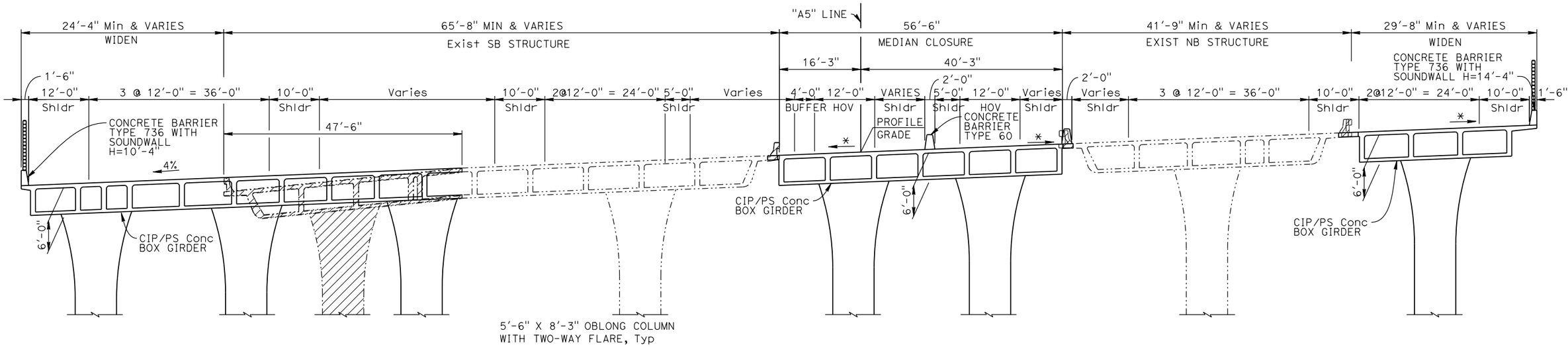
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 23:32

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

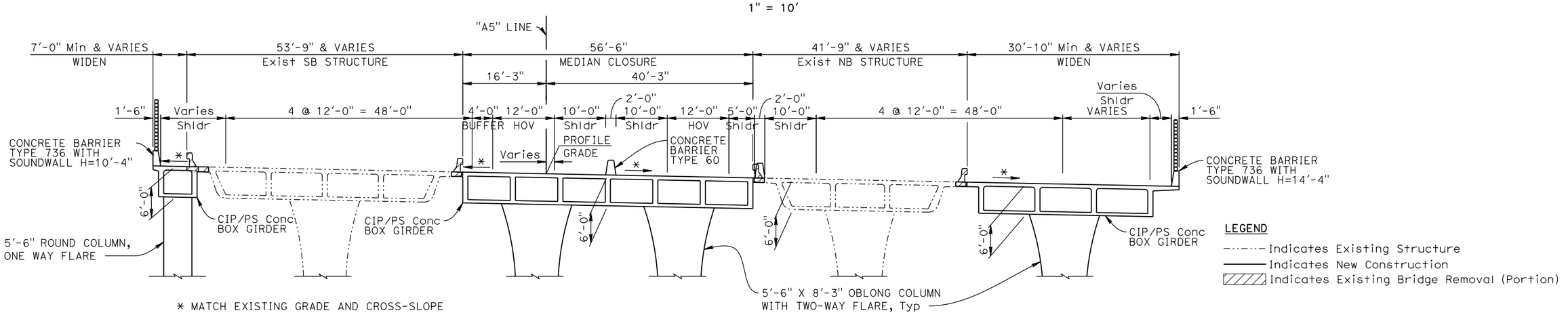
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION-FRAME 1

1" = 10'



TYPICAL SECTION-FRAMES 2,3,4,5

1" = 10'

ALTERNATIVE 1

PLANNING STUDY

E. ROSEVILLE VIADUCT (WIDEN) 2 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14	MARK S. BRADY PROJECT ENGINEER
DRAWN BY PATRICK WALKER	DATE 12/16/14	
CHECKED BY MARK BRADY	DATE 12/16/14	
APPROVED	DATE	

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt1_VIADUCT-a-gp02.dgn

CONTRACT NO.: X

USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 22:20

Advance Planning Study

For

I-80/SR-65 Interchange Improvements Project

Alternative 2
Collector-Distributor System Ramps

Prepared for:

Placer County
Tranportation
Planning Agency

Submitted by:

CH2MHILL

2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833

December, 2014

I-80/SR-65 Interchange Improvements
Rocklin, California

Alternative 2
Collector-Distributor System Ramps

Contents

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Introduction	2
Proposed Structure Types	2
Structure Descriptions	3
Corridor Aesthetics	5
Design Assumptions	6
Preliminary Structure Foundations	7
Construction Cost Summary	8

Attachments

A Consultant Prepared Advance Planning Study (APS) Checklist

B Advance Planning Study Cost Estimates

C Advance Planning Study Plans

Introduction

The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes to improve the Interstate 80/State Route 65 (I-80/SR 65) interchange in Placer County, California, in order to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards. Construction of the proposed improvements has independent utility. The project is not dependent on other projects or improvements to meet the purpose and need.

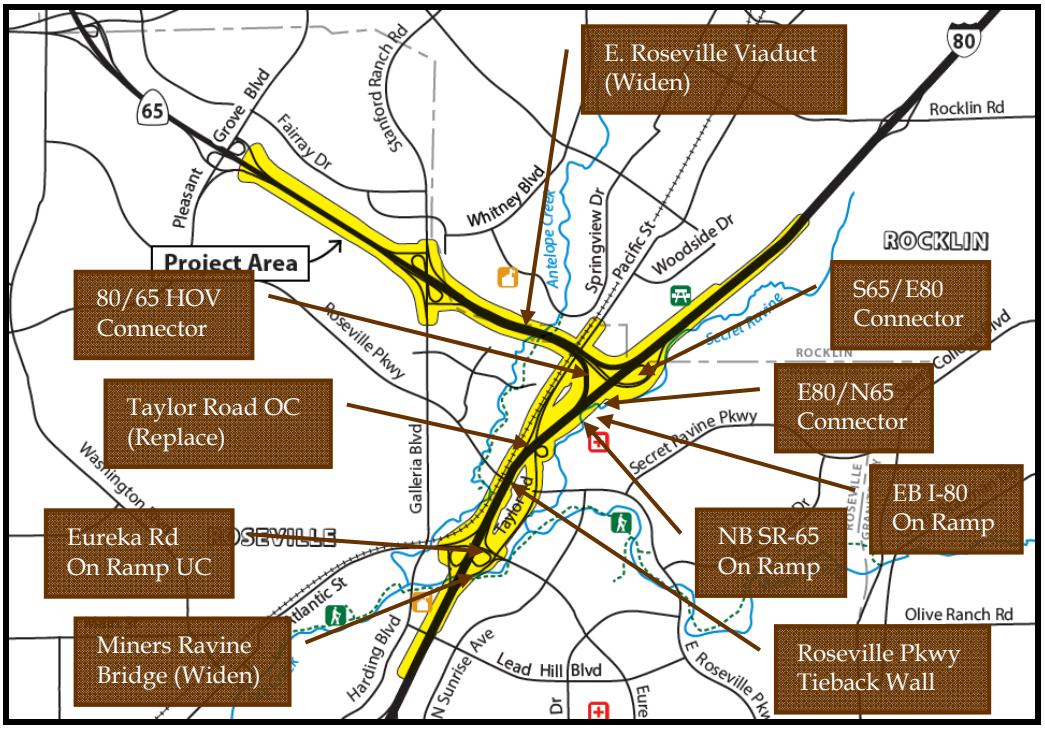
This memorandum outlines the design considerations used in the preparation of Advance Planning Studies for the I-80/SR-65 Interchange Improvements Project. The project includes three alternatives which are briefly described as follows:

- Alternative 1 - Taylor Road Full Access Interchange
- Alternative 2 - Collector-Distributor System Ramps
- Alternative 3 - Taylor Road Access Eliminated

This memorandum addresses Alternative 2.

Proposed Structure Types

Eight bridge structures and one tie-back wall are proposed for this alternative. Details of the structures are outlined below. Bridge structures are proposed to be cast-in-place, post-tensioned concrete box girder superstructures, unless noted otherwise. Abutments are short seat abutments supported with pile or spread foundations. Bents are supported on pile or spread foundations where feasible, or supported on large diameter drilled shafts where foundation space is limited (in the I-80 median or at outriggers) or near waterways.



Location of Structures

Structure Descriptions

- Northbound SR-65 On Ramp
  Construct new On-ramp to Northbound SR-65. Structure ties into E80/N65 Connector.
  - Total structure length = 292'-9", 2 spans (115', 155')
  - Structure depth = 8'-0", Structure width = 29'-10"
  - Single column bents, 5'-6" x 8'-3" rectangular columns with corner notches

- Eastbound I-80 On Ramp
  Construct new On-ramp to Eastbound I-80.
  - Total structure length = 1196', 2 frames, 7 spans (maximum span length 185')
  - Structure depth = 7'-6", Structure width = 29'-10"
  - Single column bents, 5'-6" x 8'-3" rectangular columns with corner notches
  - 3000' radius curve

- E80/N65 Connector
  Construct new Eastbound I-80 to Northbound SR-65 connector.
  - Total structure length = 1665', 3 frames, 11 spans (maximum span length 180')
  - Structure depth = 8'-0", Structure width = 48'-10" to 60'-10"
  - Two column bents, 5'-6" x 8'-3" rectangular columns with corner notches
  - Outrigger bents where alignment crosses Secrete Ravine and westbound I-80
  - 900' radius curve

- 80/65 HOV Connector
  Construct new connector that joins HOV lanes in the median of I-80 to median of SR-65.
  - Total structure length = 1455', 3 frames, 9 spans (maximum span length 185')
  - Structure depth = 7'-6", Structure width = 62'-10" and varies
  - Two column bents, 5'-6" x 8'-3" rectangular columns with corner notches
  - Outrigger bent where alignment crosses eastbound I-80
  - 880' radius curve

- Miners Ravine Bridge
  Construct new bridge over Miners Ravine.
  - Total structure length = 320', 3 spans (maximum span length 130')
  - Structure depth = 5'-3", Structure width = 29'-10"
  - Single column bents, 5'-6" x 8'-3" rectangular columns with corner notches

- S65/E80 Connector
  Construct new Southbound SR-65 to Eastbound I-80 connector.
  - Total structure length = 2478', 4 frames, 15 spans (maximum span length 200')
  - Structure depth = 8'-0", Structure width = 48'-10"
  - Single column bents, 7'-0" x 10'-6" rectangular columns with corner notches
  - 930' radius curve

- Taylor Road Overcrossing (Replace)
  Remove and replace the existing overcrossing over I-80. Construct in two stages.
  - Two spans (225', 235')
  - Structure depth = 9'-6", Structure width = 89'-0"

- Three column bents for final configuration, 5'-6" x 8'-3" rectangular columns with corner notches
- High skew (between 32° and 50°) at pier and abutments

- Eureka Road On Ramp UC
  Construct new rigid frame tunnel under Eureka Road.
  - Superstructure is cast-in-place, pre-stressed concrete box
  - Footings are tied together with struts
  - Total tunnel length = 241'-6"
  - Structure depth = 4'-6", Structure width = 75'-10"

- East Roseville Viaduct (Widen)
  Construct left widen, right widen, and median closure of existing right and left structures.
  - Total structure length = 2044', 5 frames, 14 spans (maximum span length 155'). Proposed widening matches existing spans & frames.
  - Existing & proposed structure depth = 6'-0"
  - Left (SB) widening is proposed to be supported by round columns, flared in the longitudinal direction. Median closure (HOV) and Right (NB) widen are proposed to be supported by oblong columns, flared longitudinally and transversely to match existing.
  - Left (SB) widening width is increased to accommodate minimum width (1' overhang, 1' girders & 5'6" cell width to develop reinforcement of a 5'-6"round column).
  - A portion of Frame 1 is replaced on the Left (SB) structure with a constant 4% cross slope to maximize vertical clearance over the railroad. Vertical clearance over the UPRR line is constrained.
  - Sound walls are proposed on both NB and SB edges of deck.

- Roseville Parkway Tieback Wall
  Construct new tieback wall on south side of Roseville Parkway OC over I-80.
  - Length of wall = 130'-8"
  - Maximum height = 15'-0

Corridor Aesthetics

I-80 Corridor

The I-80 corridor (Atlantic Street OC, Roseville Parkway OC, Taylor Road OC, and SR-65 Interchange) is composed of cast-in-place, post-tensioned concrete box girder bridges. Exterior girders have a vertical face. Columns are rectangular with corner notches, reinforced with interlocking spirals, and are flared longitudinally.

I-80 at Atlantic Ave

I-80 at Roseville Parkway

SR-65 Corridor

The existing East Roseville Viaduct structure is a cast-in-place, post-tensioned concrete box girder. The columns are oblong with two-way flares. Exterior girders are sloped 3:1 and are rounded at the soffit line.

Sound wall aesthetics will be determined during PS&E phase.

Design Assumptions

The following design assumptions were used in the development of the Advanced Planning Studies:

- Outriggers are used at locations where it is not feasible to place a column directly under the superstructure, or to avoid a waterway under the structure.
- A minimum depth-to-span ratio of 0.04 is used for continuous spans, and 0.045 is used for single spans per Bride Design Aids (BDA) 10-26.
- Typical section and overhang dimensions are detailed per Memo to Designers (MTD) 10-20.
- Per roadway design, an opening for four mixed-use lanes will be provided in each direction on I-80. Approximate depth of falsework was determined using BDA Table 10-2. Is it assumed that falsework tunnels (maximum falsework depth of 4'-0") will be used at Taylor Rd Overcrossing due to the high skew and staged construction.
- Bridge design will follow most current Caltrans standard and design guidelines including Load and Resistance Factor Design (LRFD) Specifications and Seismic Design Criteria.
- Seismic retrofit requirements will be considered during the design phase for the structures being widened. The existing East Roseville Viaduct was constructed in 1985. As-builts indicate confined columns, developed reinforcement, reasonable abutment seat widths, and restrained hinges. The adequacy of the entire widened viaduct will be confirmed during Type Selection and Final Design. Additional potential concerns that will be investigated are: integral column flares, displacement capacity of columns, and the stiffness irregularities of the ultimate widened structure due to column configuration.
- Falsework platforms are proposed over protected waterways to avoid disturbance inside waterway limits.
- The UPRR right-of-way perpendicular to E. Roseville Parkway (near Taylor Road) is 400 feet wide. Existing Bents 2 & 3 and Abutment 1 are within the ROW. The widening will require UPRR coordination. Proposed columns are aligned with existing bents and the proposed abutment is extended along the same bearing as the existing abutment to minimize impact.
- A minimal vertical clearance of 16'-6" is met by all structures. A minimum temporary 15'-0" vertical clearance is provided under falsework.
- The only utilities anticipated on the freeway structures are Corridor Operating System (COS) and lighting. Taylor Road UC has sufficient depth to accommodate utilities should they be identified during the PS&E phase.

Preliminary Structure Foundations

Soil and groundwater conditions are variable throughout the project area which makes different foundation types better suited for each structure location. The following table summarizes the suitable foundation types anticipated for each planned structure location. Subsurface investigation will need to be completed to verify suitable foundation types and design parameters.

PRELIMINARY STRUCTURE FOUNDATION TYPES		
Structure	**Proposed Abutment Type**	**Proposed Bent Type**
Northbound SR-65 On Ramp	Driven H-Piles.	Driven H-Piles.
Eastbound I-80 On Ramp	Driven H-Piles at Abut 1. Spread footing at Abut 8.	Driven H-Piles for Bents 2 thru 3. Spread footings for Bents 4 thru 7. MSE wall is at approach/abutment.
E80/N65 Connector	Driven H-piles.	Driven H-piles for Bents 2 thru 3 and Bents 7 thru 12. Spread footings for Bents 4 thru 6. Large diameter shaft in median and adjacent to I-80.
80/65 HOV Connector	Driven H-piles.	Driven H-piles. Large diameter shaft in median and adjacent to I-80. MSE wall at approach/abutment.
Miners Ravine Bridge	Driven H-piles.	CIDH foundations.
S65/E80 Connector	Driven H-piles at Abut 1. Spread footing at Abut 16.	Driven H-piles from Bent 2 to Bent 8. Spread footings from Bent 9 to Bent 15.
Taylor Road Overcrossing (Replace)	Driven H-Piles.	Large diameter CIDHs.
Eureka Road On Ramp Undercrossing	Strip footings for cut and cover tunnel walls.	N/A
E. Roseville Viaduct (Widen)	Driven H-Piles.	Driven H-Piles.

Construction Cost Summary

A summary of relative construction costs is provided below. Given the funding constraints for this project, significant time may occur between construction stages. Project costs, including structure costs, should be re-evaluated and revised when the complete construction schedule is determined.

Structure costs listed below are based on 2013 Caltrans Statistics (current at the time of estimate).

Structure	Area (Sq. Ft.)	Cost / Sq. Ft.	Demolition Cost	Total Cost
Northbound SR-65 On Ramp	8,744	$ 265	$ -	$ 2,314,000
Eastbound I-80 On Ramp	35,717	$ 246	$ -	$ 8,771,000
E80/N65 Connector	103,536	$ 170	$ 190,530	$ 17,834,000
80/65 HOV Connector	90,888	$ 212	$ -	$ 19,282,000
Miners Ravine Bridge	9,553	$ 335	$ -	$ 3,205,000
S65/E80 Connector	122,258	$ 211	$ 138,330	$ 25,958,000
Taylor Road Overcrossing (Replace)	42,496	$ 216	$ 338,550	$ 9,518,000
Eureka Road On Ramp Undercrossing	18,314	$ 454	$ -	$ 8,319,000
E. Roseville Viaduct (Widen)	249,659	$ 248	$ 553,395	$ 62,345,000
Roseville Parkway Tieback Wall	1,996	$ 87	$ -	$ 174,000

Attachment A

Consultant Prepared Advance Planning Study (APS) Checklist

Consultant Prepared Advance Planning Study (APS) Checklist

Date: 12/16/14	Consultant Firm (for structures): CH2M HILL		Phone No: 916-920-0300
Designed by: Jennifer Elwood			Phone No: 916-286-0267
EA:	County: Pla	Rte: 80 / 65	PM
Project Description: I-80/SR-65 Interchange Improvements Alternative 2			
Bridge No(s):	Bridge Name(s): NB SR-65 On Ramp EB I-80 On Ramp E80 / N65 Connector 80 / 65 HOV Connector Miners Ravine Bridge S65 / E80 Connector Taylor Road OC (Replace) Eureka Road On Ramp UC E. Roseville Viaduct (Widen)		
Total number of bridges in project: 9		APS Alternative Letter or Number (if more than one): 1	
Purpose of this APS:	Initial APS Cost & Feasibility ☒	Revised scope ☐	Update cost ☐

Part A Items to collect and considerations prior to beginning the APS

All items listed in Part A are to be made available and submitted if requested by the Liaison Engineer. (Mark **N/A** if not applicable)

☒ Preliminary profile grade of proposed structure.

☒ Typical section of the proposed structure. (Including barrier type, sidewalks, cross slope %, etc.)

☒ Grades or spot elevations of roadway below the structure.

N/A Typical section of roadway below the structure. (Including shoulders, gutters, embankment slope.)

N/A Site map: including horizontal alignment of new structure and the roadway below, topo, contours, etc.

☒ Stage construction or detour plan for traffic <u>on the structure.</u>
(number of lanes to remain open, Temp Railing, etc.)

☒ Stage construction or detour plan for the roadway <u>below the structure</u>.
(falsework openings for each stage and any restrictions.)

☒ "As Built" plans for existing structures.

☒ Future widening plans of upper and lower roadway (verify with Route Concept Report).

☒ Site aerial photograph (at the proposed structure).

☒ Environmental and/or permit requirements (areas of potential impact, construction windows, etc.)

☒ Overhead and underground utility plans

N/A Any other information that you feel is necessary to complete the study. (Other concerns that may affect the APS: local agency requirements such as aesthetics, improvements in vicinity of structure, airspace usage, other obstructions, etc.)

Consultant Prepared Advance Planning Study (APS) Checklist

Part B Considerations during the APS design and cost estimate preparation

1.	Has this project been discussed with:	the OSFP Liaison Engineer?	Yes ☒ No ☐
		the Caltrans District Project Manager?	Yes ☒ No ☐
		the roadway consultant?	Yes ☒ No ☐
2.	Have the Caltrans Structures Maintenance records been reviewed?		Yes ☒ No ☐
	If the records recommend any work for the structure, is it included in the APS?		Yes ☐ No ☒
3.	Are there special aesthetic considerations?		Yes ☒ No ☐
4.	(Widenings and Modifications)		
	Has this project been reviewed for seismic retrofit requirements?		Yes ☒ No ☐
	Are seismic retrofit requirements included in the APS?		Yes ☐ No ☒
5.	Any special Railroad requirements?		Yes ☒ No ☐
	Shoofly required?		Yes ☐ No ☒
	Cost of shoofly included as a separate item in the project cost estimate?		Yes ☐ No ☒
6.	Any special foundation requirements, including scour critical work, special excavation such as Type A, Type D, and/or hazardous or contaminated material?		Yes ☐ No ☒
7.	Any special construction requirements, including limited site accessibility or seasonal work?		Yes ☒ No ☐
8.	Other items to be included in the cost such as slope paving, approach slabs, and/or adjacent retaining walls?		Yes ☒ No ☐
9.	Remove existing bridge? Total Deck Area: 81,387 SQ FT		Yes ☒ No ☐
10.	Any other unusual or special requirements?		Yes ☒ No ☐
11.	Provide and attach a consultant prepared Design Memo to summarize and document any important assumptions, discussions, decisions, unusual items, local agency requirements such as aesthetics, improvements in vicinity of the structure, airspace usage, other obstructions, or any items noted above.	Summary attached?	Yes ☒ No ☐

Designer: (Printed Name)	Designer's Signature:	Date:
Jennifer Elwood	Jennifer Elwood	12/16/14

Attachment B

Advance Planning Study Cost Estimates

[ ] GENERAL PLAN ESTIMATE [x] ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE: NB SR 65 On Ramp - Alternative 2 **BR. No.:** 19-XXXX **DISTRICT:** 03
TYPE: CIP/PS Box Girder **RTE:** 80-65
CU: **CO:** Pla
EA: **PM:**
LENGTH: 292.75 **WIDTH:** 29.83 **AREA (SF)=** 8,744

DESIGN SECTION: CH2M HILL
 # OF STRUCTURES IN PROJECT : **EST. NO.**
PRICES BY : M. Brady **COST INDEX:** 2013
PRICES CHECKED BY : J. Elwood **DATE:** Dec-14
QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	311	$ 100.00	$ 31,060.41
2	STRUCTURE BACKFILL (BRIDGE)		CY	156	$ 80.00	$ 12,463.04
3	FURNISH STEEL PILING (HP 14 X 89)		LF	2,000	$ 50.00	$ 100,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	56	$ 3,500.00	$ 196,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 65,000.00	$ 65,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	143	$ 500.00	$ 71,419.63
7	STRUCTURAL CONCRETE, BRIDGE		CY	807	$ 800.00	$ 645,987.67
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	33	$ 750.00	$ 24,860.83
9	JOINT SEAL (MR = 1 1/2")		LF	32	$ 50.00	$ 1,591.65
10	JOINT SEAL ASSEMBLY (MR=4")		LF	32	$ 330.00	$ 10,504.89
11	BAR REINFORCING STEEL (BRIDGE)		LB	189,846	$ 1.50	$ 284,768.50
12	CONCRETE BARRIER	Type 732	LF	646	$ 110.00	$ 71,005.00
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SUBTOTAL	$	1,514,662
TIME RELATED OVERHEAD	$	151,466
MOBILIZATION (@ 10 %)	$	185,125
SUBTOTAL BRIDGE ITEMS	$	1,851,253
CONTINGENCIES (@ 25%)	$	462,813
BRIDGE TOTAL COST	$	2,314,066
COST PER SQ. FOOT	$	264.65
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	2,314,066
BUDGET ESTIMATE AS OF	**$**	**2,314,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$2,314,000
2	$2,314,000
3	$2,314,000
4	$2,314,000
5	$2,314,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	EB I-80 On Ramp - Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 1,196.00 **WIDTH:** 29.83 **AREA (SF)=** 35,717

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	1,535	$ 100.00	$ 153,498.59
2	STRUCTURE BACKFILL (BRIDGE)		CY	651	$ 80.00	$ 52,092.96
3	FURNISH STEEL PILING (HP 14 X 89)		LF	3,560	$ 50.00	$ 178,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	92	$ 3,500.00	$ 322,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 275,000.00	$ 275,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	882	$ 500.00	$ 440,987.52
7	STRUCTURAL CONCRETE, BRIDGE		CY	3,059	$ 800.00	$ 2,447,226.24
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	66	$ 750.00	$ 49,721.67
9	JOINT SEAL (MR = 1 1/2")		FT	64	$ 50.00	$ 3,183.32
10	JOINT SEAL ASSEMBLY (MR=4")		FT	32	$ 330.00	$ 10,504.89
11	BAR REINFORCING STEEL (BRIDGE)		LB	675,767	$ 1.50	$ 1,013,650.81
12	CONCRETE BARRIER	Type 732	FT	2,512	$ 110.00	$ 276,320.00
13	MECHANICALLY STABILIZED EMBANKMENT	LOCATION B	SQ FT	9,406	$50.00	$470,300.00
14	MECHANICALLY STABILIZED EMBANKMENT	LOCATION C	SQ FT	965	$50.00	$48,250.00
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SUBTOTAL		$ 5,740,736
TIME RELATED OVERHEAD		$ 574,074
MOBILIZATION (@ 10 %)		$ 701,646
SUBTOTAL BRIDGE ITEMS		$ 7,016,455
CONTINGENCIES	(@ 25%)	$ 1,754,114
BRIDGE TOTAL COST		$ 8,770,569
COST PER SQ. FOOT		$ 245.56
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL		$ 8,770,569
BUDGET ESTIMATE AS OF		**$ 8,771,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$8,771,000
2	$8,771,000
3	$8,771,000
4	$8,771,000
5	$8,771,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	E80/N65 Connector - Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:		**AVERAGE**		**PM:**	
	LENGTH: 1,665.00	**WIDTH:**	62.18	**AREA (SF)=**	103,536

DESIGN SECTION:	CH2M HILL
# OF STRUCTURES IN PROJECT :	**EST. NO.**
PRICES BY :	M. Brady **COST INDEX:** 2013
PRICES CHECKED BY :	J. Elwood **DATE:** 14-Dec
QUANTITIES BY:	M. Brady **DATE:** 14-Dec

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	2,037	$ 100.00	$ 203,661.71
2	STRUCTURE BACKFILL (BRIDGE)		CY	934	$ 80.00	$ 74,758.94
3	FURNISH STEEL PILING (HP 14 X 89)		LF	10,000	$ 50.00	$ 500,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	296	$ 3,500.00	$ 1,036,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING			120	$ 3,000.00	$ 360,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 500,000.00	$ 500,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,046	$ 500.00	$ 522,839.48
8	STRUCTURAL CONCRETE, BRIDGE		CY	7,228	$ 800.00	$ 5,782,180.73
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	122	$ 750.00	$ 91,388.58
10	JOINT SEAL (MR = $1\frac{1}{2}$")		FT	114	$ 50.00	$ 5,683.33
11	JOINT SEAL ASSEMBLY (MR=4")		FT	147	$ 330.00	$ 48,560.59
12	BAR REINFORCING STEEL (BRIDGE)		LB	1,364,174	$ 1.50	$ 2,046,261.13
13	CONCRETE BARRIER	Type 732	FT	3,430	$ 110.00	$ 377,300.00
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SUBTOTAL	$	11,548,634
TIME RELATED OVERHEAD	$	1,154,863
MOBILIZATION (@ 10 %)	$	1,411,500
SUBTOTAL BRIDGE ITEMS	$	14,114,998
CONTINGENCIES (@ 25%)	$	3,528,749
BRIDGE TOTAL COST	$	17,643,747
COST PER SQ. FOOT	$	170.41
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	190,530
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	17,834,277
BUDGET ESTIMATE AS OF	**$**	**17,834,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$17,834,000
2	$17,834,000
3	$17,834,000
4	$17,834,000
5	$17,834,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	80/65 HOV Connector - Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 1,455.00 **WIDTH:** 62.83 **AREA (SF)=** 90,888

DESIGN SECTION:	CH2M HILL
# OF STRUCTURES IN PROJECT :	**EST. NO.**
PRICES BY :	M. Brady **COST INDEX:** 2013
PRICES CHECKED BY :	J. Elwood **DATE:** Dec-14
QUANTITIES BY:	M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	1,672	$ 100.00	$ 167,170.37
2	STRUCTURE BACKFILL (BRIDGE)		CY	781	$ 80.00	$ 62,471.11
3	FURNISH STEEL PILING (HP 14 X 89)		LF	11,800	$ 50.00	$ 590,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	348	$ 3,500.00	$ 1,218,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	120	$ 3,000.00	$ 360,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 560,000.00	$ 560,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	844	$ 500.00	$ 422,098.74
8	STRUCTURAL CONCRETE, BRIDGE		CY	7,393	$ 800.00	$ 5,914,339.76
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	140	$ 750.00	$ 104,722.17
10	JOINT SEAL (MR = $1\frac{1}{2}$")		LF	128	$ 50.00	$ 6,400.00
11	JOINT SEAL ASSEMBLY (MR=4")		LF	128	$ 330.00	$ 42,240.00
12	BAR REINFORCING STEEL (BRIDGE)		LB	1,552,021	$ 1.50	$ 2,328,032.24
13	CONCRETE BARRIER	TYPE 732	LF	3,030	$ 100.00	$ 303,000.00
14	CONCRETE BARRIER	TYPE 60	LF	1,515	$ 110.00	$ 166,650.00
15	MECHANICALLY STABILIZED EMBANKMENT	LOCATION C	SQ FT	7,510	$ 50.00	$375,500.00
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SUBTOTAL		$ 12,620,624
TIME RELATED OVERHEAD		$ 1,262,062
MOBILIZATION (@ 10 %)		$ 1,542,521
SUBTOTAL BRIDGE ITEMS		$ 15,425,208
CONTINGENCIES	(@ 25%)	$ 3,856,302
BRIDGE TOTAL COST		$ 19,281,509
COST PER SQ. FOOT		$ 212.15
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL		$ 19,281,509
BUDGET ESTIMATE AS OF		**$ 19,282,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$19,282,000
2	$19,282,000
3	$19,282,000
4	$19,282,000
5	$19,282,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	Miners Ravine Bridge - Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVERAGE**	**PM:**	
	LENGTH: 320.00	**WIDTH:**	29.83	**AREA (SF)=**	9,553

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	422	$ 100.00	$ 42,202.94
2	STRUCTURE BACKFILL (BRIDGE)		CY	199	$ 80.00	$ 15,955.50
3	FURNISH STEEL PILING (HP 14 X 89)		LF	1,800	$ 50.00	$ 90,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	36	$ 3,500.00	$ 126,000.00
5	24" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	1,200	$ 250.00	$ 300,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 190,000.00	$ 190,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	193	$ 500.00	$ 96,628.54
8	STRUCTURAL CONCRETE, BRIDGE		CY	927	$ 800.00	$ 741,935.54
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	40	$ 750.00	$ 30,130.50
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	69	$ 50.00	$ 3,444.85
11	BAR REINFORCING STEEL (BRIDGE)		LBS	218,977	$ 1.50	$ 328,465.23
12	CONCRETE BARRIER	TYPE 732	LF	760	$ 175.00	$ 133,000.00
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SUBTOTAL		$ 2,097,763
TIME RELATED OVERHEAD		$ 209,776
MOBILIZATION (@ 10 %)		$ 256,393
SUBTOTAL BRIDGE ITEMS		$ 2,563,933
CONTINGENCIES	(@ 25%)	$ 640,983
BRIDGE TOTAL COST		$ 3,204,916
COST PER SQ. FOOT		$ 335.49
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL		$ 3,204,916
BUDGET ESTIMATE AS OF		**$ 3,205,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$3,205,000
2	$3,205,000
3	$3,205,000
4	$3,205,000
5	$3,205,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	S65/E80 Connector - Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 2,478.00 **WIDTH:** 48.83 **AREA (SF)=** 122,258

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	4,087	$ 100.00	$ 408,713.56
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,562	$ 80.00	$ 124,955.26
3	FURNISH STEEL PILING (HP 14 X 89)		LF	8,700	$ 50.00	$ 435,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	258	$ 3,500.00	$ 903,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 920,000.00	$ 920,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	2,438	$ 500.00	$ 1,218,950.59
7	STRUCTURAL CONCRETE, BRIDGE		CY	11,030	$ 800.00	$ 8,823,608.11
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	109	$ 750.00	$ 81,388.83
9	JOINT SEAL (MR = 1 1/2")		LF	102	$ 50.00	$ 5,100.00
10	JOINT SEAL ASSEMBLY (MR=4")		LF	153	$ 330.00	$ 50,490.00
11	BAR REINFORCING STEEL (BRIDGE)		LBS	2,278,234	$ 1.50	$ 3,417,350.44
12	CONCRETE BARRIER	Type 732	LF	5,074	$ 100.00	$ 507,400.00
13	ISOLATION CASINGS		LF	40	$ 100.00	$ 4,000.00
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SUBTOTAL	$	16,899,957
TIME RELATED OVERHEAD	$	1,689,996
MOBILIZATION (@ 10 %)	$	2,065,550
SUBTOTAL BRIDGE ITEMS	$	20,655,503
CONTINGENCIES (@ 25%)	$	5,163,876
BRIDGE TOTAL COST	$	25,819,378
COST PER SQ. FOOT	$	211.19
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	138,330
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	25,957,708
BUDGET ESTIMATE AS OF	**$**	**25,958,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$25,958,000
2	$25,958,000
3	$25,958,000
4	$25,958,000
5	$25,958,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	Taylor Road OC (Replace)-Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVERAGE**	**PM:**	

LENGTH: 470.00 **WIDTH:** 90.42 **AREA (SF)=** 42,496

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	663	$ 100.00	$ 66,314.33
2	STRUCTURE BACKFILL (BRIDGE)		CY	430	$ 80.00	$ 34,391.68
3	FURNISH STEEL PILING (HP 14 X 89)		LF	6,000	$ 50.00	$ 300,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	120	$ 3,500.00	$ 420,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	180	$ 3,000.00	$ 540,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 280,000.00	$ 280,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	192	$ 500.00	$ 96,216.24
8	STRUCTURAL CONCRETE, BRIDGE		CY	3,607	$ 800.00	$ 2,885,764.19
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	275	$ 750.00	$ 206,486.54
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	248	$ 50.00	$ 12,389.19
11	BAR REINFORCING STEEL (BRIDGE)		LBS	634,987	$ 1.50	$ 952,481.07
12	CONCRETE BARRIER	TYPE 26	LF	530	$ 175.00	$ 92,750.00
13	CONCRETE BARRIER	TYPE 732	LF	530	$ 100.00	$ 53,000.00
14	CHAIN LINK RAILING	TYPE 7	LF	1,060	$ 65.00	$ 68,900.00
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SUBTOTAL		$ 6,008,693
TIME RELATED OVERHEAD		$ 600,869
MOBILIZATION (@ 10 %)		$ 734,396
SUBTOTAL BRIDGE ITEMS		$ 7,343,958
CONTINGENCIES	(@ 25%)	$ 1,835,990
BRIDGE TOTAL COST		$ 9,179,948
COST PER SQ. FOOT		$ 216.02
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$ 338,550
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL		$ 9,518,498
BUDGET ESTIMATE AS OF		**$ 9,518,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$9,518,000
2	$9,518,000
3	$9,518,000
4	$9,518,000
5	$9,518,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: Eureka Road On Ramp UC - Alternative 2 **BR. No.:** 19-XXXX **DISTRICT:** 03

TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65

CU: **CO:** Pla

EA: **AVERAGE** **PM:**

LENGTH: 241.50 **WIDTH:** 75.83 **AREA (SF)=** 18,314

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	18,293	$ 100.00	$ 1,829,333.33
2	STRUCTURE BACKFILL (BRIDGE)		CY	4,836	$ 80.00	$ 386,918.52
3	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 190,000.00	$ 190,000.00
4	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	422	$ 500.00	$ 211,007.54
5	STRUCTURAL CONCRETE, BRIDGE		CY	2,521	$ 800.00	$ 2,016,485.63
6	BAR REINFORCING STEEL (BRIDGE)		LBS	541,006	$ 1.50	$ 811,509.03
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SUBTOTAL	$ 5,445,254
TIME RELATED OVERHEAD	$ 544,525
MOBILIZATION (@ 10 %)	$ 665,531
SUBTOTAL BRIDGE ITEMS	$ 6,655,311
CONTINGENCIES (@ 25%)	$ 1,663,828
BRIDGE TOTAL COST	$ 8,319,138
COST PER SQ. FOOT	$ 454.25
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 8,319,138
BUDGET ESTIMATE AS OF	**$ 8,319,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$8,319,000
2	$8,319,000
3	$8,319,000
4	$8,319,000
5	$8,319,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: East Roseville Viaduct (Widen) Median-Alternative 2 **BR. No.:** 19-XXXX **DISTRICT:** 03

TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65

CU: **CO:** Pla

EA: **PM:**

LENGTH: 2,043.97 **WIDTH:** 56.50 **AREA (SF)=** 115,871

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	2,829	$ 100.00	$ 282,866.67
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,263	$ 80.00	$ 101,075.36
3	FURNISH STEEL PILING (HP 14 X 89)		LF	18,600	$ 50.00	$ 930,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	580	$ 3,500.00	$ 2,030,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 1,060,000.00	$ 1,060,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,481	$ 500.00	$ 740,370.37
7	STRUCTURAL CONCRETE, BRIDGE		CY	10,791	$ 800.00	$ 8,632,756.81
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	269	$ 750.00	$ 201,666.67
9	JOINT SEAL (MR = 1 1/2")		LF	125	$ 50.00	$ 6,250.00
10	JOINT SEAL ASSEMBLY (MR=4")		LF	250	$ 330.00	$ 82,500.00
11	BAR REINFORCING STEEL (BRIDGE)		LBS	2,051,249	$ 1.50	$ 3,076,873.08
12	CONCRETE BARRIER	TYPE 60	LF	2,104	$ 110.00	$ 231,440.00
13	BRIDGE REMOVAL (PORTION)		LS	1	$ 76,000.00	$ 76,000.00
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SUBTOTAL	$	17,451,799
TIME RELATED OVERHEAD	$	1,745,180
MOBILIZATION (@ 10 %)	$	2,132,998
SUBTOTAL BRIDGE ITEMS	$	21,329,977
CONTINGENCIES (@ 25%)	$	5,332,494
BRIDGE TOTAL COST	$	26,662,471
COST PER SQ. FOOT	$	230.10
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	26,662,471
BUDGET ESTIMATE AS OF	**$**	**26,662,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$26,662,000
2	$26,662,000
3	$26,662,000
4	$26,662,000
5	$26,662,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	East Roseville Viaduct (Widen) NB-Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:		**AVG.**		**PM:**	
	LENGTH: 2,043.97	**WIDTH:**	41.39	**AREA (SF)=**	84,607

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	3,154	$ 100.00	$ 315,388.11
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,219	$ 80.00	$ 97,496.39
3	FURNISH STEEL PILING (HP 14 X 89)		LF	13,700	$ 50.00	$ 685,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	430	$ 3,500.00	$ 1,505,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 610,000.00	$ 610,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,869	$ 500.00	$ 934,369.26
7	STRUCTURAL CONCRETE, BRIDGE		CY	5,502	$ 800.00	$ 4,401,783.29
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	176	$ 750.00	$ 132,161.67
9	JOINT SEAL (MR = 1 1/2")		LF	83	$ 50.00	$ 4,164.85
10	JOINT SEAL ASSEMBLY (MR=4")		LF	130	$ 330.00	$ 43,048.17
11	BAR REINFORCING STEEL (BRIDGE)		LBS	1,259,598	$ 1.50	$ 1,889,396.87
12	CONCRETE BARRIER	Type 736	LF	2,104	$ 110.00	$ 231,440.00
13	SOUND WALL (MASONRY BLOCK)		SQ FT	23,845	$ 25.00	$ 596,115.80
14	BRIDGE REMOVAL (PORTION)		LS	1	$ 38,000.00	$ 38,000.00
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SUBTOTAL	$	11,483,364
TIME RELATED OVERHEAD	$	1,148,336
MOBILIZATION (@ 10 %)	$	1,403,522
SUBTOTAL BRIDGE ITEMS	$	14,035,223
CONTINGENCIES (@ 25%)	$	3,508,806
BRIDGE TOTAL COST	$	17,544,029
COST PER SQ. FOOT	$	207.36
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	17,544,029
BUDGET ESTIMATE AS OF	**$**	**17,544,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$17,544,000
2	$17,544,000
3	$17,544,000
4	$17,544,000
5	$17,544,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	East Roseville Viaduct (Widen) SB-Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVERAGE**	**PM:**	
	LENGTH: 2,043.97	**WIDTH:**	24.06	**AREA (SF)=**	49,181

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	3,759	$ 100.00	$ 375,865.52
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,793	$ 80.00	$ 143,424.25
3	FURNISH STEEL PILING (HP 14 X 89)		LF	14,800	$ 50.00	$ 740,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	444	$ 3,500.00	$ 1,554,000.00
5	144" CAST-IN_DRILLED_HOLE CONCRETE PILING		LF	180	$ 3,500.00	$ 630,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 425,000.00	$ 425,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,914	$ 500.00	$ 956,765.56
8	STRUCTURAL CONCRETE, BRIDGE		CY	5,280	$ 800.00	$ 4,224,171.27
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	155	$ 750.00	$ 116,472.50
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	144	$ 50.00	$ 7,188.35
11	JOINT SEAL ASSEMBLY (MR=4")		LF	112	$ 330.00	$ 37,045.80
12	BAR REINFORCING STEEL (BRIDGE)		LBS	1,224,485	$ 1.50	$ 1,836,727.70
13	CONCRETE BARRIER	Type 736	LF	2,104	$ 110.00	$ 231,440.00
14	SOUND WALL (MASONRY BLOCK)		SQ FT	15,429	$ 25.00	$ 385,715.80
15	BRIDGE REMOVAL (PORTION)		LS	1	$ 38,000.00	$ 38,000.00
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SUBTOTAL	$	11,701,817
TIME RELATED OVERHEAD	$	1,170,182
MOBILIZATION (@ 10 %)	$	1,430,222
SUBTOTAL BRIDGE ITEMS	$	14,302,220
CONTINGENCIES (@ 25%)	$	3,575,555
BRIDGE TOTAL COST	$	17,877,776
COST PER SQ. FOOT	$	363.51
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	553,395
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	18,431,171
BUDGET ESTIMATE AS OF	**$**	**18,431,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$18,431,000
2	$18,431,000
3	$18,431,000

Years Beyond Midpoint	Escalated Budget Est.
4	$18,431,000
5	$18,431,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	East Roseville Viaduct (Widen) (Total)-Alternative 2	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVERAGE**	**PM:**	
	LENGTH: 2,043.97	**WIDTH:**	122.14	**AREA (SF)=**	249,659

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	9,742	$ 100.00	$ 974,200.00
2	STRUCTURE BACKFILL (BRIDGE)		CY	4,275	$ 80.00	$ 342,000.00
3	FURNISH STEEL PILING (HP 14 X 89)		LF	47,100	$ 50.00	$ 2,355,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	1,454	$ 3,500.00	$ 5,089,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	180	$ 3,000.00	$ 540,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 2,095,000.00	$ 2,095,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	5,264	$ 500.00	$ 2,632,000.00
8	STRUCTURAL CONCRETE, BRIDGE		CY	21,573	$ 800.00	$ 17,258,400.00
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	465	$ 750.00	$ 348,750.00
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	352	$ 50.00	$ 17,600.00
11	JOINT SEAL ASSEMBLY (MR=4")		LF	492	$ 330.00	$ 162,360.00
12	BAR REINFORCING STEEL (BRIDGE)		LBS	4,535,332	$ 1.50	$ 6,802,998.00
13	CONCRETE BARRIER	Type 736	LF	4,208.00	$ 110.00	$ 462,880.00
14	CONCRETE BARRIER	TYPE 60	LF	2,104.00	$ 110.00	$ 231,440.00
15	SOUND WALL (MASONRY BLOCK)		SQ FT	39,274	$ 25.00	$ 981,850.00
16	BRIDGE REMOVAL (PORTION)		LS	1	$ 152,000.00	$ 152,000.00
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SUBTOTAL	$ 40,445,478
TIME RELATED OVERHEAD	$ 4,044,548
MOBILIZATION (@ 10 %)	$ 4,943,336
SUBTOTAL BRIDGE ITEMS	$ 49,433,362
CONTINGENCIES (@ 25%)	$ 12,358,341
BRIDGE TOTAL COST	$ 61,791,703
COST PER SQ. FOOT	$ 247.50
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$ 553,395
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 62,345,098
BUDGET ESTIMATE AS OF	**$ 62,345,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$62,345,000
2	$62,345,000
3	$62,345,000
4	$62,345,000
5	$62,345,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: JTY

IN EST:

OUT EST:

BRIDGE: Roseville Parkway Tieback Wall-Alternative 2 **BR. No.:**

DISTRICT: 03

TYPE: Tie Back Wall

RTE: 80

CU:

CO: PLA

EA:

PM:

LENGTH: 130.67 **WIDTH:** **AREA (SF)=** 1,996

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	TIE BACK RETAINING WALL		SQ FT	1,996	$50.00	$99,800.00
2	CABLE RAILING		LF	131	$30.00	$3,930.00
3	CONCRETE BARRIER	TYPE 60D	LF	131	$80.00	$10,480.00
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SUBTOTAL	$114,210
TIME RELATED OVERHEAD	$11,421
MOBILIZATION (@ 10 %)	$13,959
SUBTOTAL BRIDGE ITEMS	$139,590
CONTINGENCIES (@ 25%)	$34,898
BRIDGE TOTAL COST	$174,488
COST PER SQ. FOOT	$87.42
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$174,488
BUDGET ESTIMATE AS OF	**$174,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$174,000
2	$174,000
3	$174,000

Years Beyond Midpoint	Escalated Budget Est.
4	$174,000
5	$174,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

Attachment C

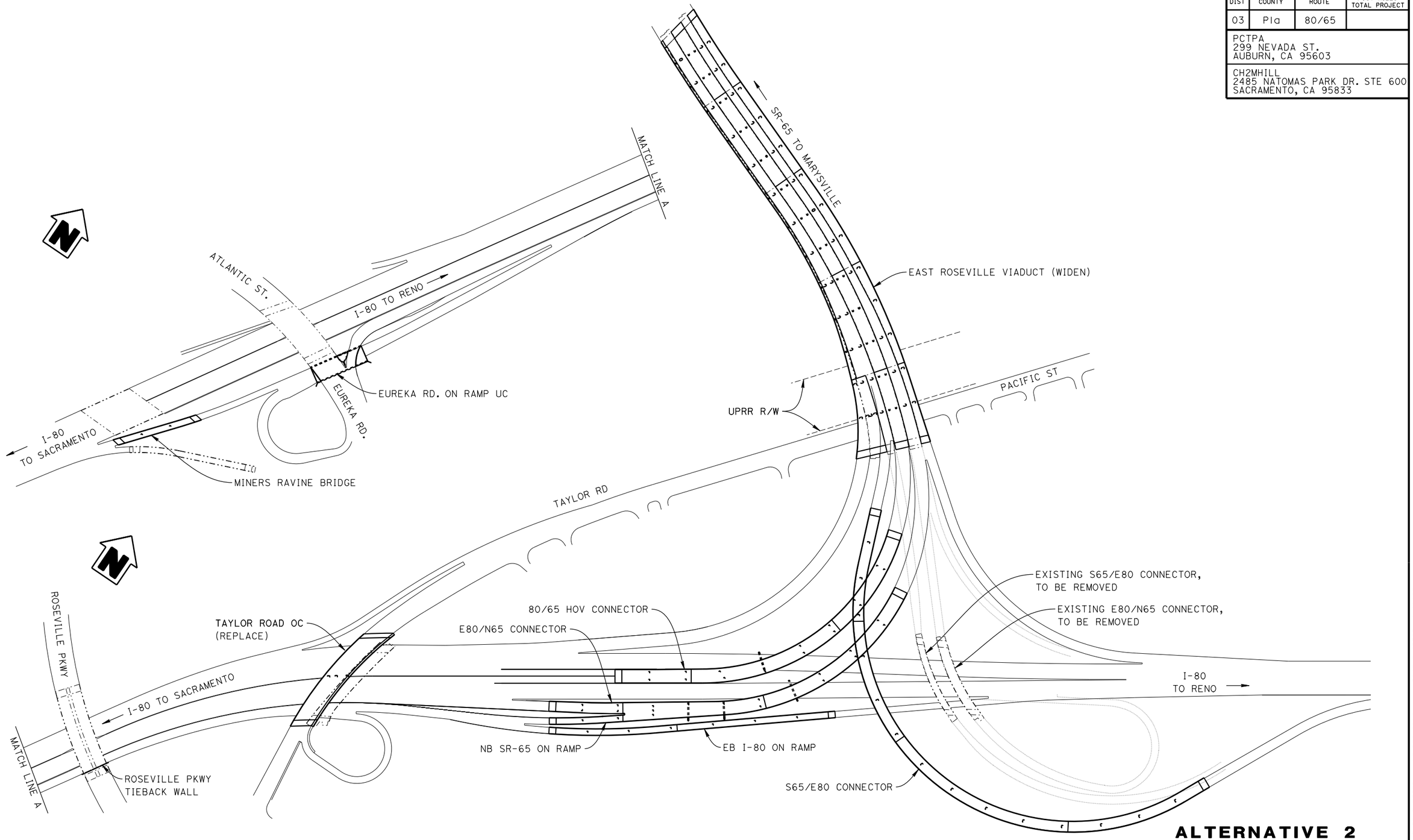
Advance Planning Study Plans

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



ALTERNATIVE 2
PLANNING STUDY
LOCATION MAP

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14
DRAWN BY PATRICK WALKER	DATE 12/16/14
CHECKED BY MARK BRADY	DATE 12/16/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO.	UNIT:
SCALE: 1"=200'	PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

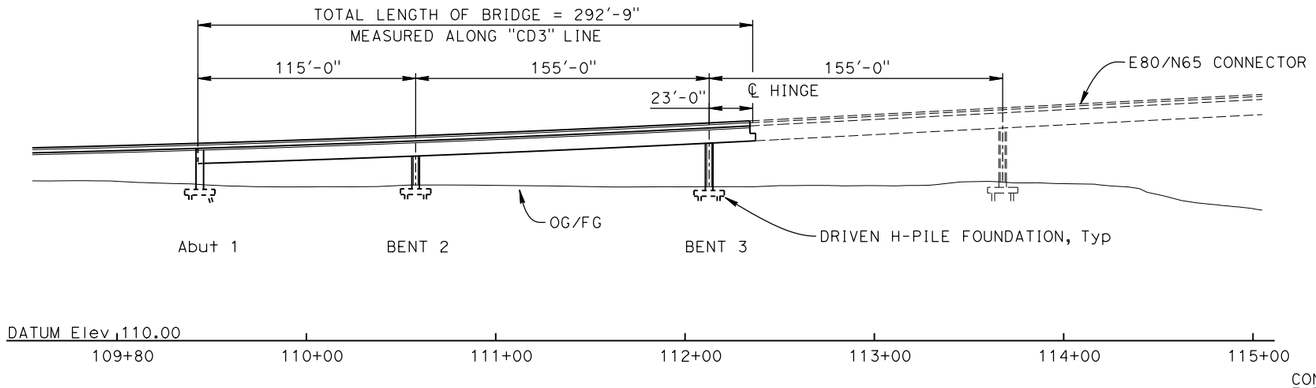
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:57

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

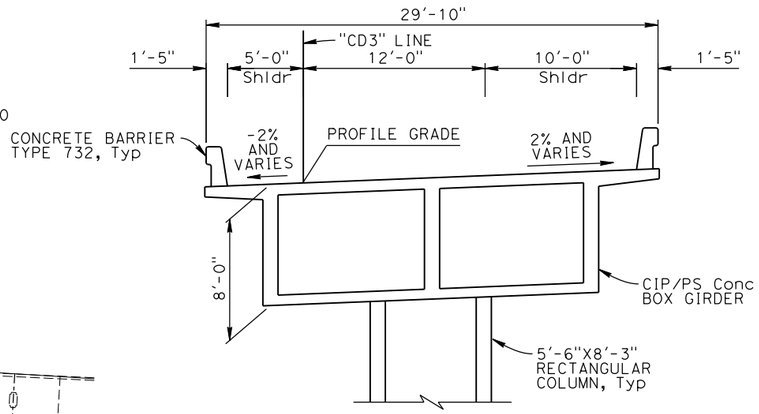
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

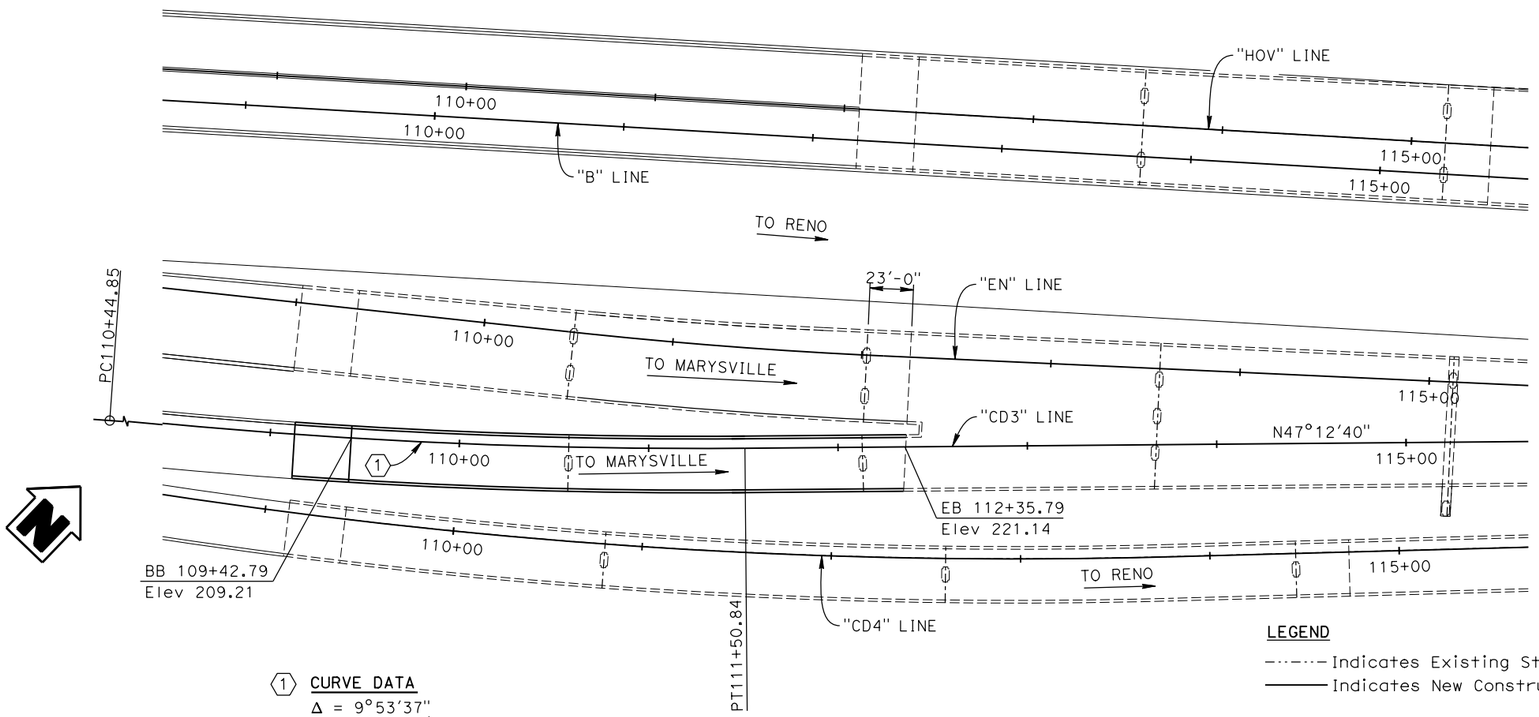
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 40'





1 CURVE DATA
Δ = 9°53'37"
R = 3000.00'
L = 518.03'
T = 259.66'

LEGEND
Indicates Existing Structure
Indicates New Construction

PLAN

1" = 40'

TYPICAL SECTION

1" = 5'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 292'-9"
WIDTH	= 29'-10"
AREA	= 8,744 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 265
REMOVAL COST	= $ -
TOTAL COST	= $ 2,314,000

ALTERNATIVE 2

PLANNING STUDY

NB SR-65 ON RAMP

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_CD3-a-gp01.dgn

CONTRACT NO.: X

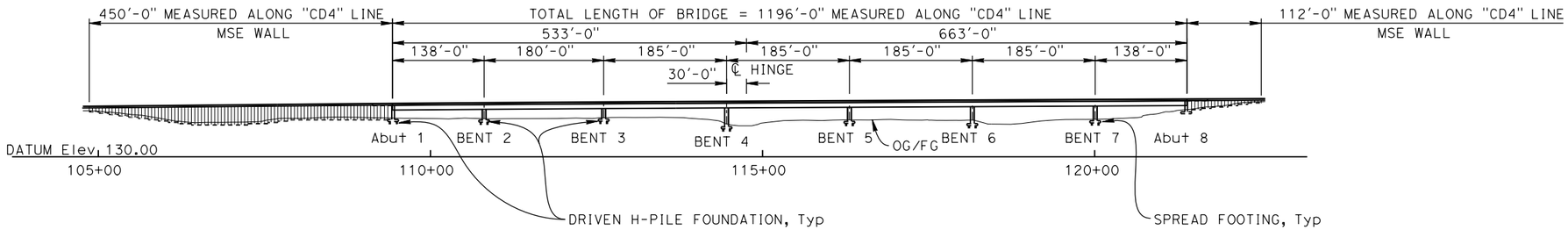
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:51

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

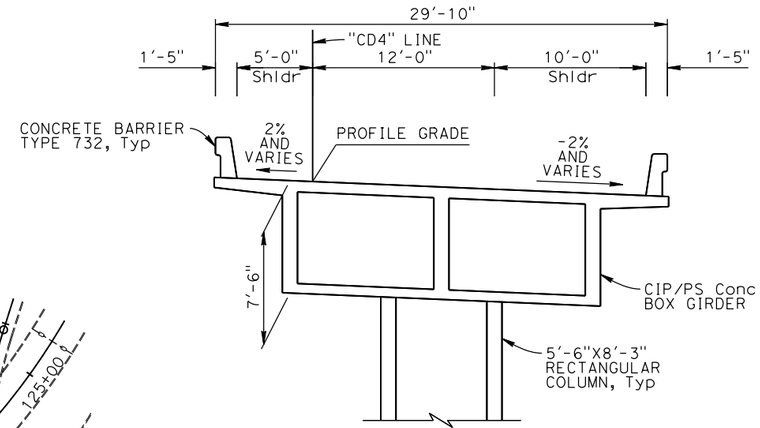
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'



TYPICAL SECTION

1" = 5'

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1196'-0"
WIDTH	= 29'-10"
AREA	= 35,717 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 246
REMOVAL COST	= $ -
TOTAL COST	= $ 8,771,000

LEGEND
Indicates Existing Structure
Indicates New Construction

① CURVE DATA
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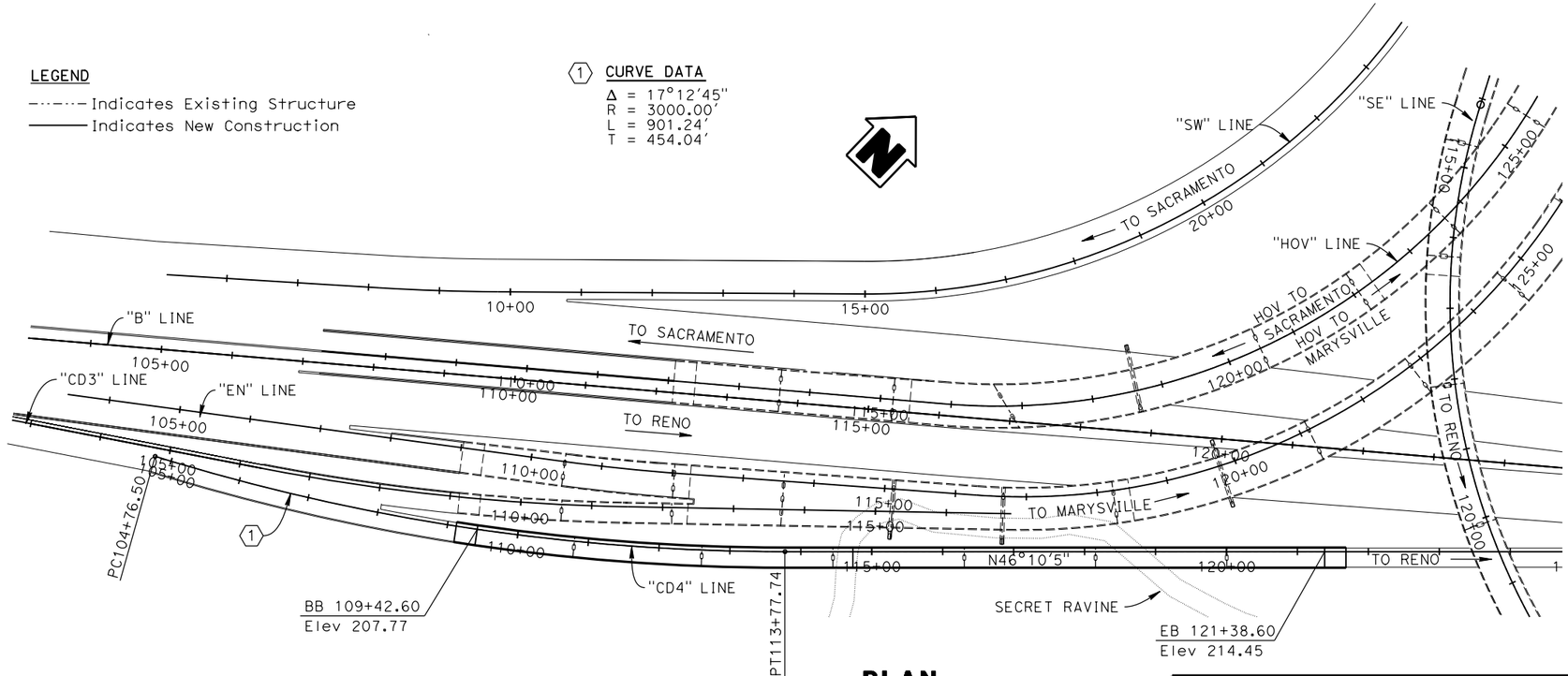
R = 3000.00'
L = 901.24'
T = 454.04'



PLAN

1" = 100'

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
EB I-80 ON RAMP

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:51

FILE => 418554_alt2_CD4-a-gp01.dgn

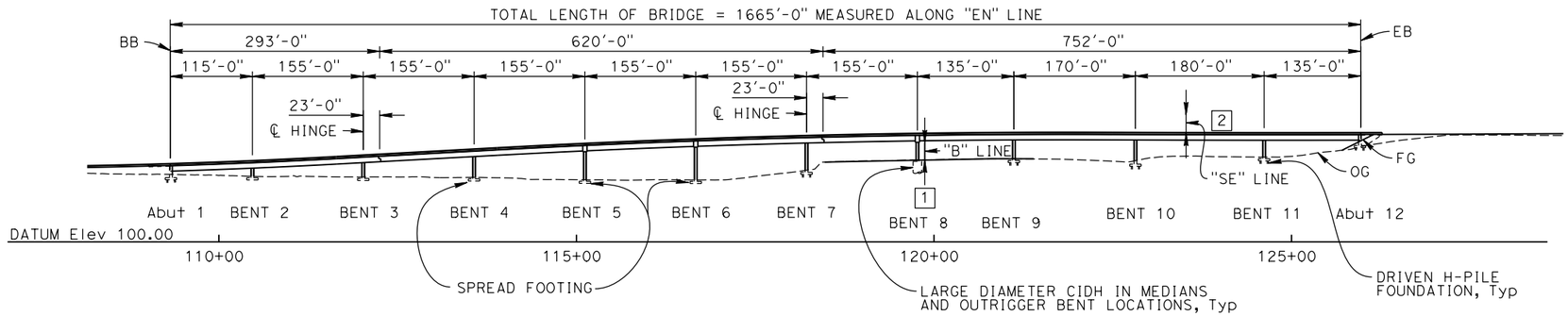
ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

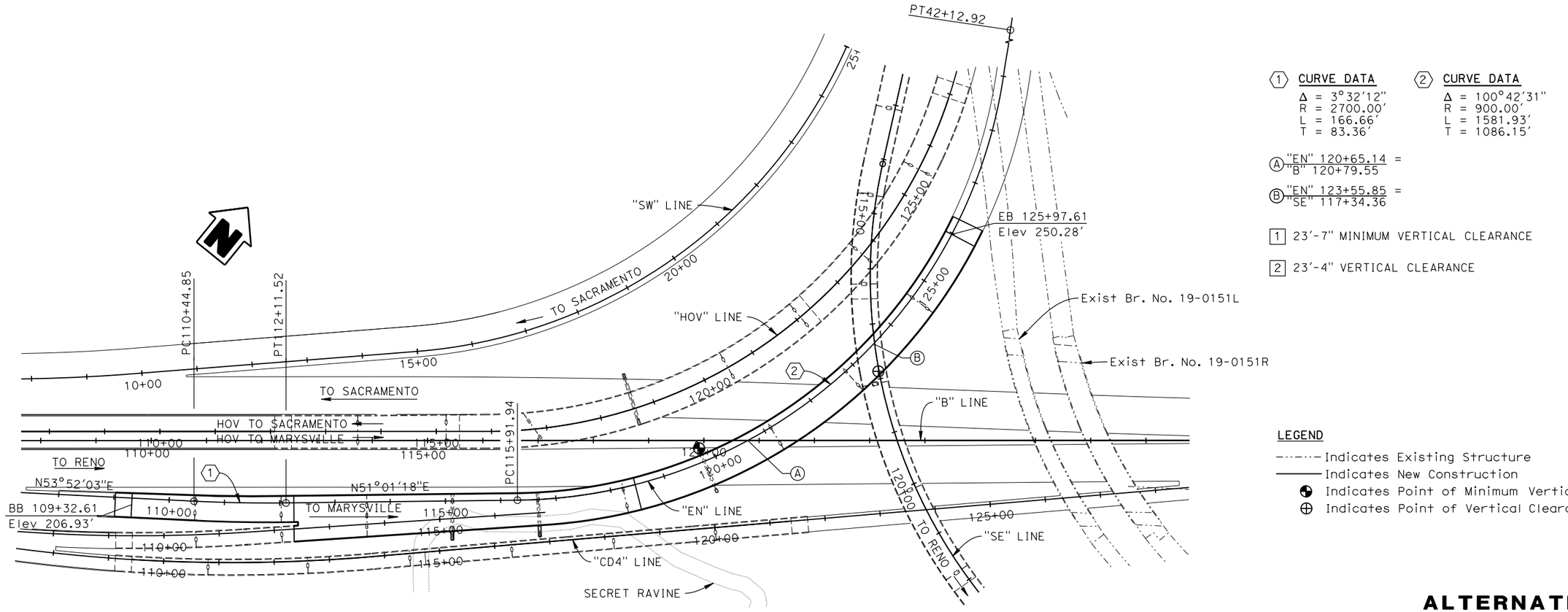


DEVELOPED ELEVATION

1" = 100'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 1665'-0"
WIDTH	= 48'-11" TO 84'-6"
AREA	= 103,536 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 170
REMOVAL AREA *	= 12,702 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 17,834,000

* REMOVAL OF BR. NO. 19-0151R



PLAN

1" = 100'

〈1〉 **CURVE DATA**
Δ = 3°32'12"
R = 2700.00'
L = 166.66'
T = 83.36'

〈2〉 **CURVE DATA**
Δ = 100°42'31"
R = 900.00'
L = 1581.93'
T = 1086.15'

Ⓐ "EN" 120+65.14 = "B" 120+79.55

Ⓑ "EN" 123+55.85 = "SE" 117+34.36

[1] 23'-7" MINIMUM VERTICAL CLEARANCE

[2] 23'-4" VERTICAL CLEARANCE

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

ALTERNATIVE 2

PLANNING STUDY

E80/N65 CONNECTOR (1 OF 2)

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14
DRAWN BY PATRICK WALKER	DATE 12/16/14
CHECKED BY MARK BRADY	DATE 12/16/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

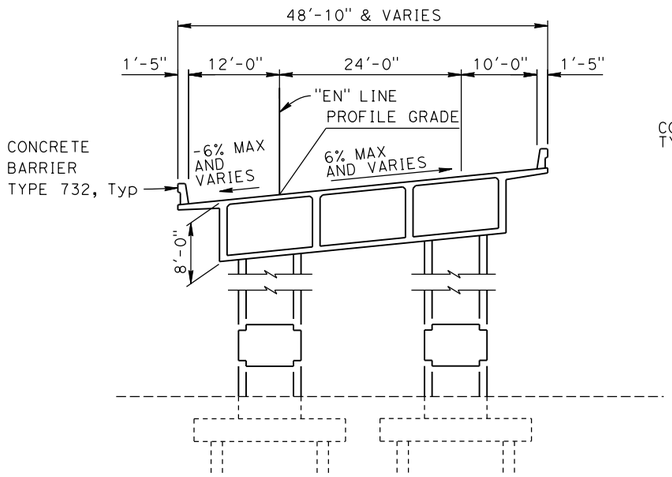
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:51

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

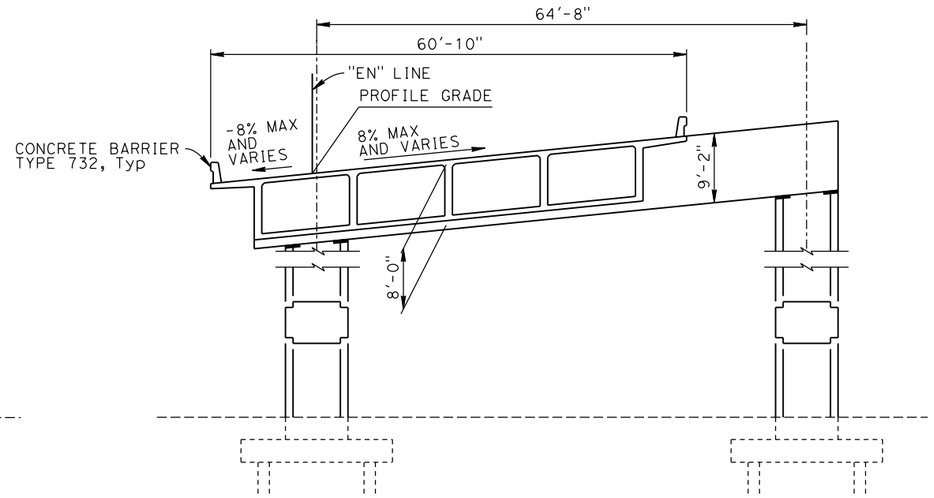
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION - FRAME 1

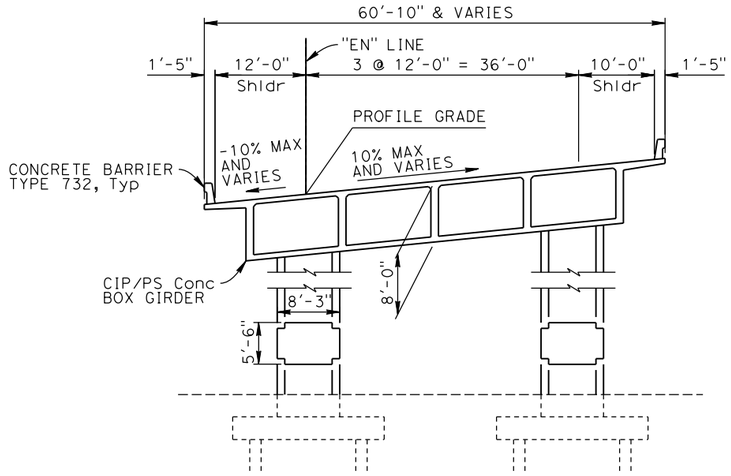
1" = 10'



NOTE: BENT 6 SHOWN, BENT 5 SIMILAR

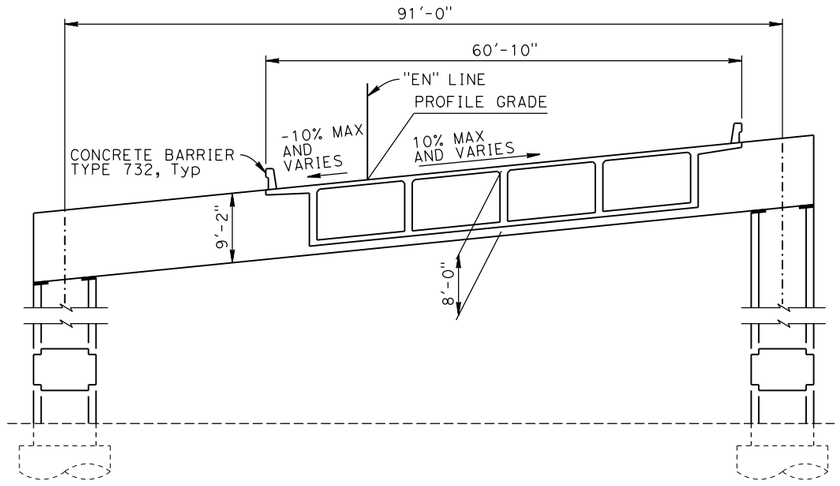
TYPICAL SECTION AT BENT 6

1" = 10'



TYPICAL SECTION - FRAMES 2,3,4

1" = 10'



TYPICAL SECTION AT BENT 8

1" = 10'

LEGEND

Indicates Existing Structure

Indicates New Construction

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2

PLANNING STUDY

E80/N65 CONNECTOR (2 OF 2)

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:51

FILE => 418554_alt2_EN-a-gp02.dgn

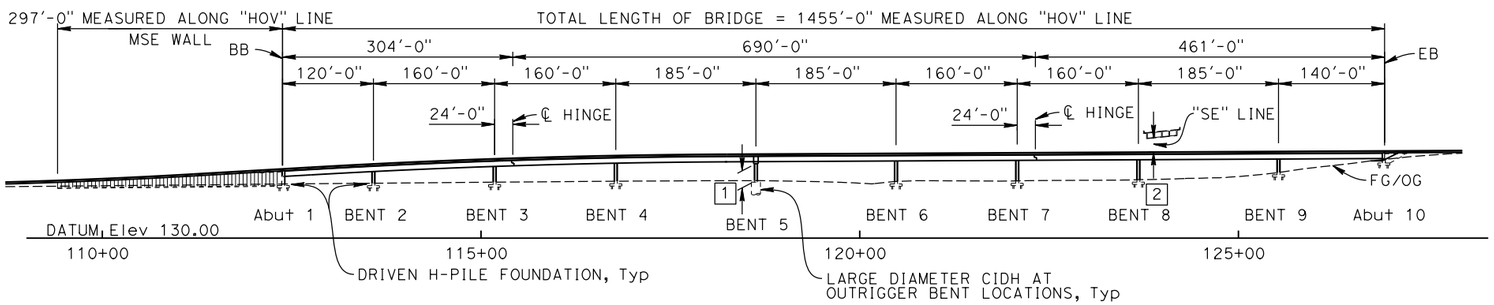
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 104°22'22"
R = 880.00'
L = 1603.05'
T = 1133.94'

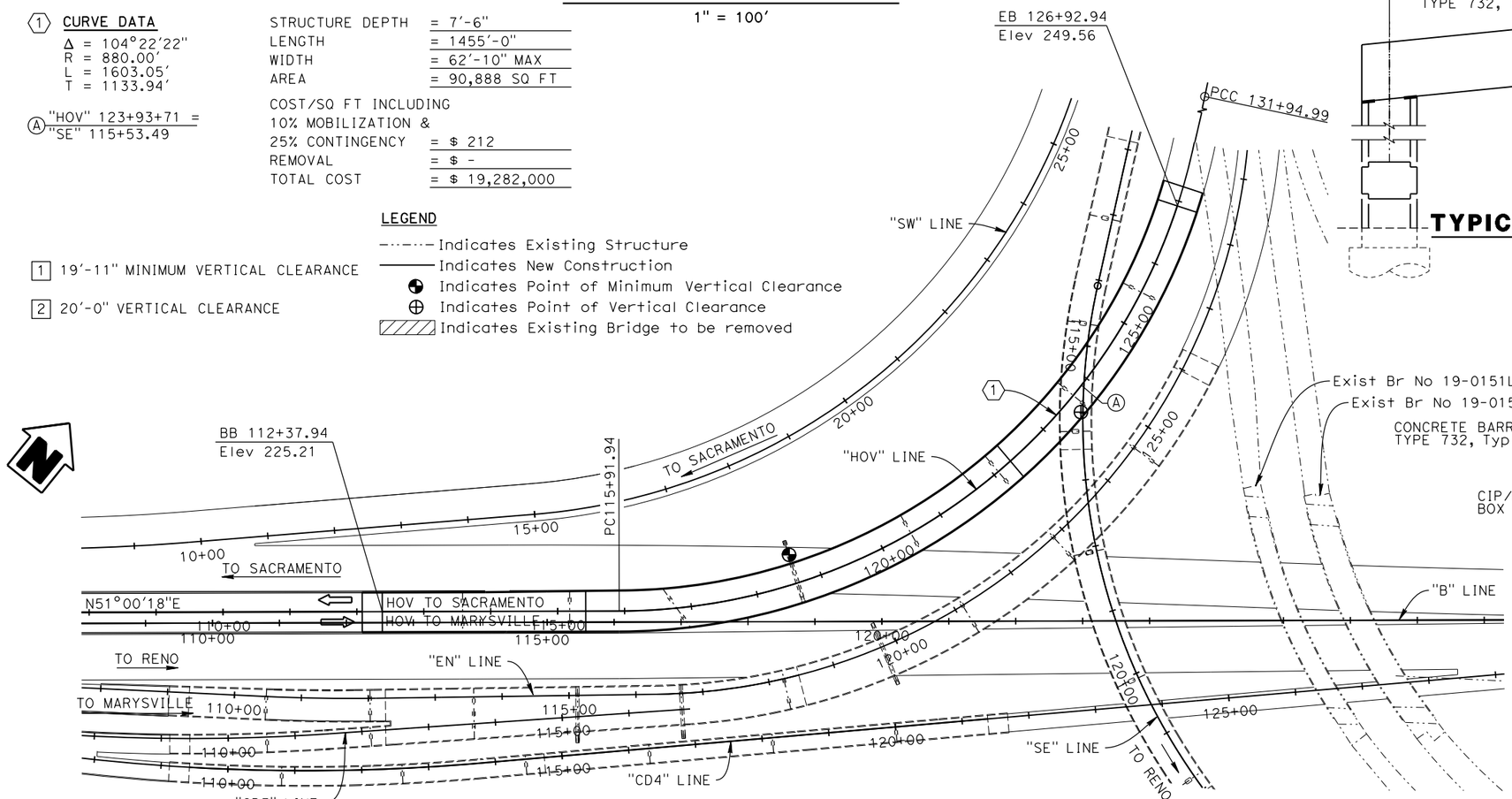
(A) "HOV" 123+93+71 = "SE" 115+53.49

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1455'-0"
WIDTH	= 62'-10" MAX
AREA	= 90,888 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 212
REMOVAL	= $ -
TOTAL COST	= $ 19,282,000

1 19'-11" MINIMUM VERTICAL CLEARANCE

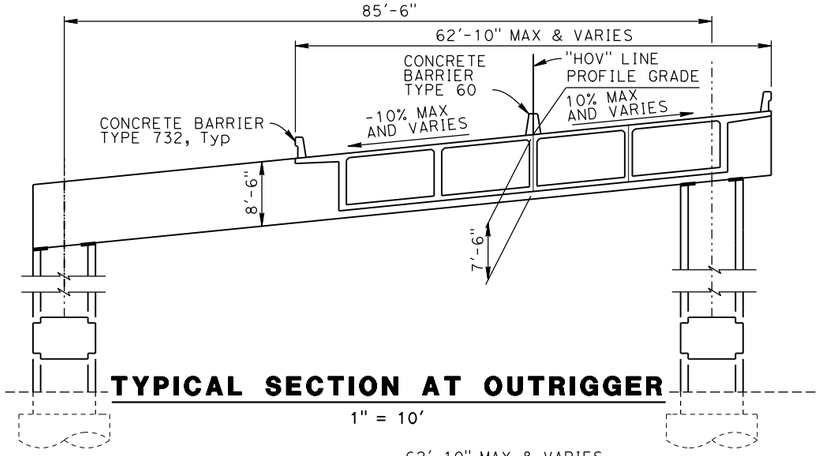
2 20'-0" VERTICAL CLEARANCE

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Bridge to be removed



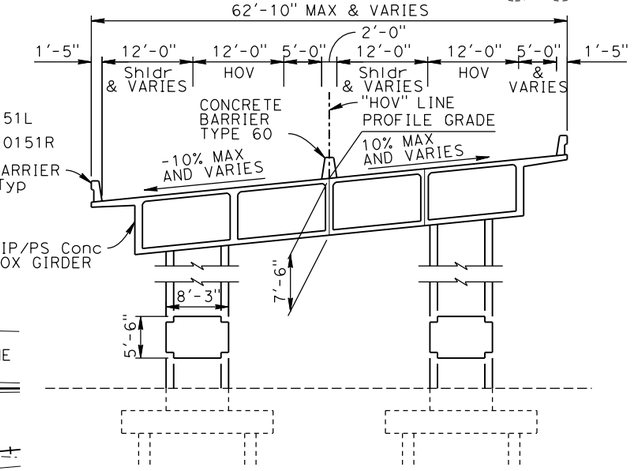
PLAN

1" = 100'



TYPICAL SECTION AT OUTRIGGER

1" = 10'



TYPICAL SECTION

1" = 10'

ALTERNATIVE 2

PLANNING STUDY

80/65 HOV CONNECTOR

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14
DRAWN BY PATRICK WALKER	DATE 12/16/14
CHECKED BY MARK BRADY	DATE 12/16/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

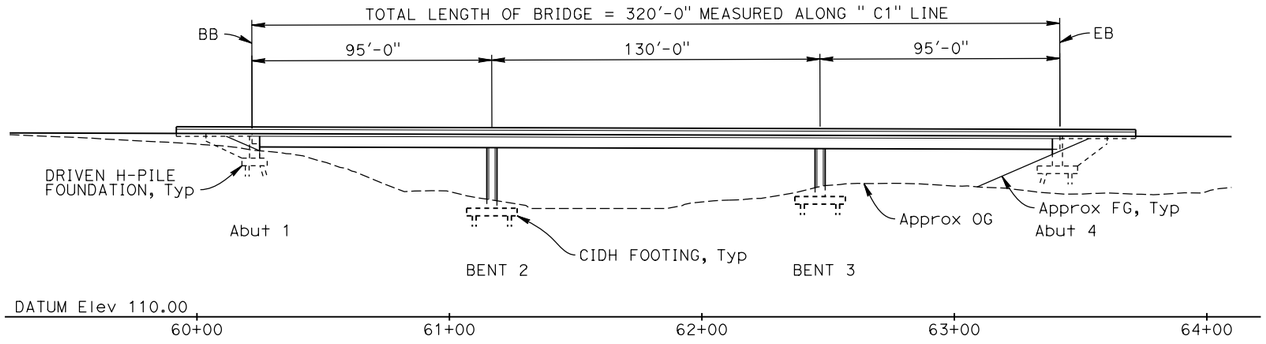
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:52

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

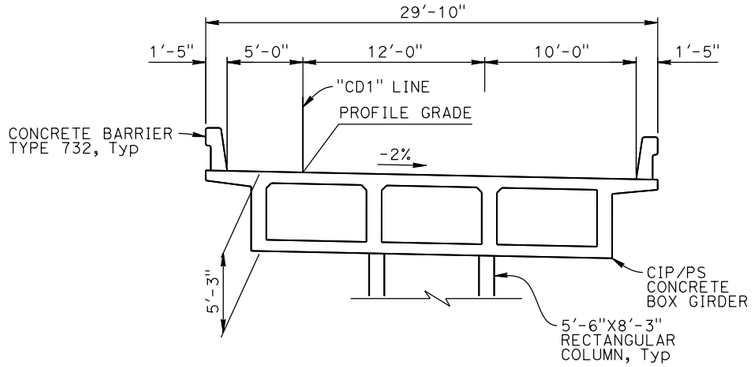
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 30'



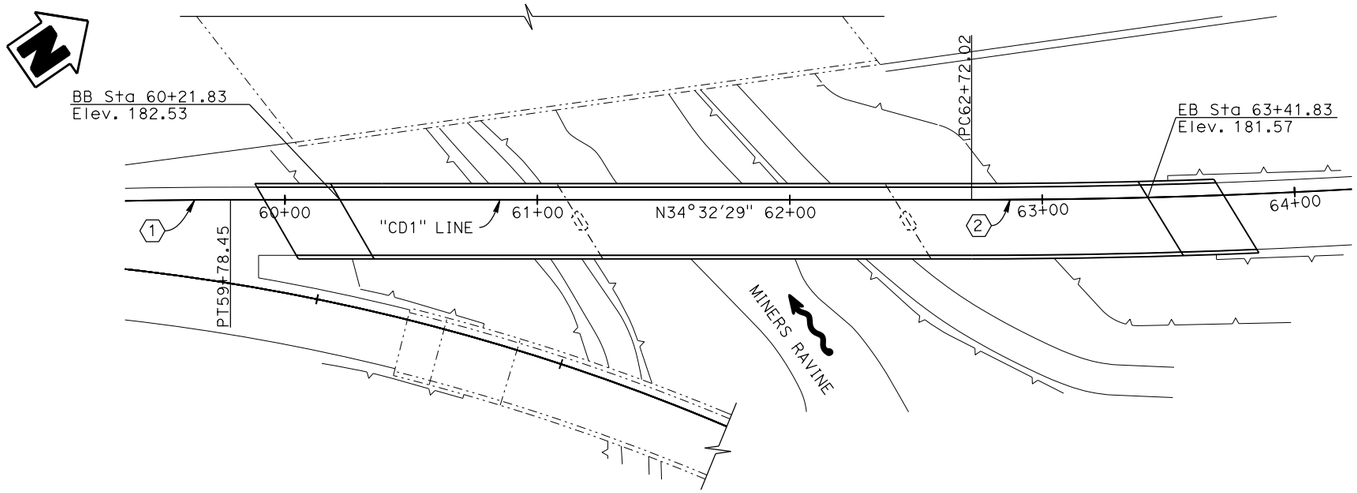
TYPICAL SECTION

1" = 5'-0"

STRUCTURE DEPTH	= 5'-3"
LENGTH	= 320'-0"
WIDTH	= 29'-10"
AREA	= 9,553 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 335
TOTAL COST	= $ 3,205,000

① CURVE DATA
Δ = 6°0'57"
R = 1900.00'
L = 199.49'
T = 99.84'

② CURVE DATA
Δ = 6°51'47"
R = 2700.00'
L = 323.41
T = 161.90'



PLAN

1" = 30'

LEGEND

Indicates Existing Structure

Indicates New Construction

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2

PLANNING STUDY

MINERS RAVINE BRIDGE

BRIDGE NO.	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:52

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_MR-a-gp01.dgn

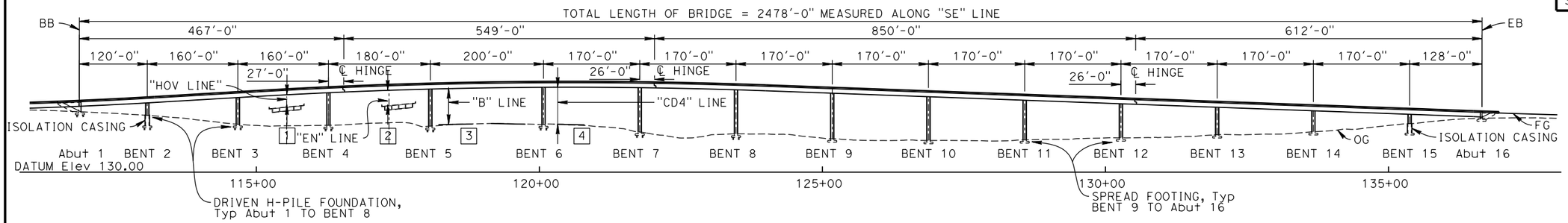
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



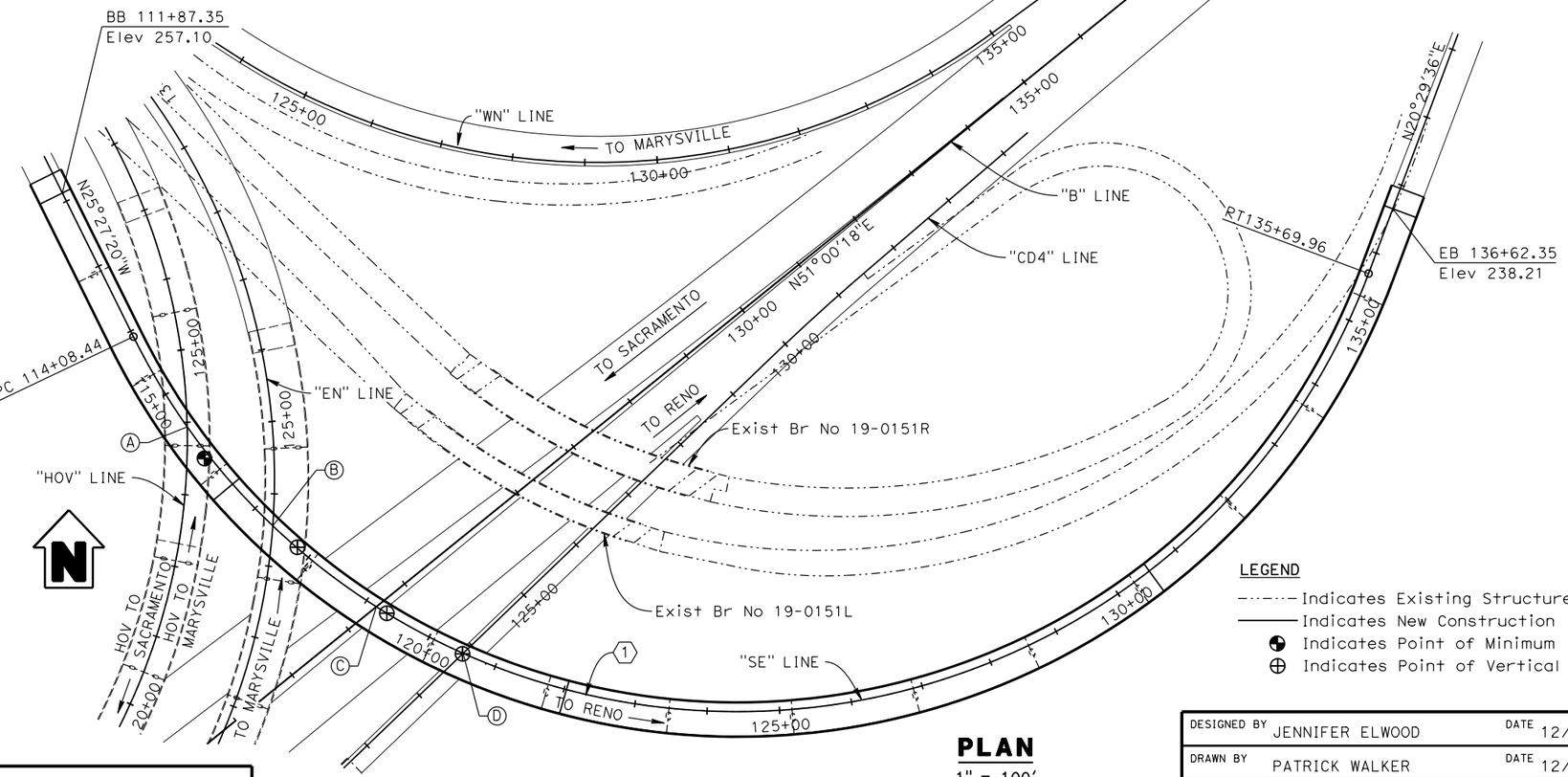
DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 133°10'03"
R = 930.00'
L = 2161.52'
T = 2147.44'

Ⓐ "SE" 115+53.49 = "HOV" 123+93.71
Ⓑ "SE" 117+34.36 = "EN" 123+55.85
Ⓒ "SE" 119+17.08 = "B" 123+48.55
Ⓓ "SE" 120+53.16 = "CD4" 23+82.92

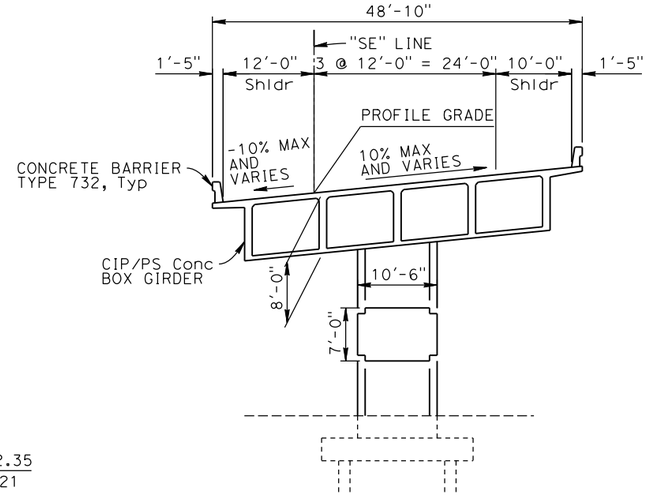
1 20'-0" MINIMUM VERTICAL CLEARANCE
2 23'-4" VERTICAL CLEARANCE
3 62'-0" VERTICAL CLEARANCE
4 66'-3" VERTICAL CLEARANCE



PLAN

1" = 100'

LEGEND
Indicates Existing Structure
Indicates New Construction
Indicates Point of Minimum Vertical Clearance
Indicates Point of Vertical Clearance



TYPICAL SECTION

1" = 10'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 2478'-0"
WIDTH	= 48'-10"
AREA	= 121,258 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 211
REMOVAL AREA *	= 9,222 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 25,958,000

* REMOVAL OF BR. NO. 19-0151L

ALTERNATIVE 2

PLANNING STUDY

S65/E80 CONNECTOR

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

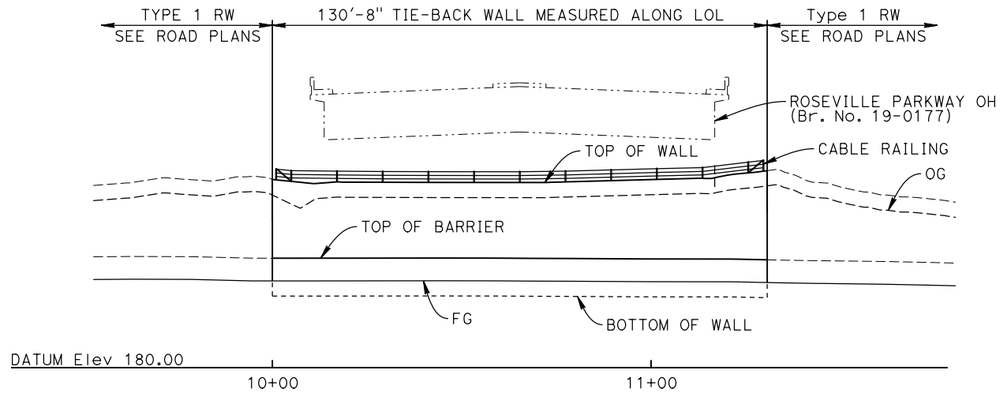
PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

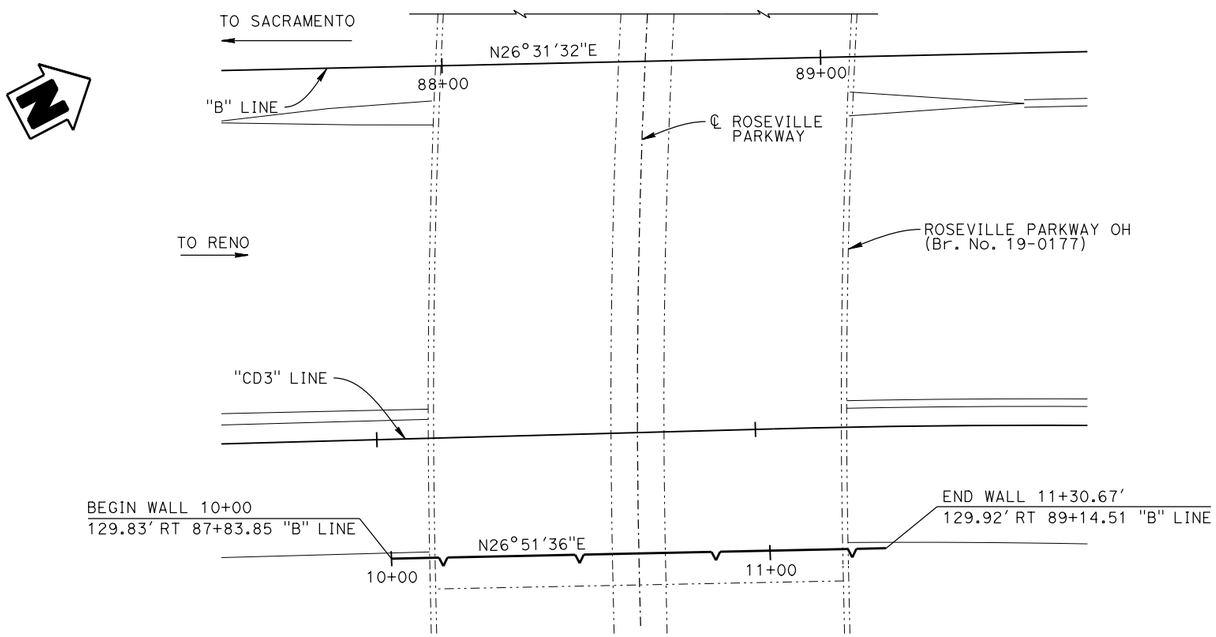
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



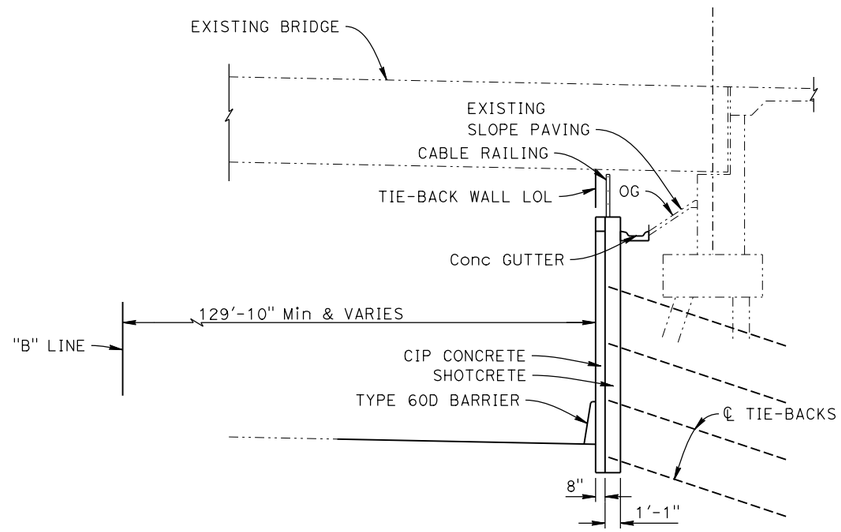
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



PLAN

1" = 20'



TYPICAL SECTION

3/16" = 1'

STRUCTURE LENGTH = 130'-8"
HEIGHT = 13'-6" TO 15'-0"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 88
TOTAL COST = $ 174,000

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2

PLANNING STUDY

ROSEVILLE PKWY TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

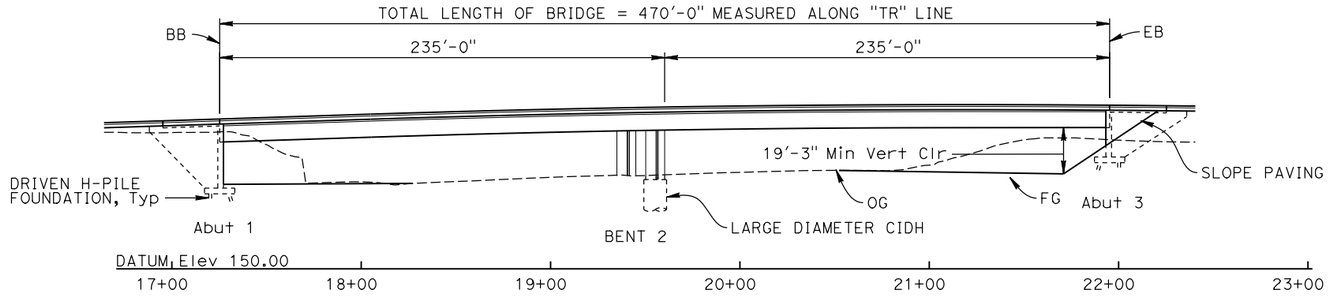
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:52

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

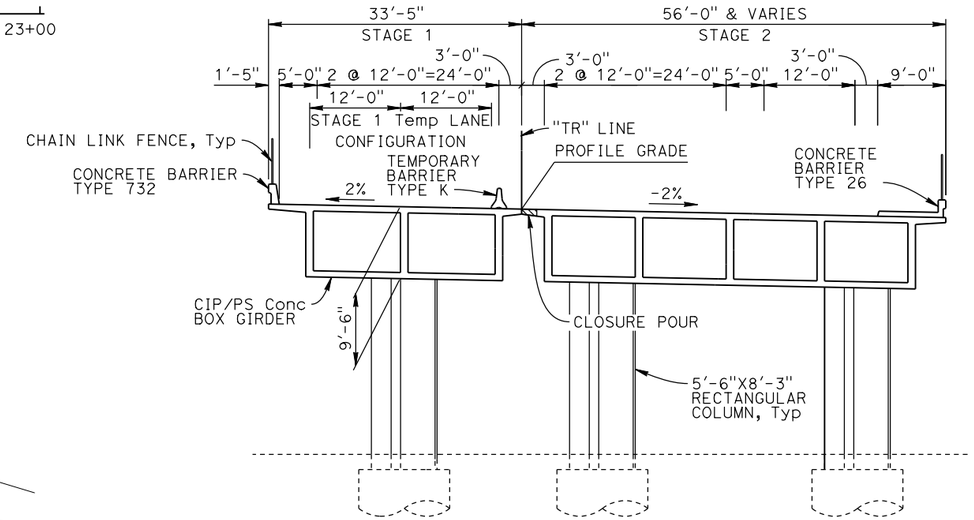
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 40'

STRUCTURE DEPTH	= 9'-6"
LENGTH	= 470'-0"
WIDTH	= 89'-0" & VARIES
AREA	= 42,496 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 216
REMOVAL AREA	= 22,570 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 9,518,000

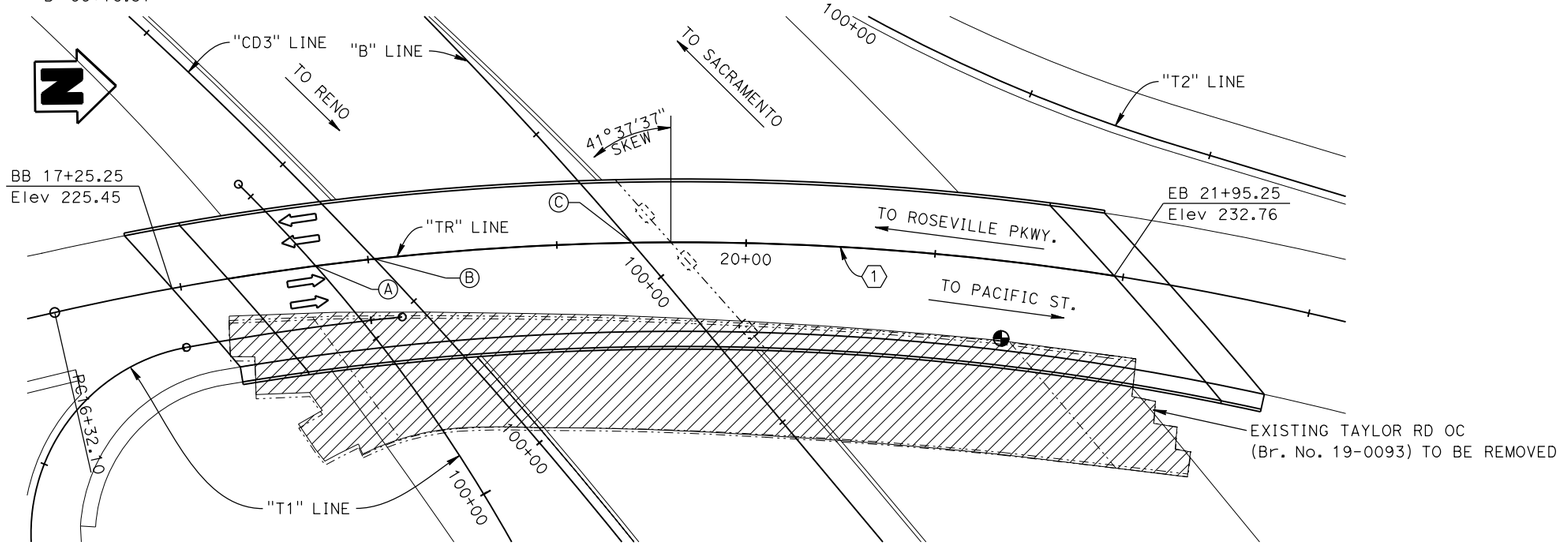


TYPICAL SECTION

1" = 10'

① CURVE DATA
Δ = 28°26'05"
R = 1491.00'
L = 739.96'
T = 377.76'

Ⓐ "TR" 17+72.15 = "T1" 98+50.18
Ⓑ "TR" 18+03.41 = "CD3" 98+69.54
Ⓒ "TR" 19+39.71 = "B" 99+76.31



PLAN

1" = 40'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge to be removed

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
TAYLOR ROAD OC (REPLACE)

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

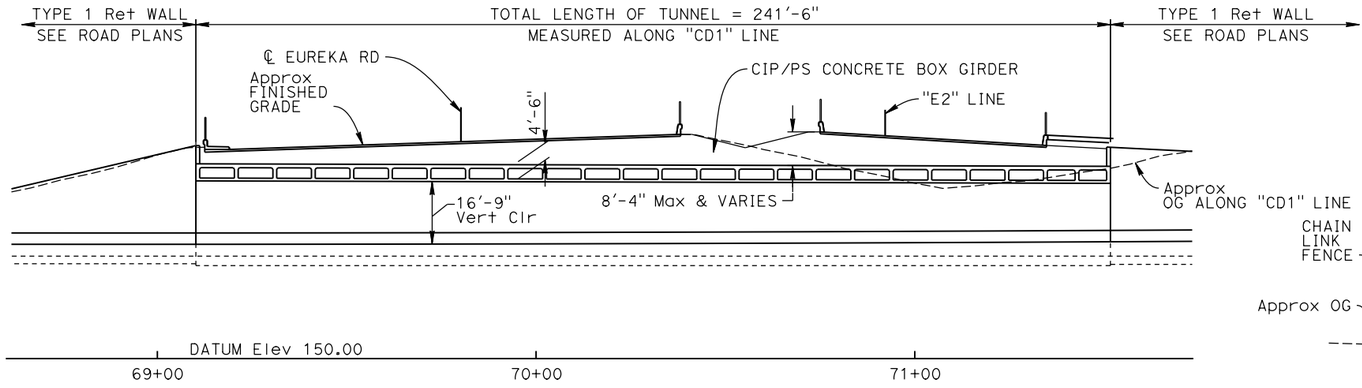
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:52

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

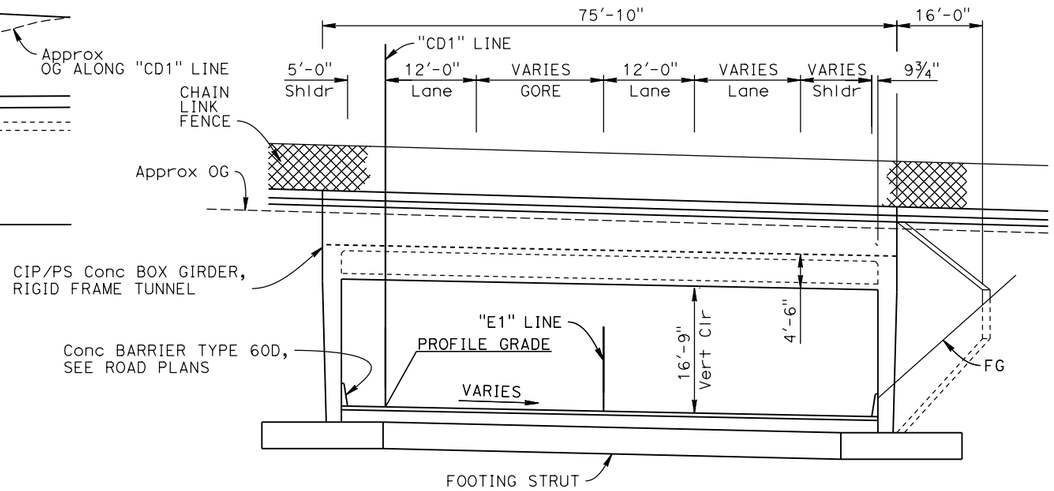
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



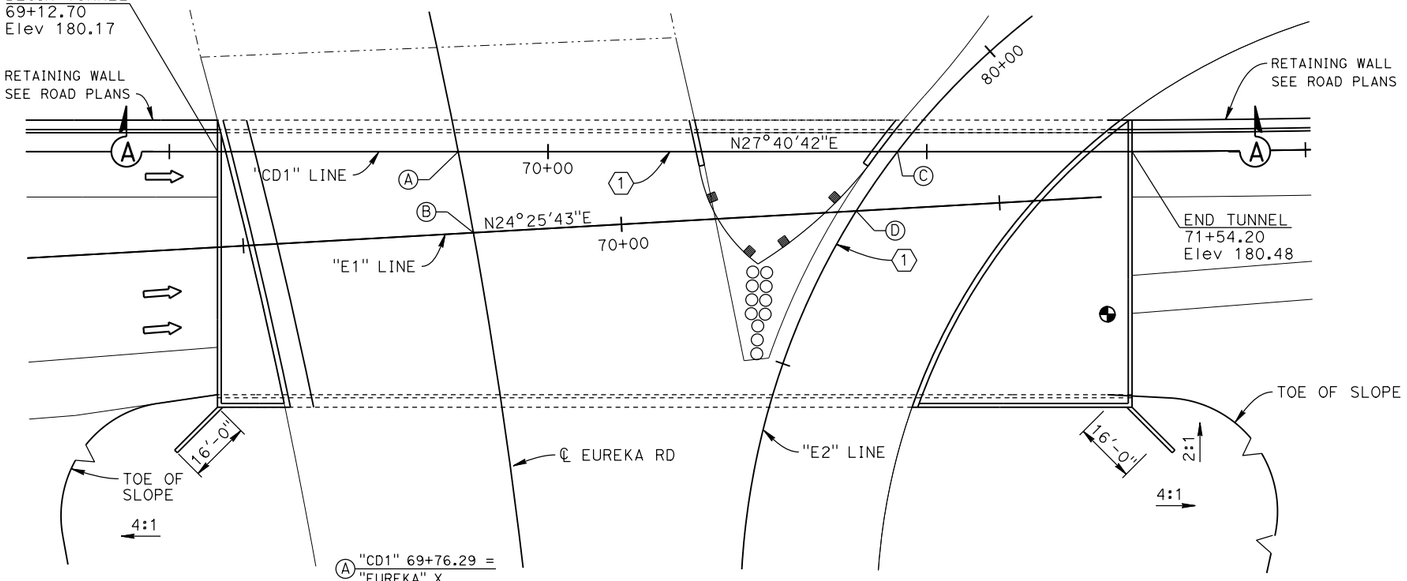
SECTION A-A

1" = 20'



TYPICAL SECTION AT OPENING

1" = 10'



PLAN

1" = 20'

① CURVE DATA
Δ = 86°48'04"
R = 200.00'
L = 302.99'
T = 189.13'

Ⓐ "CD1" 69+76.29 = "EUREKA" X
Ⓑ "E1" 69+60.86 = "EUREKA" X
Ⓒ "CD1" 70.92.29 = "E2" 79+44.83
Ⓓ "E1" 70+62.10 = "E2" 79+44.83

STRUCTURE DEPTH	= 4'-6"
LENGTH	= 241'-6"
WIDTH	= 75'-10"
AREA	= 18,314 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 454
TOTAL COST	= $ 8,319,000

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	MARK BRADY	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	JENNIFER ELWOOD	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
EUREKA RD ON RAMP UC

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

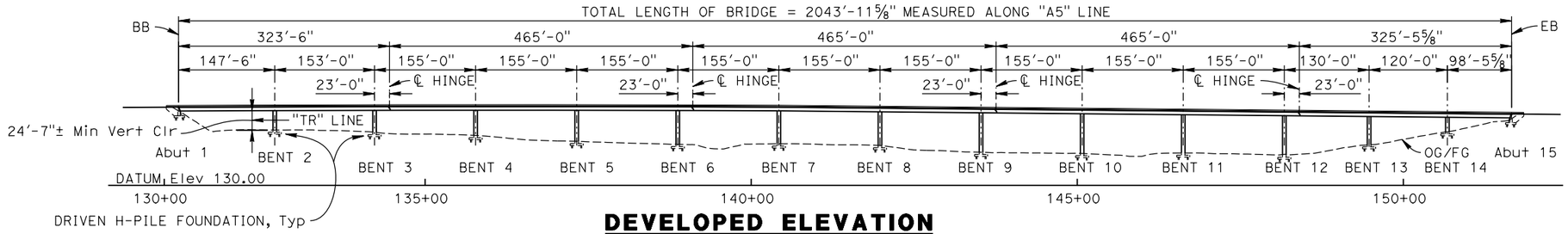
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:52

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

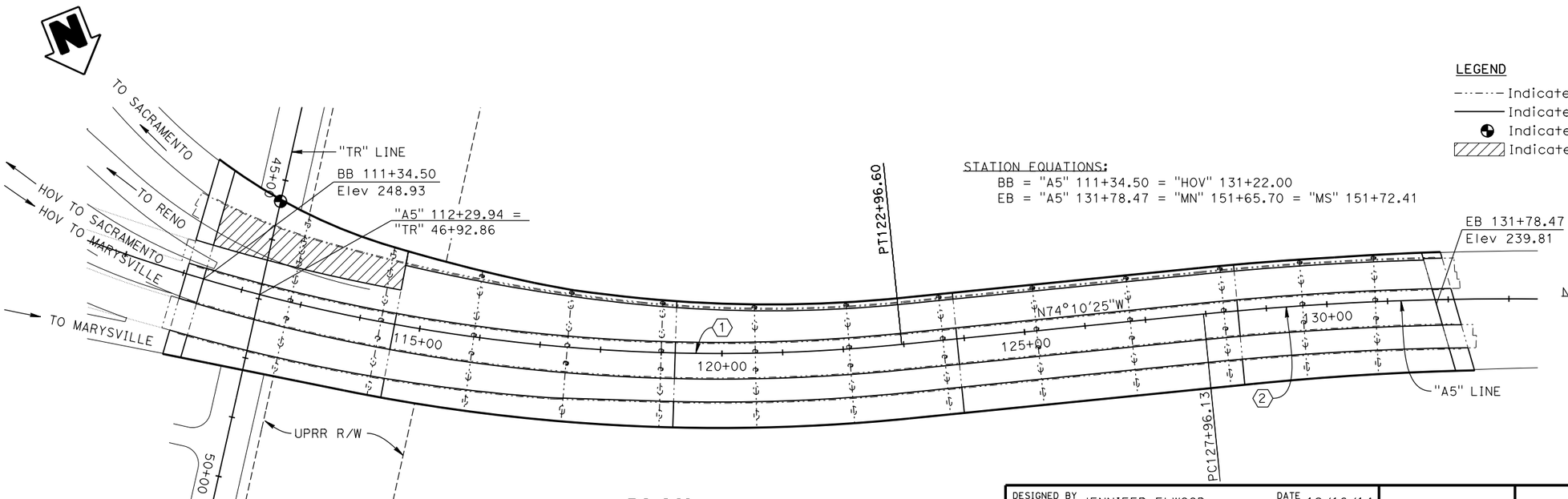


DEVELOPED ELEVATION
1" = 100'

STRUCTURE DEPTH	= 6'-0"
LENGTH	= 2043'-11⅝"
WIDTH LEFT	= 10'-9" TO 59'-2"
WIDTH CENTER	= 60'-6"
WIDTH RIGHT	= 32'-10" TO 41'-6"
AREA LEFT	= 49,181 SQ FT
AREA CENTER	= 124,074 SQ FT
AREA RIGHT	= 84,607 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 248
REMOVAL AREA	= 36,893 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 62,345,000

① **CURVE DATA**
Δ = 35°10'43"
R = 3000.00'
L = 1841.95'
T = 951.04'

② **CURVE DATA**
Δ = 16°14'18"
R = 5000.00'
L = 1417.06'
T = 713.31'



PLAN
1" = 100'

STATION EQUATIONS:
BB = "A5" 111+34.50 = "HOV" 131+22.00
EB = "A5" 131+78.47 = "MN" 151+65.70 = "MS" 151+72.41

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge Removal

NOTE:
For Typical Sections, see E. Roseville Viaduct Widen (2 of 2).

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
E. ROSEVILLE VIADUCT (WIDEN) 1 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_VIADUCT-a-gp01.dgn

CONTRACT NO.: X

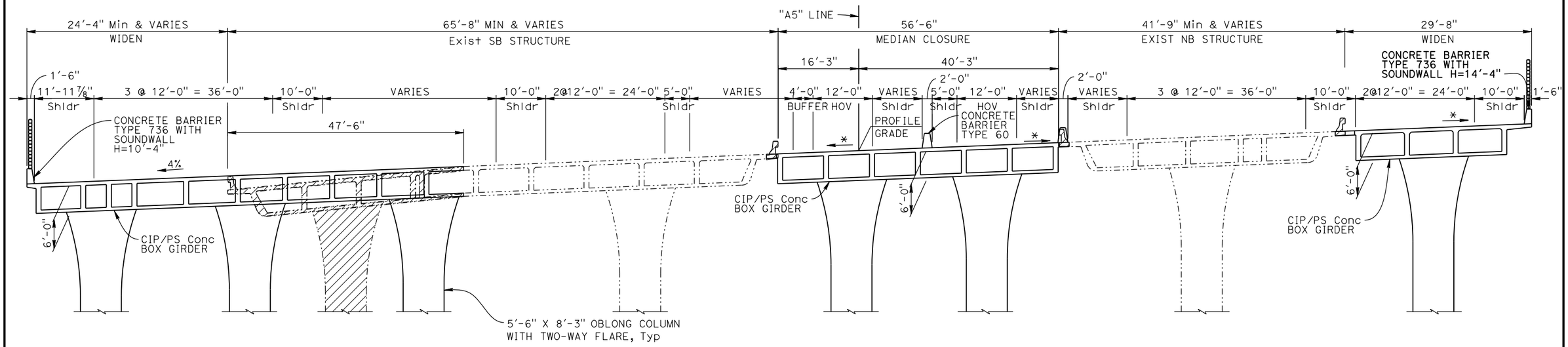
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 23:34

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

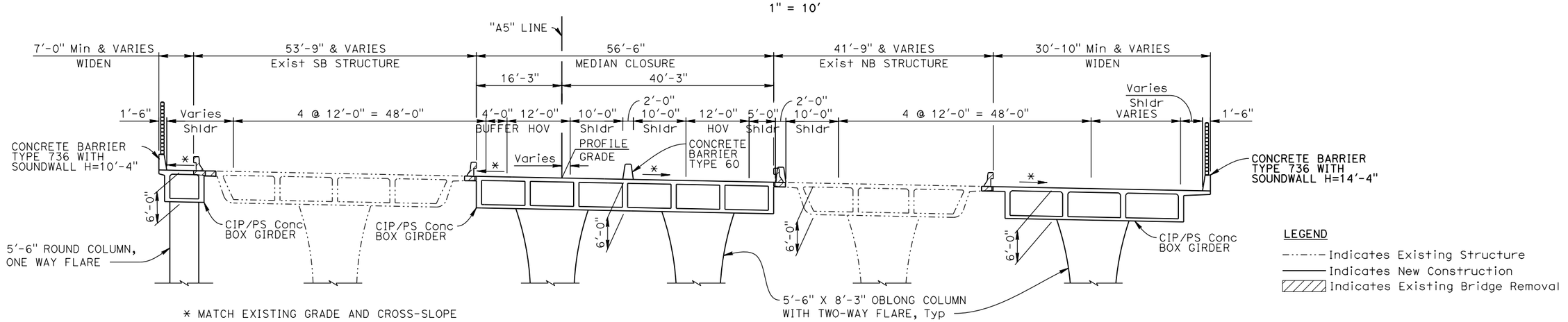
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION-FRAME 1

1" = 10'



LEGEND

- Indicates Existing Structure
- Indicates New Construction
- Indicates Existing Bridge Removal

TYPICAL SECTION-FRAMES 2,3,4,5

1" = 10'

ALTERNATIVE 2

PLANNING STUDY

E. ROSEVILLE VIADUCT (WIDEN) 2 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14	MARK S. BRADY, PROJECT ENGINEER
DRAWN BY PATRICK WALKER	DATE 12/16/14	
CHECKED BY MARK BRADY	DATE 12/16/14	
APPROVED	DATE	

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_VIADUCT-a-gp02.dgn

CONTRACT NO.: X

USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:52

Advance Planning Study

For

I-80/SR-65 Interchange Improvements Project

Alternative 3
Taylor Road Interchange Eliminated

Prepared for:

Placer County
Tranportation
Planning Agency

Submitted by:

CH2MHILL

2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833

REGISTERED PROFESSIONAL ENGINEER
JENNIFER L. ELWOOD
NO. C64034
EXP. 9/30/16
CIVIL
STATE OF CALIFORNIA

December, 2014

I-80/SR-65 Interchange Improvements
Rocklin, California

Alternative 3
Taylor Road Interchange Eliminated

Contents

	Page No.
Introduction	2
Proposed Structure Types	2
Structure Descriptions	3
Corridor Aesthetics	5
Design Assumptions	6
Preliminary Structure Foundations	7
Construction Cost Summary	8

Attachments

A Consultant Prepared Advance Planning Study (APS) Checklist

B Advance Planning Study Cost Estimates

C Advance Planning Study Plans

Introduction

The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes to improve the Interstate 80/State Route 65 (I-80/SR 65) interchange in Placer County, California, in order to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards. Construction of the proposed improvements has independent utility. The project is not dependent on other projects or improvements to meet the purpose and need.

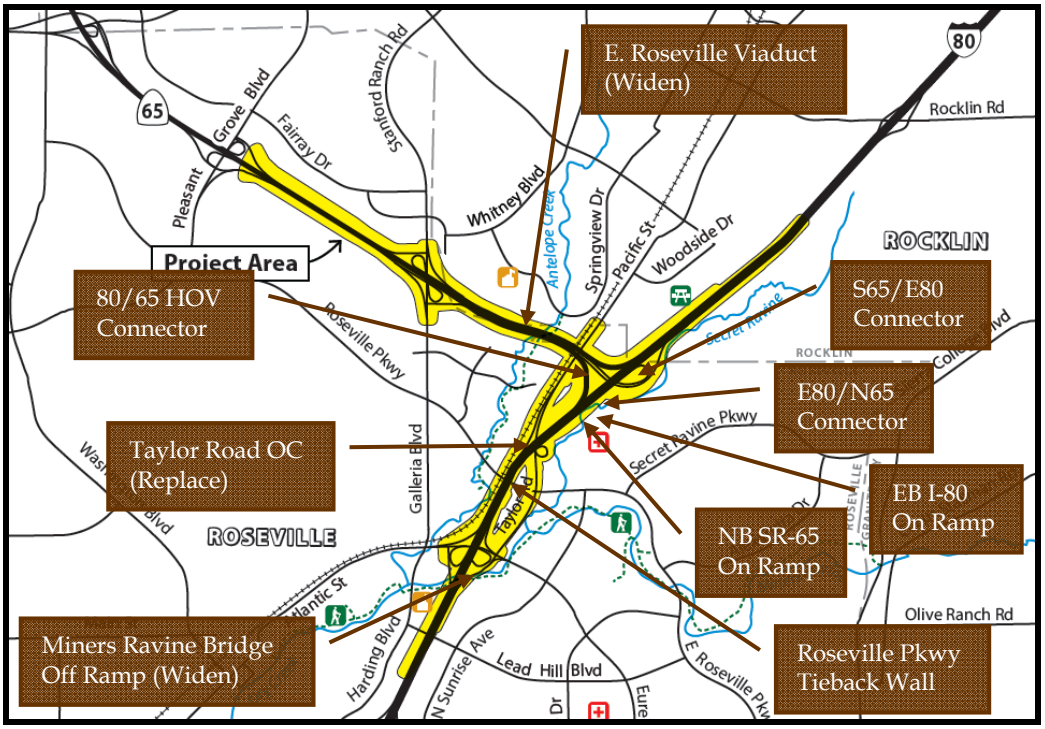
This memorandum outlines the design considerations used in the preparation of Advance Planning Studies for the I-80/SR-65 Interchange Improvements Project. The project includes three alternatives which are briefly described as follows:

- Alternative 1 - Taylor Road Full Access Interchange
- Alternative 2 - Collector-Distributor System Ramps
- Alternative 3 - Taylor Road Access Eliminated

This memorandum addresses Alternative 3.

Proposed Structure Types

Eight bridge structures and one tie-back wall are proposed for this alternative. Details of the structures are outlined below. Bridge structures are proposed to be cast-in-place, post-tensioned concrete box girder superstructures, unless noted otherwise. Abutments are short seat abutments supported with pile or spread foundations. Bents are supported on pile or spread foundations where feasible, or supported on large diameter drilled shafts where foundation space is limited (in the I-80 median or at outriggers) or near waterways.



Location of Structures

Structure Descriptions

- Northbound SR-65 On Ramp
  Construct new On-ramp to Northbound SR-65. Structure ties into E80/N65 Connector.
  - Total structure length = 292'-9", 2 spans (115', 155')
  - Structure depth = 8'-0", Structure width = 29'-10"
  - Single column bents, 5'-6" x 8'-3" rectangular columns with corner notches

- Eastbound I-80 On Ramp
  Construct new On-ramp to Eastbound I-80.
  - Total structure length = 1196', 2 frames, 7 spans (maximum span length 185')
  - Structure depth = 7'-6", Structure width = 29'-10"
  - Single column bents, 5'-6" x 8'-3" rectangular columns with corner notches
  - 3000' radius curve

- E80/N65 Connector
  Construct new Eastbound I-80 to Northbound SR-65 connector.
  - Total structure length = 1665', 3 frames, 11 spans (maximum span length 180')
  - Structure depth = 8'-0", Structure width = 48'-10" to 60'-10"
  - Two column bents, 5'-6" x 8'-3" rectangular columns with corner notches
  - Outrigger bents where alignment crosses Secrete Ravine and westbound I-80
  - 900' radius curve

- 80/65 HOV Connector
  Construct new connector that joins HOV lanes in the median of I-80 to median of SR-65.
  - Total structure length = 1455', 3 frames, 9 spans (maximum span length 185')
  - Structure depth = 7'-6", Structure width = 62'-10" and varies
  - Two column bents, 5'-6" x 8'-3" rectangular columns with corner notches
  - Outrigger bent where alignment eastbound I-80
  - 880' radius curve

- Miners Ravine Bridge Off Ramp (Widen)
  Construct left widen on existing structure.
  - Total structure length = 470'-6", 4 spans (maximum span length 133'-9")
  - Structure depth = 5'-6"
  - Widen structure width = 11'-8", total structure width = 39'-2"
  - Single column bents, 5'-6" octagonal columns

- S65/E80 Connector
  Construct new Southbound SR-65 to Eastbound I-80 connector.
  - Total structure length = 2478', 4 frames, 15 spans (maximum span length 200')
  - Structure depth = 8'-0", Structure width = 48'-10"
  - Single column bents, 7'-0" x 10'-6" rectangular columns with corner notches
  - 930' radius curve

- Taylor Road Overcrossing (Replace)
  Remove and replace the existing overcrossing over I-80. Construct in two stages.
  - Two spans (225', 235')
  - Structure depth = 9'-6", Structure width = 89'-0"
  - Three column bents for final configuration, 5'-6" x 8'-3" rectangular columns with corner notches
  - High skew (between 32° and 50°) at pier and abutments

- East Roseville Viaduct (Widen)
  Construct left widen, right widen, and median closure of existing right and left structures.
  - Total structure length = 2044', 5 frames, 14 spans (maximum span length 155'). Proposed widening matches existing spans & frames.
  - Existing & proposed structure depth = 6'-0"
  - Left (SB) widening is proposed to be supported by round columns, flared in the longitudinal direction. Median closure (HOV) and Right (NB) widen are proposed to be supported by oblong columns, flared longitudinally and transversely to match existing.
  - Left (SB) widening width is increased to accommodate minimum width (1' overhang, 1' girders & 5'6" cell width to develop reinforcement of a 5'-6"round column).
  - A portion of Frame 1 is replaced on the Left (SB) structure with a constant 4% cross slope to maximize vertical clearance over the railroad. Vertical clearance over the UPRR line is constrained.
  - Sound walls are proposed on both NB and SB edges of deck.

- Roseville Parkway Tieback Wall
  Construct new tieback wall on south side of Roseville Parkway OC over I-80.
  - Length of wall = 130'-8"
  - Maximum height = 15'-0

Corridor Aesthetics

I-80 Corridor

The I-80 corridor (Atlantic Street OC, Roseville Parkway OC, Taylor Road OC, and SR-65 Interchange) is composed of cast-in-place, post-tensioned concrete box girder bridges. Exterior girders have a vertical face. Columns are rectangular with corner notches, reinforced with interlocking spirals, and are flared longitudinally.

I-80 at Atlantic Ave

I-80 at Roseville Parkway

SR-65 Corridor

The existing East Roseville Viaduct structure is a cast-in-place, post-tensioned concrete box girder. The columns are oblong with two-way flares. Exterior girders are sloped 3:1 and are rounded at the soffit line.

Sound wall aesthetics will be determined during PS&E phase.

Design Assumptions

The following design assumptions were used in the development of the Advanced Planning Studies:

- Outriggers are used at locations where it is not feasible to place a column directly under the superstructure, or to avoid a waterway under the structure.
- A minimum depth-to-span ratio of 0.04 is used for continuous spans, and 0.045 is used for single spans per Bride Design Aids (BDA) 10-26.
- Typical section and overhang dimensions are detailed per Memo to Designers (MTD) 10-20.
- Per roadway design, an opening for four mixed-use lanes will be provided in each direction on I-80. Approximate depth of falsework was determined using BDA Table 10-2. Is it assumed that falsework tunnels (maximum falsework depth of 4'-0") will be used at Taylor Rd Overcrossing due to the high skew and staged construction.
- Bridge design will follow most current Caltrans standard and design guidelines including Load and Resistance Factor Design (LRFD) Specifications and Seismic Design Criteria.
- Seismic retrofit requirements will be considered during the design phase for the structures being widened. The existing East Roseville Viaduct was constructed in 1985. As-builts indicate confined columns, developed reinforcement, reasonable abutment seat widths, and restrained hinges. The adequacy of the entire widened viaduct will be confirmed during Type Selection and Final Design. Additional potential concerns that will be investigated are: integral column flares, displacement capacity of columns, and the stiffness irregularities of the ultimate widened structure due to column configuration.
- Falsework platforms are proposed over protected waterways to avoid disturbance inside waterway limits.
- The UPRR right-of-way perpendicular to E. Roseville Parkway (near Taylor Road) is 400 feet wide. Existing Bents 2 & 3 and Abutment 1 are within the ROW. The widening will require UPRR coordination. Proposed columns are aligned with existing bents and the proposed abutment is extended along the same bearing as the existing abutment to minimize impact.
- A minimal vertical clearance of 16'-6" is met by all structures. A minimum temporary 15'-0" vertical clearance is provided under falsework.
- The only utilities anticipated on the freeway structures are Corridor Operating System (COS) and lighting. Taylor Road UC has sufficient depth to accommodate utilities should they be identified during the PS&E phase.

Preliminary Structure Foundations

Soil and groundwater conditions are variable throughout the project area which makes different foundation types better suited for each structure location. The following table summarizes the suitable foundation types anticipated for each planned structure location. Subsurface investigation will need to be completed to verify suitable foundation types and design parameters.

PRELIMINARY STRUCTURE FOUNDATION TYPES		
Structure	**Proposed Abutment Type**	**Proposed Bent Type**
Northbound SR-65 On Ramp	Driven H-Piles.	Driven H-Piles.
Eastbound I-80 On Ramp	Driven H-Piles at Abut 1. Spread footing at Abut 8.	Driven H-Piles for Bents 2 thru 3. Spread footings for Bents 4 thru 7. MSE wall is at approach/abutment.
E80/N65 Connector	Driven H-piles.	Driven H-piles for Bents 2 thru 3 and Bents 7 thru 12. Spread footings for Bents 4 thru 6. Large diameter shaft in median and adjacent to I-80.
80/65 HOV Connector	Driven H-piles.	Driven H-piles. Large diameter shaft in median and adjacent to I-80. MSE wall at approach/abutment.
Miners Ravine Bridge Off Ramp (Widen)	Driven H-piles.	Spread footings.
S65/E80 Connector	Driven H-piles at Abut 1. Spread footing at Abut 16.	Driven H-piles from Bent 2 to Bent 8. Spread footings from Bent 9 to Bent 15.
Taylor Road Overcrossing (Replace)	Driven H-Piles.	Large diameter CIDHs.
E. Roseville Viaduct (Widen)	Driven H-Piles.	Driven H-Piles.

Construction Cost Summary

A summary of relative construction costs is provided below. Given the funding constraints for this project, significant time may occur between construction stages. Project costs, including structure costs, should be re-evaluated and revised when the complete construction schedule is determined.

Structure costs listed below are based on 2013 Caltrans Statistics (current at the time of estimate).

Structure	Area (Sq. Ft.)	Cost / Sq. Ft.	Demolition Cost	Total Cost
Northbound SR-65 On Ramp	8,744	$ 265	$ -	$ 2,314,000
Eastbound I-80 On Ramp	35,717	$ 246	$ -	$ 8,771,000
E80/N65 Connector	103,536	$ 170	$ 190,530	$ 17,834,000
80/65 HOV Connector	90,888	$ 212	$ -	$ 19,282,000
Miners Ravine Bridge Off Ramp (Widen)	6,709	$ 261	$ -	$ 1,751,000
S65/E80 Connector	122,258	$ 211	$ 138,330	$ 25,958,000
Taylor Road Overcrossing (Replace)	35,840	$ 249	$ 338,550	$ 9,248,000
E. Roseville Viaduct (Widen)	249,659	$ 248	$ 553,395	$ 62,345,000
Roseville Parkway Tieback Wall	1,996	$ 87	$ -	$ 174,000
	8,744	$ 265	$ -	$ 2,314,000

Attachment A

Consultant Prepared Advance Planning Study (APS) Checklist

Consultant Prepared Advance Planning Study (APS) Checklist

Date: 12/16/14	Consultant Firm (for structures): CH2M HILL		Phone No: 916-920-0300
Designed by: Jennifer Elwood			Phone No: 916-286-0267
EA:	County: Pla	Rte: 80 / 65	PM
Project Description: I-80/SR-65 Interchange Improvements Alternative 3 - Taylor Road Interchange Eliminated			
Bridge No(s):	Bridge Name(s): NB SR-65 On Ramp EB I-80 On Ramp E80 / N65 Connector 80 / 65 HOV Connector Miners Ravine Bridge Off Ramp (Widen) S65 / E80 Connector Taylor Road OC (Replace) E. Roseville Viaduct (Widen)		
Total number of bridges in project: 8		APS Alternative Letter or Number (if more than one): 1	
Purpose of this APS:	Initial APS Cost & Feasibility ☒	Revised scope ☐	Update cost ☐

Part A Items to collect and considerations prior to beginning the APS

All items listed in Part A are to be made available and submitted if requested by the Liaison Engineer.
(Mark **N/A** if not applicable)

- ☒ Preliminary profile grade of proposed structure.
- ☒ Typical section of the proposed structure. (Including barrier type, sidewalks, cross slope %, etc.)
- ☒ Grades or spot elevations of roadway below the structure.
- N/A Typical section of roadway below the structure. (Including shoulders, gutters, embankment slope.)
- N/A Site map: including horizontal alignment of new structure and the roadway below, topo, contours, etc.
- ☒ Stage construction or detour plan for traffic <u>on the structure.</u>
  (number of lanes to remain open, Temp Railing, etc.)
- ☒ Stage construction or detour plan for the roadway <u>below the structure</u>.
  (falsework openings for each stage and any restrictions.)
- ☒ "As Built" plans for existing structures.
- ☒ Future widening plans of upper and lower roadway (verify with Route Concept Report).
- ☒ Site aerial photograph (at the proposed structure).
- ☒ Environmental and/or permit requirements (areas of potential impact, construction windows, etc.)
- ☒ Overhead and underground utility plans
- N/A Any other information that you feel is necessary to complete the study. (Other concerns that may affect the APS: local agency requirements such as aesthetics, improvements in vicinity of structure, airspace usage, other obstructions, etc.)

Consultant Prepared Advance Planning Study (APS) Checklist

Part B Considerations during the APS design and cost estimate preparation

1.	Has this project been discussed with:	the OSFP Liaison Engineer?	Yes ☒ No ☐
		the Caltrans District Project Manager?	Yes ☒ No ☐
		the roadway consultant?	Yes ☒ No ☐
2.	Have the Caltrans Structures Maintenance records been reviewed?		Yes ☒ No ☐
	If the records recommend any work for the structure, is it included in the APS?		Yes ☐ No ☒
3.	Are there special aesthetic considerations?		Yes ☒ No ☐
4.	(Widenings and Modifications)		
	Has this project been reviewed for seismic retrofit requirements?		Yes ☒ No ☐
	Are seismic retrofit requirements included in the APS?		Yes ☐ No ☒
5.	Any special Railroad requirements?		Yes ☒ No ☐
	Shoofly required?		Yes ☐ No ☒
	Cost of shoofly included as a separate item in the project cost estimate?		Yes ☐ No ☒
6.	Any special foundation requirements, including scour critical work, special excavation such as Type A, Type D, and/or hazardous or contaminated material?		Yes ☐ No ☒
7.	Any special construction requirements, including limited site accessibility or seasonal work?		Yes ☒ No ☐
8.	Other items to be included in the cost such as slope paving, approach slabs, and/or adjacent retaining walls?		Yes ☒ No ☐
9.	Remove existing bridge? Total Deck Area: 81,387 SQ FT		Yes ☒ No ☐
10.	Any other unusual or special requirements?		Yes ☒ No ☐
11.	Provide and attach a consultant prepared Design Memo to summarize and document any important assumptions, discussions, decisions, unusual items, local agency requirements such as aesthetics, improvements in vicinity of the structure, airspace usage, other obstructions, or any items noted above.	Summary attached?	Yes ☒ No ☐

Designer: (Printed Name)	Designer's Signature:	Date:
Jennifer Elwood	Jennifer Elwood	12/16/14

Attachment B

Advance Planning Study Cost Estimates

[ ] GENERAL PLAN ESTIMATE [x] ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE: NB SR 65 On Ramp - Alternative 3 **BR. No.:** 19-XXXX **DISTRICT:** 03
TYPE: CIP/PS Box Girder **RTE:** 80-65
CU: **CO:** Pla
EA: **PM:**
LENGTH: 292.75 **WIDTH:** 29.83 **AREA (SF)=** 8,744

DESIGN SECTION: CH2M HILL
 # OF STRUCTURES IN PROJECT : **EST. NO.**
PRICES BY : M. Brady **COST INDEX:** 2013
PRICES CHECKED BY : J. Elwood **DATE:** Dec-14
QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	311	$ 100.00	$ 31,060.41
2	STRUCTURE BACKFILL (BRIDGE)		CY	156	$ 80.00	$ 12,463.04
3	FURNISH STEEL PILING (HP 14 X 89)		LF	2,000	$ 50.00	$ 100,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	56	$ 3,500.00	$ 196,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 65,000.00	$ 65,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	143	$ 500.00	$ 71,419.63
7	STRUCTURAL CONCRETE, BRIDGE		CY	807	$ 800.00	$ 645,987.67
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	33	$ 750.00	$ 24,860.83
9	JOINT SEAL (MR = 1 1/2")		LF	32	$ 50.00	$ 1,591.65
10	JOINT SEAL ASSEMBLY (MR=4")		LF	32	$ 330.00	$ 10,504.89
11	BAR REINFORCING STEEL (BRIDGE)		LB	189,846	$ 1.50	$ 284,768.50
12	CONCRETE BARRIER	Type 732	LF	646	$ 110.00	$ 71,005.00
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SUBTOTAL	$	1,514,662
TIME RELATED OVERHEAD	$	151,466
MOBILIZATION (@ 10 %)	$	185,125
SUBTOTAL BRIDGE ITEMS	$	1,851,253
CONTINGENCIES (@ 25%)	$	462,813
BRIDGE TOTAL COST	$	2,314,066
COST PER SQ. FOOT	$	264.65
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	2,314,066
BUDGET ESTIMATE AS OF	**$**	**2,314,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$2,314,000
2	$2,314,000
3	$2,314,000
4	$2,314,000
5	$2,314,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	EB I-80 On Ramp - Alternative 3	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 1,196.00 **WIDTH:** 29.83 **AREA (SF)=** 35,717

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	1,535	$ 100.00	$ 153,498.59
2	STRUCTURE BACKFILL (BRIDGE)		CY	651	$ 80.00	$ 52,092.96
3	FURNISH STEEL PILING (HP 14 X 89)		LF	3,560	$ 50.00	$ 178,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	92	$ 3,500.00	$ 322,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 275,000.00	$ 275,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	882	$ 500.00	$ 440,987.52
7	STRUCTURAL CONCRETE, BRIDGE		CY	3,059	$ 800.00	$ 2,447,226.24
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	66	$ 750.00	$ 49,721.67
9	JOINT SEAL (MR = 1 $^{1}/_{2}$")		FT	64	$ 50.00	$ 3,183.32
10	JOINT SEAL ASSEMBLY (MR=4")		FT	32	$ 330.00	$ 10,504.89
11	BAR REINFORCING STEEL (BRIDGE)		LB	675,767	$ 1.50	$ 1,013,650.81
12	CONCRETE BARRIER	Type 732	FT	2,512	$ 110.00	$ 276,320.00
13	MECHANICALLY STABILIZED EMBANKMENT	LOCATION B	SQ FT	9,406	$50.00	$470,300.00
14	MECHANICALLY STABILIZED EMBANKMENT	LOCATION C	SQ FT	965	$50.00	$48,250.00
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SUBTOTAL		$ 5,740,736
TIME RELATED OVERHEAD		$ 574,074
MOBILIZATION (@ 10 %)		$ 701,646
SUBTOTAL BRIDGE ITEMS		$ 7,016,455
CONTINGENCIES	(@ 25%)	$ 1,754,114
BRIDGE TOTAL COST		$ 8,770,569
COST PER SQ. FOOT		$ 245.56
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL		$ 8,770,569
BUDGET ESTIMATE AS OF		**$ 8,771,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$8,771,000
2	$8,771,000
3	$8,771,000
4	$8,771,000
5	$8,771,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	E80/N65 Connector - Alternative 3	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVERAGE**	**PM:**	
		LENGTH:	1,665.00 **WIDTH:** 62.18	**AREA (SF)=**	103,536

DESIGN SECTION:	CH2M HILL
# OF STRUCTURES IN PROJECT :	**EST. NO.**
PRICES BY :	M. Brady **COST INDEX:** 2013
PRICES CHECKED BY :	J. Elwood **DATE:** 14-Dec
QUANTITIES BY:	M. Brady **DATE:** 14-Dec

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	2,037	$ 100.00	$ 203,661.71
2	STRUCTURE BACKFILL (BRIDGE)		CY	934	$ 80.00	$ 74,758.94
3	FURNISH STEEL PILING (HP 14 X 89)		LF	10,000	$ 50.00	$ 500,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	296	$ 3,500.00	$ 1,036,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING			120	$ 3,000.00	$ 360,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 500,000.00	$ 500,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,046	$ 500.00	$ 522,839.48
8	STRUCTURAL CONCRETE, BRIDGE		CY	7,228	$ 800.00	$ 5,782,180.73
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	122	$ 750.00	$ 91,388.58
10	JOINT SEAL (MR = 1 1/2")		FT	114	$ 50.00	$ 5,683.33
11	JOINT SEAL ASSEMBLY (MR=4")		FT	147	$ 330.00	$ 48,560.59
12	BAR REINFORCING STEEL (BRIDGE)		LB	1,364,174	$ 1.50	$ 2,046,261.13
13	CONCRETE BARRIER	Type 732	FT	3,430	$ 110.00	$ 377,300.00
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SUBTOTAL	$	11,548,634
TIME RELATED OVERHEAD	$	1,154,863
MOBILIZATION (@ 10 %)	$	1,411,500
SUBTOTAL BRIDGE ITEMS	$	14,114,998
CONTINGENCIES (@ 25%)	$	3,528,749
BRIDGE TOTAL COST	$	17,643,747
COST PER SQ. FOOT	$	170.41
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	190,530
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	17,834,277
BUDGET ESTIMATE AS OF	**$**	**17,834,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$17,834,000
2	$17,834,000
3	$17,834,000
4	$17,834,000
5	$17,834,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	80/65 HOV Connector - Alternative 3	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 1,455.00 **WIDTH:** 62.83 **AREA (SF)=** 90,888

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	1,672	$ 100.00	$ 167,170.37
2	STRUCTURE BACKFILL (BRIDGE)		CY	781	$ 80.00	$ 62,471.11
3	FURNISH STEEL PILING (HP 14 X 89)		LF	11,800	$ 50.00	$ 590,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	348	$ 3,500.00	$ 1,218,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	120	$ 3,000.00	$ 360,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 560,000.00	$ 560,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	844	$ 500.00	$ 422,098.74
8	STRUCTURAL CONCRETE, BRIDGE		CY	7,393	$ 800.00	$ 5,914,339.76
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	140	$ 750.00	$ 104,722.17
10	JOINT SEAL (MR = $1\frac{1}{2}$")		LF	128	$ 50.00	$ 6,400.00
11	JOINT SEAL ASSEMBLY (MR=4")		LF	128	$ 330.00	$ 42,240.00
12	BAR REINFORCING STEEL (BRIDGE)		LB	1,552,021	$ 1.50	$ 2,328,032.24
13	CONCRETE BARRIER	TYPE 732	LF	3,030	$ 100.00	$ 303,000.00
14	CONCRETE BARRIER	TYPE 60	LF	1,515	$ 110.00	$ 166,650.00
15	MECHANICALLY STABILIZED EMBANKMENT	LOCATION C	SQ FT	7,510	$ 50.00	$375,500.00
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SUBTOTAL	$	12,620,624
TIME RELATED OVERHEAD	$	1,262,062
MOBILIZATION (@ 10 %)	$	1,542,521
SUBTOTAL BRIDGE ITEMS	$	15,425,208
CONTINGENCIES (@ 25%)	$	3,856,302
BRIDGE TOTAL COST	$	19,281,509
COST PER SQ. FOOT	$	212.15
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	19,281,509
BUDGET ESTIMATE AS OF	**$**	**19,282,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$19,282,000
2	$19,282,000
3	$19,282,000
4	$19,282,000
5	$19,282,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	Miners Ravine Offramp Bridge (Widen) - Alt 3	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVERAGE**	**PM:**	
	LENGTH: 470.50	**WIDTH:**	11.67	**AREA (SF)=**	6,709

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	430	$ 100.00	$ 42,978.02
2	STRUCTURE BACKFILL (BRIDGE)		CY	197	$ 80.00	$ 15,790.45
3	FURNISH STEEL PILING (HP 14 X 89)		LF	800	$ 50.00	$ 40,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	16	$ 3,500.00	$ 56,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 75,000.00	$ 75,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	229	$ 500.00	$ 114,423.62
7	STRUCTURAL CONCRETE, BRIDGE		CY	556	$ 800.00	$ 444,471.73
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	30	$ 750.00	$ 22,453.15
9	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	28	$ 50.00	$ 1,400.00
10	BAR REINFORCING STEEL (BRIDGE)		LBS	154,653	$ 1.50	$ 231,979.54
11	CONCRETE BARRIER	TYPE 732	LF	531	$ 175.00	$ 92,837.50
12	BRIDGE REMOVAL (PORTION)		LS	1	$ 9,000.00	$ 9,000.00
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SUBTOTAL	$	1,146,334
TIME RELATED OVERHEAD	$	114,633
MOBILIZATION (@ 10 %)	$	140,107
SUBTOTAL BRIDGE ITEMS	$	1,401,075
CONTINGENCIES (@ 25%)	$	350,269
BRIDGE TOTAL COST	$	1,751,344
COST PER SQ. FOOT	$	261.04
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	1,751,344
BUDGET ESTIMATE AS OF	**$**	**1,751,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$1,751,000
2	$1,751,000
3	$1,751,000
4	$1,751,000
5	$1,751,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	S65/E80 Connector - Alternative 3	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:				**PM:**	

LENGTH: 2,478.00 **WIDTH:** 48.83 **AREA (SF)=** 122,258

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	4,087	$ 100.00	$ 408,713.56
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,562	$ 80.00	$ 124,955.26
3	FURNISH STEEL PILING (HP 14 X 89)		LF	8,700	$ 50.00	$ 435,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	258	$ 3,500.00	$ 903,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 920,000.00	$ 920,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	2,438	$ 500.00	$ 1,218,950.59
7	STRUCTURAL CONCRETE, BRIDGE		CY	11,030	$ 800.00	$ 8,823,608.11
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	109	$ 750.00	$ 81,388.83
9	JOINT SEAL (MR = $1\ ^{1}/_{2}$")		LF	102	$ 50.00	$ 5,100.00
10	JOINT SEAL ASSEMBLY (MR=4")		LF	153	$ 330.00	$ 50,490.00
11	BAR REINFORCING STEEL (BRIDGE)		LBS	2,278,234	$ 1.50	$ 3,417,350.44
12	CONCRETE BARRIER	Type 732	LF	5,074	$ 100.00	$ 507,400.00
13	ISOLATION CASINGS		LF	40	$ 100.00	$ 4,000.00
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SUBTOTAL	$	16,899,957
TIME RELATED OVERHEAD	$	1,689,996
MOBILIZATION (@ 10 %)	$	2,065,550
SUBTOTAL BRIDGE ITEMS	$	20,655,503
CONTINGENCIES (@ 25%)	$	5,163,876
BRIDGE TOTAL COST	$	25,819,378
COST PER SQ. FOOT	$	211.19
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	138,330
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	25,957,708
BUDGET ESTIMATE AS OF	**$**	**25,958,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$25,958,000
2	$25,958,000
3	$25,958,000
4	$25,958,000
5	$25,958,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		x	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: Taylor Road OC (Replace)-Alternative 3 **BR. No.:** 19-XXXX **DISTRICT:** 03

TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65

CU: **CO:** Pla

EA: **PM:**

LENGTH: 460.00 **WIDTH:** 78.00 **AREA (SF)=** 35,840

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	573	$ 100.00	$ 57,337.49
2	STRUCTURE BACKFILL (BRIDGE)		CY	519	$ 80.00	$ 41,501.47
3	FURNISH STEEL PILING (HP 14 X 89)		LF	6,000	$ 50.00	$ 300,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	120	$ 3,500.00	$ 420,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	240	$ 3,000.00	$ 720,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 220,000.00	$ 220,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	170	$ 500.00	$ 84,873.66
8	STRUCTURAL CONCRETE, BRIDGE		CY	3,364	$ 800.00	$ 2,691,401.09
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	241	$ 750.00	$ 180,965.73
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	217	$ 50.00	$ 10,857.94
11	BAR REINFORCING STEEL (BRIDGE)		LBS	570,286	$ 1.50	$ 855,428.57
12	CONCRETE BARRIER	TYPE 26	LF	1,040	$ 175.00	$ 182,000.00
13	CHAIN LINK RAILING	TYPE 7	LF	1,040	$ 65.00	$ 67,600.00
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SUBTOTAL	$	5,831,966
TIME RELATED OVERHEAD	$	583,197
MOBILIZATION (@ 10 %)	$	712,796
SUBTOTAL BRIDGE ITEMS	$	7,127,958
CONTINGENCIES (@ 25%)	$	1,781,990
BRIDGE TOTAL COST	$	8,909,948
COST PER SQ. FOOT	$	248.60
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	338,550
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	9,248,498
BUDGET ESTIMATE AS OF	**$**	**9,248,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$9,248,000
2	$9,248,000
3	$9,248,000
4	$9,248,000
5	$9,248,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: East Roseville Viaduct (Widen) Median-Alternative 3 **BR. No.:** 19-XXXX **DISTRICT:** 03

TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65

CU: **CO:** Pla

EA: **PM:**

LENGTH: 2,043.97 **WIDTH:** 56.50 **AREA (SF)=** 115,871

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	2,829	$ 100.00	$ 282,866.67
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,263	$ 80.00	$ 101,075.36
3	FURNISH STEEL PILING (HP 14 X 89)		LF	18,600	$ 50.00	$ 930,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	580	$ 3,500.00	$ 2,030,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 1,060,000.00	$ 1,060,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,481	$ 500.00	$ 740,370.37
7	STRUCTURAL CONCRETE, BRIDGE		CY	10,791	$ 800.00	$ 8,632,756.81
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	269	$ 750.00	$ 201,666.67
9	JOINT SEAL (MR = 1 1/2")		LF	125	$ 50.00	$ 6,250.00
10	JOINT SEAL ASSEMBLY (MR=4")		LF	250	$ 330.00	$ 82,500.00
11	BAR REINFORCING STEEL (BRIDGE)		LBS	2,051,249	$ 1.50	$ 3,076,873.08
12	CONCRETE BARRIER	TYPE 60	LF	2,104	$ 110.00	$ 231,440.00
13	BRIDGE REMOVAL (PORTION)		LS	1	$ 76,000.00	$ 76,000.00
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SUBTOTAL		$ 17,451,799
TIME RELATED OVERHEAD		$ 1,745,180
MOBILIZATION (@ 10 %)		$ 2,132,998
SUBTOTAL BRIDGE ITEMS		$ 21,329,977
CONTINGENCIES	(@ 25%)	$ 5,332,494
BRIDGE TOTAL COST		$ 26,662,471
COST PER SQ. FOOT		$ 230.10
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL		$ 26,662,471
BUDGET ESTIMATE AS OF		**$ 26,662,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$26,662,000
2	$26,662,000
3	$26,662,000
4	$26,662,000
5	$26,662,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	East Roseville Viaduct (Widen) NB-Alternative 3	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVG.**	**PM:**	
	LENGTH: 2,043.97	**WIDTH:**	41.39	**AREA (SF)=**	84,607

DESIGN SECTION:	CH2M HILL		
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	M. Brady	**COST INDEX:**	2013
PRICES CHECKED BY :	J. Elwood	**DATE:**	Dec-14
QUANTITIES BY:	M. Brady	**DATE:**	Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	3,154	$ 100.00	$ 315,388.11
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,219	$ 80.00	$ 97,496.39
3	FURNISH STEEL PILING (HP 14 X 89)		LF	13,700	$ 50.00	$ 685,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	430	$ 3,500.00	$ 1,505,000.00
5	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 610,000.00	$ 610,000.00
6	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,869	$ 500.00	$ 934,369.26
7	STRUCTURAL CONCRETE, BRIDGE		CY	5,502	$ 800.00	$ 4,401,783.29
8	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	176	$ 750.00	$ 132,161.67
9	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	83	$ 50.00	$ 4,164.85
10	JOINT SEAL ASSEMBLY (MR=4")		LF	130	$ 330.00	$ 43,048.17
11	BAR REINFORCING STEEL (BRIDGE)		LBS	1,259,598	$ 1.50	$ 1,889,396.87
12	CONCRETE BARRIER	Type 736	LF	2,104	$ 110.00	$ 231,440.00
13	SOUND WALL (MASONRY BLOCK)		SQ FT	23,845	$ 25.00	$ 596,115.80
14	BRIDGE REMOVAL (PORTION)		LS	1	$ 38,000.00	$ 38,000.00
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SUBTOTAL	$ 11,483,364
TIME RELATED OVERHEAD	$ 1,148,336
MOBILIZATION (@ 10 %)	$ 1,403,522
SUBTOTAL BRIDGE ITEMS	$ 14,035,223
CONTINGENCIES (@ 25%)	$ 3,508,806
BRIDGE TOTAL COST	$ 17,544,029
COST PER SQ. FOOT	$ 207.36
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 17,544,029
BUDGET ESTIMATE AS OF	**$ 17,544,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$17,544,000
2	$17,544,000
3	$17,544,000
4	$17,544,000
5	$17,544,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY:

IN EST:

OUT EST:

BRIDGE: East Roseville Viaduct (Widen) SB-Alternative 3 **BR. No.:** 19-XXXX **DISTRICT:** 03

TYPE: CIP/PS Concrete Box Girder **RTE:** 80-65

CU: **CO:** Pla

EA: **PM:**

AVERAGE

LENGTH: 2,043.97 **WIDTH:** 24.06 **AREA (SF)=** 49,181

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	3,759	$ 100.00	$ 375,865.52
2	STRUCTURE BACKFILL (BRIDGE)		CY	1,793	$ 80.00	$ 143,424.25
3	FURNISH STEEL PILING (HP 14 X 89)		LF	14,800	$ 50.00	$ 740,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	444	$ 3,500.00	$ 1,554,000.00
5	144" CAST-IN_DRILLED_HOLE CONCRETE PILING		LF	180	$ 3,500.00	$ 630,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 425,000.00	$ 425,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	1,914	$ 500.00	$ 956,765.56
8	STRUCTURAL CONCRETE, BRIDGE		CY	5,280	$ 800.00	$ 4,224,171.27
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	155	$ 750.00	$ 116,472.50
10	JOINT SEAL (MR = 1 $^{1}/_{2}$")		LF	144	$ 50.00	$ 7,188.35
11	JOINT SEAL ASSEMBLY (MR=4")		LF	112	$ 330.00	$ 37,045.80
12	BAR REINFORCING STEEL (BRIDGE)		LBS	1,224,485	$ 1.50	$ 1,836,727.70
13	CONCRETE BARRIER	Type 736	LF	2,104	$ 110.00	$ 231,440.00
14	SOUND WALL (MASONRY BLOCK)		SQ FT	15,429	$ 25.00	$ 385,715.80
15	BRIDGE REMOVAL (PORTION)		LS	1	$ 38,000.00	$ 38,000.00
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SUBTOTAL	$	11,701,817
TIME RELATED OVERHEAD	$	1,170,182
MOBILIZATION (@ 10 %)	$	1,430,222
SUBTOTAL BRIDGE ITEMS	$	14,302,220
CONTINGENCIES (@ 25%)	$	3,575,555
BRIDGE TOTAL COST	$	17,877,776
COST PER SQ. FOOT	$	363.51
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$	553,395
WORK BY RAILROAD OR UTILITY FORCES		
GRAND TOTAL	$	18,431,171
BUDGET ESTIMATE AS OF	**$**	**18,431,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$18,431,000
2	$18,431,000
3	$18,431,000

Years Beyond Midpoint	Escalated Budget Est.
4	$18,431,000
5	$18,431,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE		X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:** **OUT EST:**

BRIDGE:	East Roseville Viaduct (Widen) (Total)-Alternative 3	**BR. No.:**	19-XXXX	**DISTRICT:**	03
TYPE:	CIP/PS Concrete Box Girder			**RTE:**	80-65
CU:				**CO:**	Pla
EA:			**AVERAGE**	**PM:**	
	LENGTH: 2,043.97	**WIDTH:**	122.14	**AREA (SF)=**	249,659

DESIGN SECTION:	CH2M HILL
# OF STRUCTURES IN PROJECT :	**EST. NO.**
PRICES BY :	M. Brady **COST INDEX:** 2013
PRICES CHECKED BY :	J. Elwood **DATE:** Dec-14
QUANTITIES BY:	M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	9,742	$ 100.00	$ 974,200.00
2	STRUCTURE BACKFILL (BRIDGE)		CY	4,275	$ 80.00	$ 342,000.00
3	FURNISH STEEL PILING (HP 14 X 89)		LF	47,100	$ 50.00	$ 2,355,000.00
4	DRIVE STEEL PILE (HP 14 X 89)		EA	1,454	$ 3,500.00	$ 5,089,000.00
5	144" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	180	$ 3,000.00	$ 540,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$ 2,095,000.00	$ 2,095,000.00
7	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	5,264	$ 500.00	$ 2,632,000.00
8	STRUCTURAL CONCRETE, BRIDGE		CY	21,573	$ 800.00	$ 17,258,400.00
9	STRUCTURAL CONCRETE, APPROACH SLAB	Type N	CY	465	$ 750.00	$ 348,750.00
10	JOINT SEAL (MR = 1 $^1/_2$")		LF	352	$ 50.00	$ 17,600.00
11	JOINT SEAL ASSEMBLY (MR=4")		LF	492	$ 330.00	$ 162,360.00
12	BAR REINFORCING STEEL (BRIDGE)		LBS	4,535,332	$ 1.50	$ 6,802,998.00
13	CONCRETE BARRIER	Type 736	LF	4,208.00	$ 110.00	$ 462,880.00
14	CONCRETE BARRIER	TYPE 60	LF	2,104.00	$ 110.00	$ 231,440.00
15	SOUND WALL (MASONRY BLOCK)		SQ FT	39,274	$ 25.00	$ 981,850.00
16	BRIDGE REMOVAL (PORTION)		LS	1	$ 152,000.00	$ 152,000.00
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SUBTOTAL	$ 40,445,478
TIME RELATED OVERHEAD	$ 4,044,548
MOBILIZATION (@ 10 %)	$ 4,943,336
SUBTOTAL BRIDGE ITEMS	$ 49,433,362
CONTINGENCIES (@ 25%)	$ 12,358,341
BRIDGE TOTAL COST	$ 61,791,703
COST PER SQ. FOOT	$ 247.50
BRIDGE REMOVAL (CONTINGENCIES INCL.)	$ 553,395
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 62,345,098
BUDGET ESTIMATE AS OF	**$ 62,345,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$62,345,000
2	$62,345,000
3	$62,345,000
4	$62,345,000
5	$62,345,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: **IN EST:**

OUT EST:

BRIDGE: Roseville Parkway Tieback Wall-Alternative 3 **BR. No.:** **DISTRICT:** 03

TYPE: Tie Back Wall **RTE:** 80

CU: **CO:** PLA

EA: **PM:**

LENGTH: 130.67 **WIDTH:** **AREA (SF)=** 1,996

DESIGN SECTION: CH2M HILL

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : M. Brady **COST INDEX:** 2013

PRICES CHECKED BY : J. Elwood **DATE:** Dec-14

QUANTITIES BY: M. Brady **DATE:** Dec-14

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	TIE BACK RETAINING WALL		SQ FT	1,996	$50.00	$99,800.00
2	CABLE RAILING		LF	131	$30.00	$3,930.00
3	CONCRETE BARRIER	TYPE 60D	LF	131	$80.00	$10,480.00
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SUBTOTAL	$114,210
TIME RELATED OVERHEAD	$11,421
MOBILIZATION (@ 10 %)	$13,959
SUBTOTAL BRIDGE ITEMS	$139,590
CONTINGENCIES (@ 25%)	$34,898
BRIDGE TOTAL COST	$174,488
COST PER SQ. FOOT	$87.42
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$174,488
BUDGET ESTIMATE AS OF	**$174,000**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year

Years Beyond Midpoint	Escalated Budget Est.
1	$174,000
2	$174,000
3	$174,000

Years Beyond Midpoint	Escalated Budget Est.
4	$174,000
5	$174,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

Attachment C

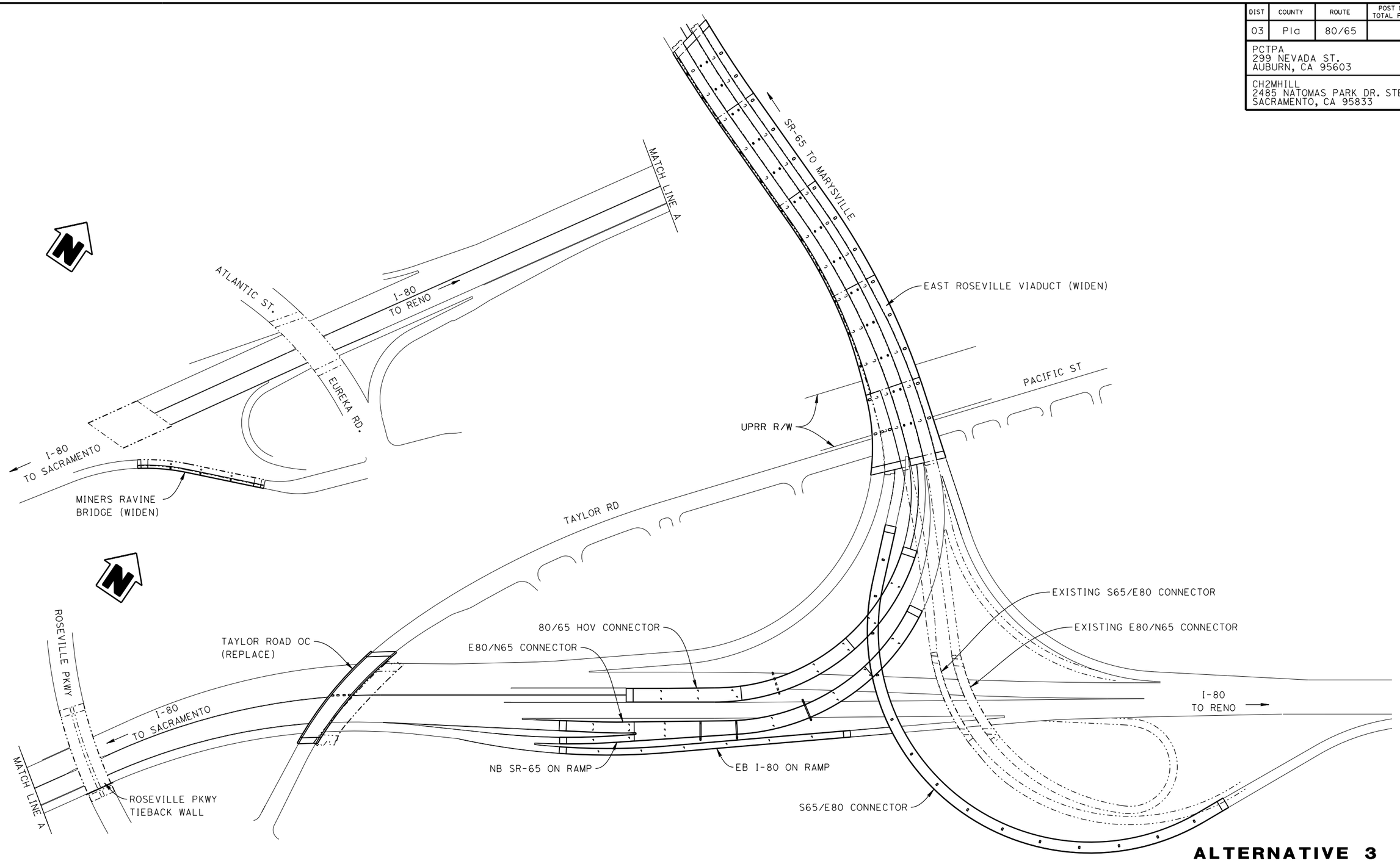
Advance Planning Study Plans

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



ALTERNATIVE 3

PLANNING STUDY

LOCATION MAP

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14
DRAWN BY PATRICK WALKER	DATE 12/16/14
CHECKED BY MARK BRADY	DATE 12/16/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO.	UNIT:
SCALE: 1"=200'	PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

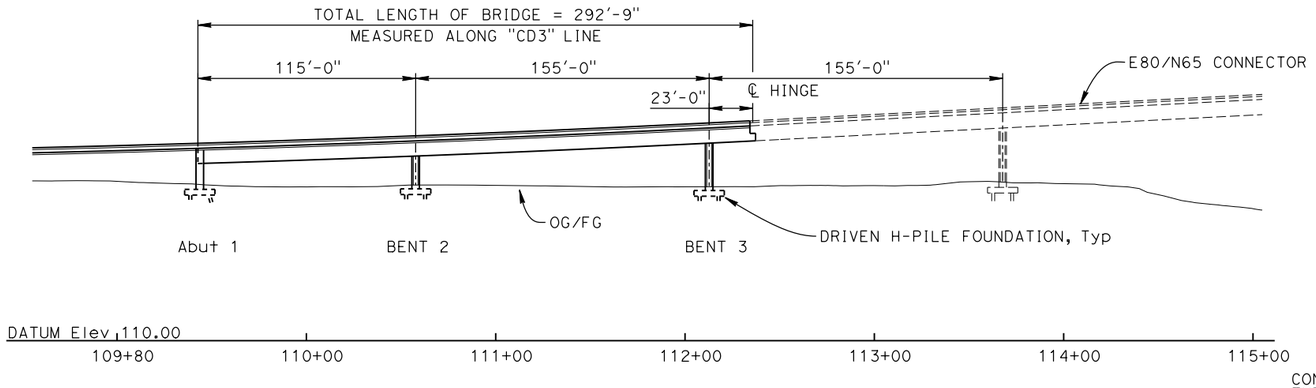
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:53

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

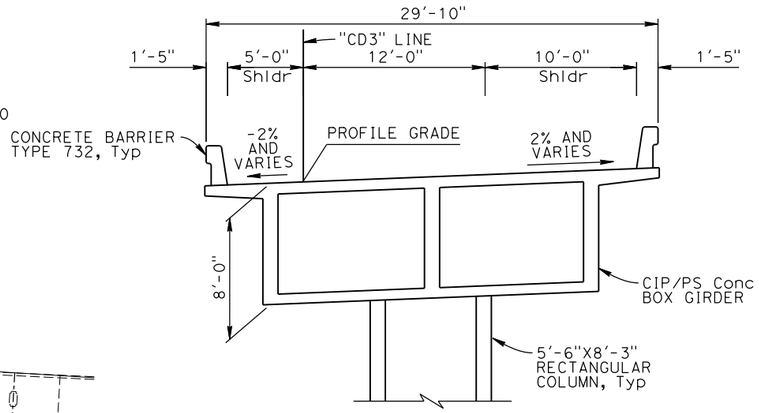
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



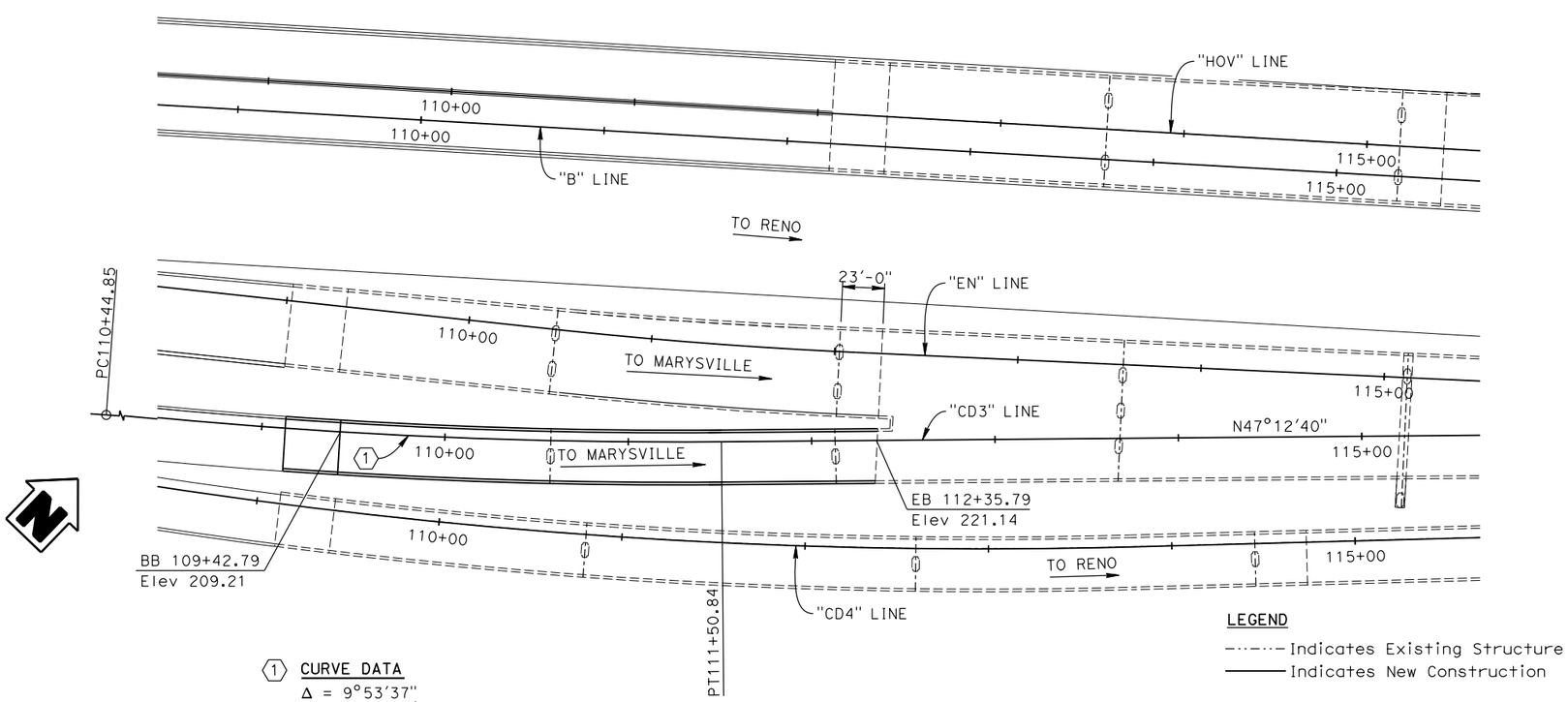
DEVELOPED ELEVATION

1" = 40'



TYPICAL SECTION

1" = 5'



1 CURVE DATA
Δ = 9°53'37"
R = 3000.00'
L = 518.03'
T = 259.66'

LEGEND
Indicates Existing Structure
Indicates New Construction

PLAN

1" = 40'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 292'-9"
WIDTH	= 29'-10"
AREA	= 8,744 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 265
REMOVAL COST	= $ -
TOTAL COST	= $ 2,314,000

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
NB SR-65 ON RAMP

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_CD3-a-gp01.dgn

CONTRACT NO.: X

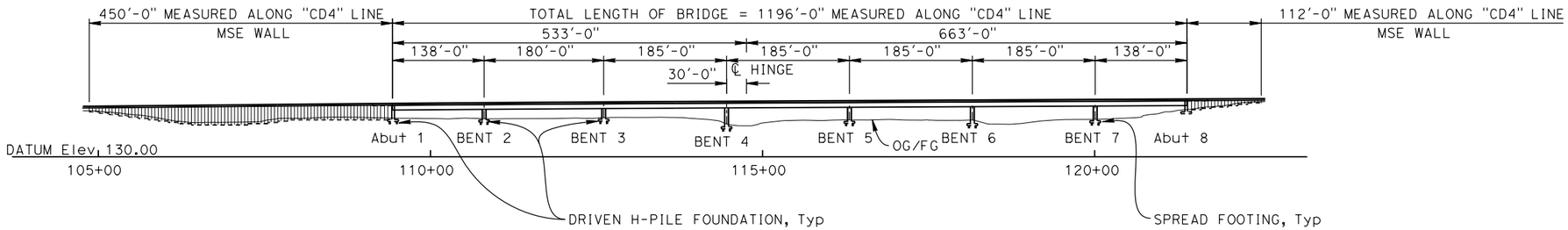
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:53

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

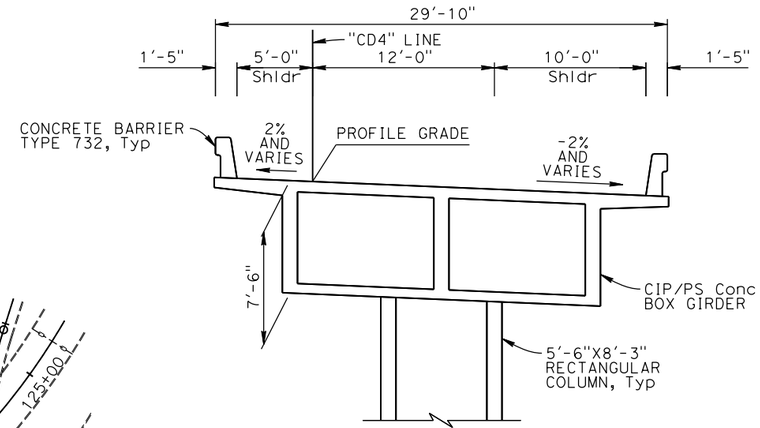
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'



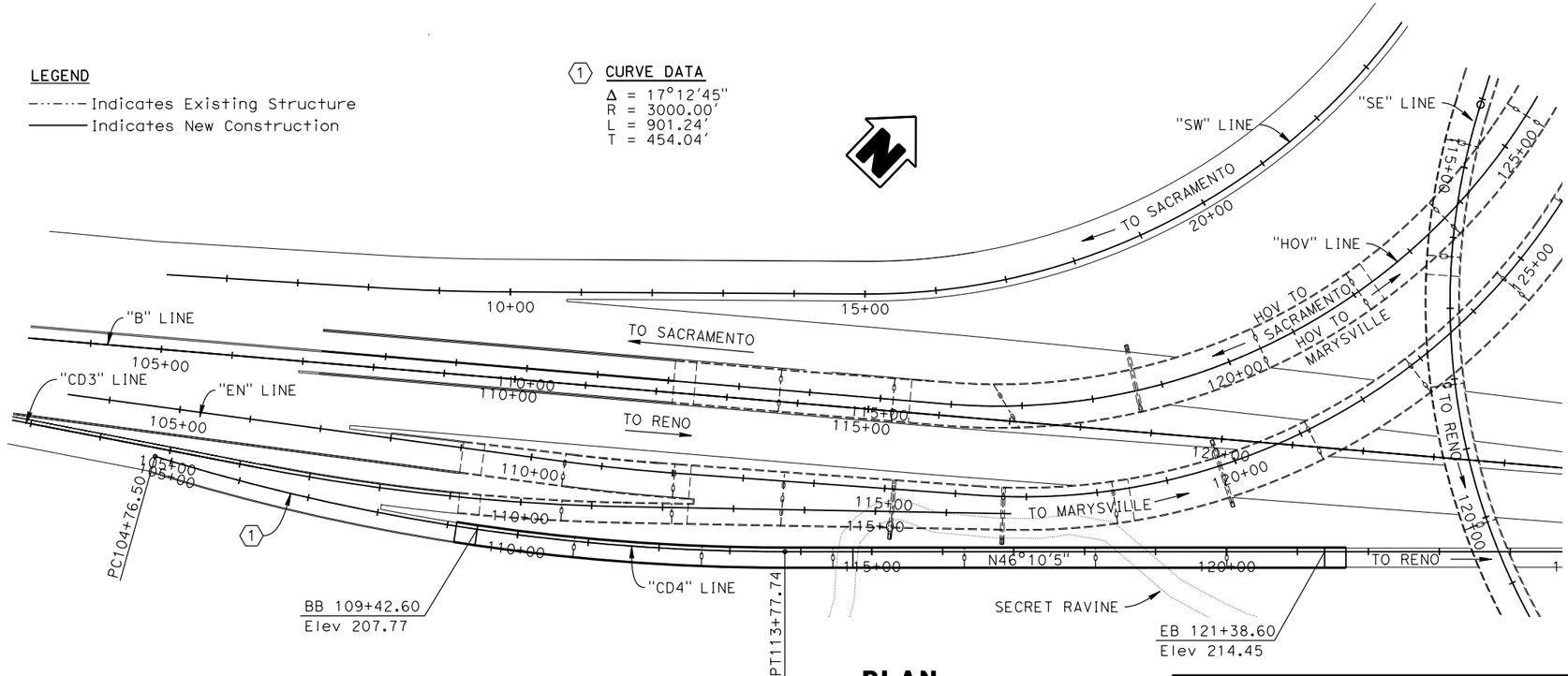
TYPICAL SECTION

1" = 5'

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1196'-0"
WIDTH	= 29'-10"
AREA	= 35,717 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 246
REMOVAL COST	= $ -
TOTAL COST	= $ 8,771,000

LEGEND
Indicates Existing Structure
Indicates New Construction

(1) CURVE DATA
Δ = 17°12'45"
R = 3000.00'
L = 901.24'
T = 454.04'



PLAN

1" = 100'

ALTERNATIVE 3
PLANNING STUDY
EB I-80 ON RAMP

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_CD4-a-gp01.dgn

CONTRACT NO.: X

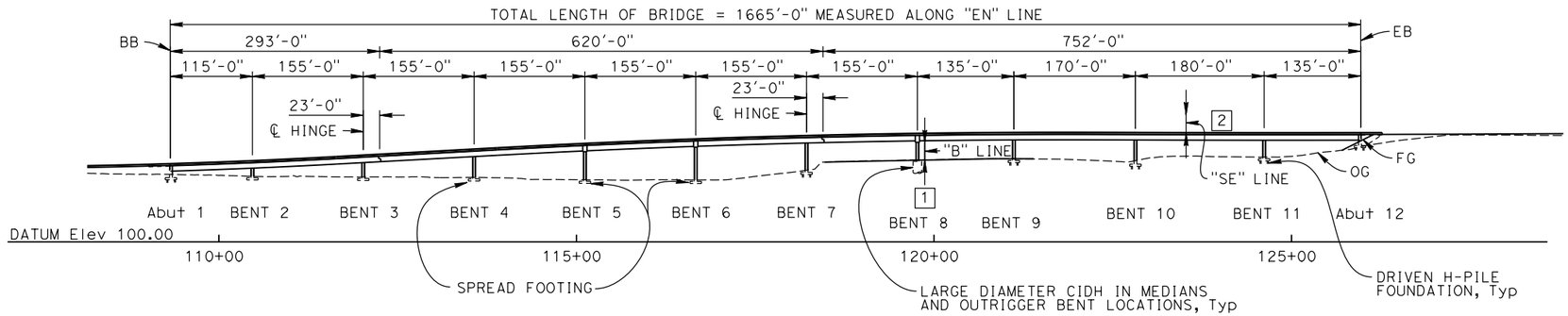
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:53

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

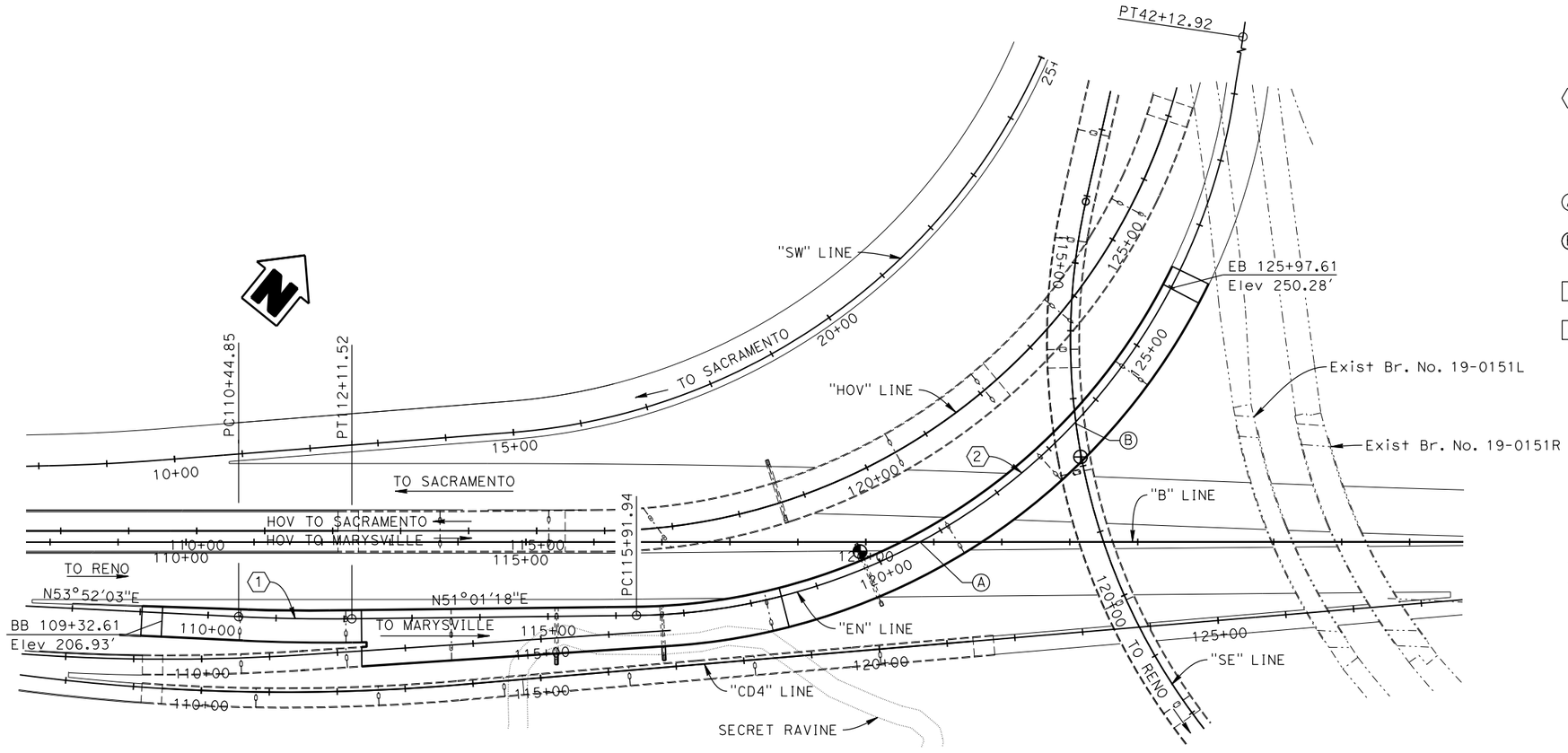


DEVELOPED ELEVATION

1" = 100'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 1665'-0"
WIDTH	= 48'-11" TO 84'-6"
AREA	= 103,536 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 170
REMOVAL AREA *	= 12,702 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 17,834,000

* REMOVAL OF BR. NO. 19-0151R



PLAN

1" = 100'

① CURVE DATA
Δ = 3°32'12"
R = 2700.00'
L = 166.66'
T = 83.36'

② CURVE DATA
Δ = 100°42'31"
R = 900.00'
L = 1581.93'
T = 1086.15'

Ⓐ "EN" 120+65.14 = "B" 120+79.55

Ⓑ "EN" 123+55.85 = "SE" 117+34.36

1 23'-7" MINIMUM VERTICAL CLEARANCE

2 23'-4" VERTICAL CLEARANCE

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

ALTERNATIVE 3

PLANNING STUDY

E80/N65 CONNECTOR (1 OF 2)

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

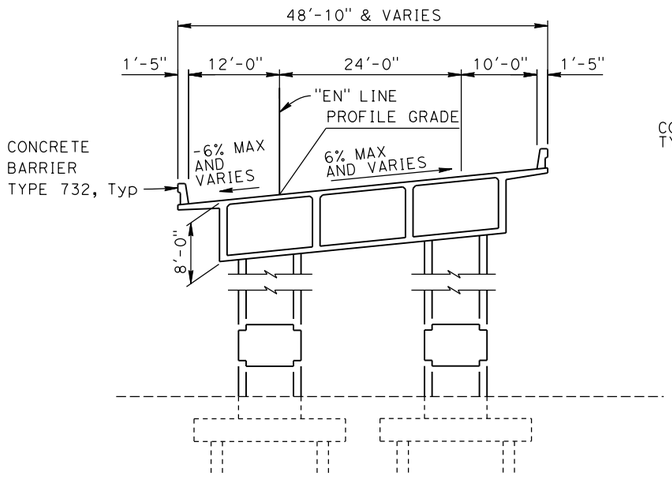
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:53

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

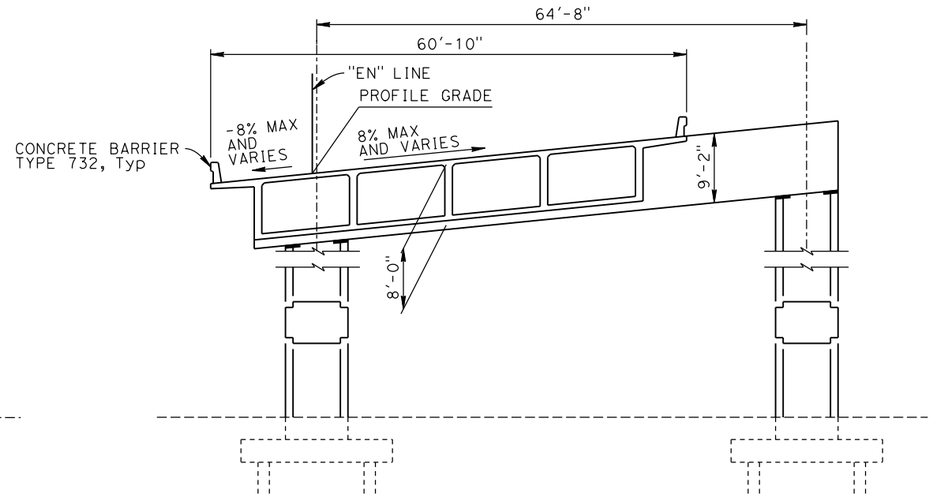
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION - FRAME 1

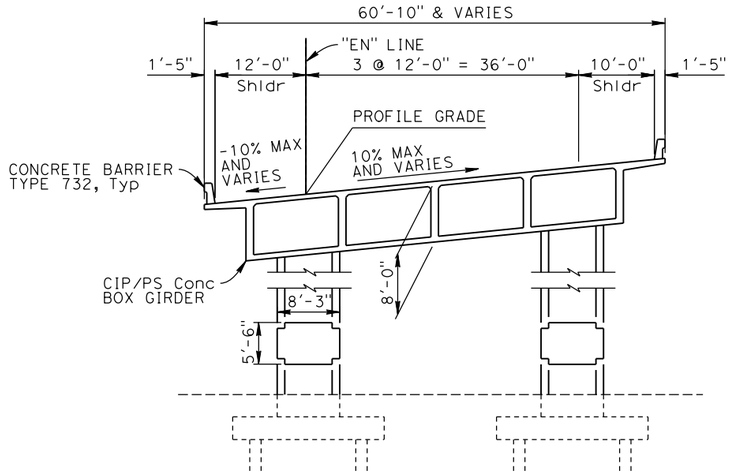
1" = 10'



NOTE: BENT 6 SHOWN, BENT 5 SIMILAR

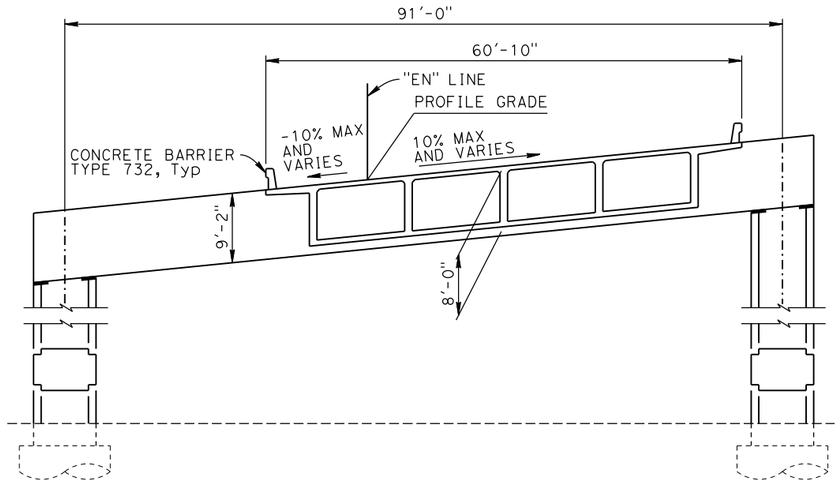
TYPICAL SECTION AT BENT 6

1" = 10'



TYPICAL SECTION - FRAMES 2,3,4

1" = 10'



TYPICAL SECTION AT BENT 8

1" = 10'

LEGEND

Indicates Existing Structure

Indicates New Construction

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3

PLANNING STUDY

E80/N65 CONNECTOR (2 OF 2)

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:53

FILE => 418554_alt3_EN-a-gp02.dgn

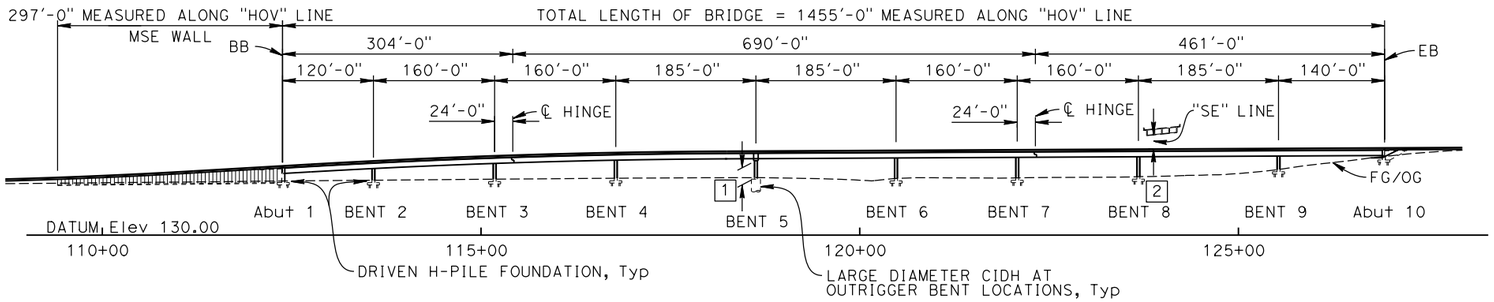
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 104°22'22"
R = 880.00'
L = 1603.05'
T = 1133.94'

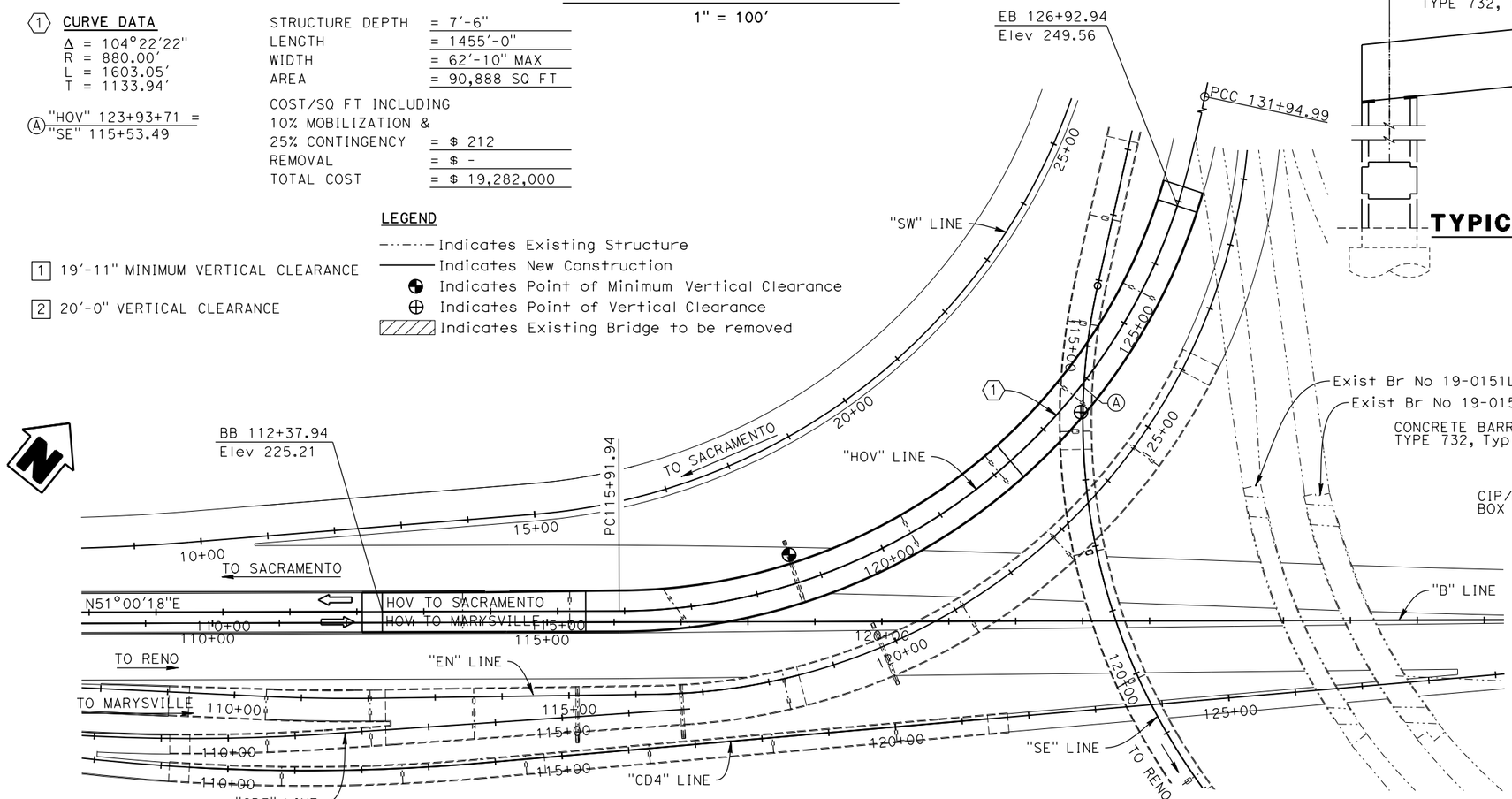
(A) "HOV" 123+93+71 = "SE" 115+53.49

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1455'-0"
WIDTH	= 62'-10" MAX
AREA	= 90,888 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 212
REMOVAL	= $ -
TOTAL COST	= $ 19,282,000

1 19'-11" MINIMUM VERTICAL CLEARANCE

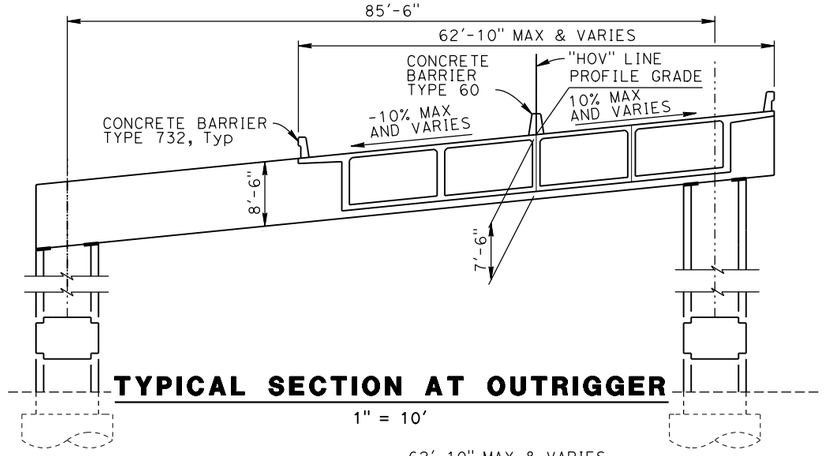
2 20'-0" VERTICAL CLEARANCE

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Bridge to be removed



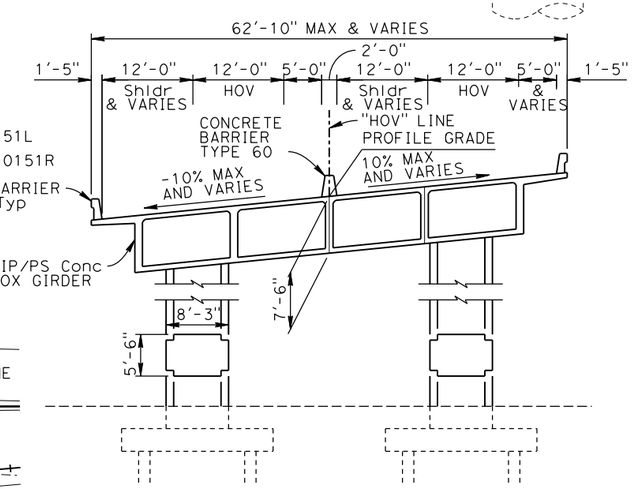
PLAN

1" = 100'



TYPICAL SECTION AT OUTRIGGER

1" = 10'



TYPICAL SECTION

1" = 10'

ALTERNATIVE 3

PLANNING STUDY

80/65 HOV CONNECTOR

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14
DRAWN BY PATRICK WALKER	DATE 12/16/14
CHECKED BY MARK BRADY	DATE 12/16/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_HOV-a-gp01.dgn

CONTRACT NO.: X

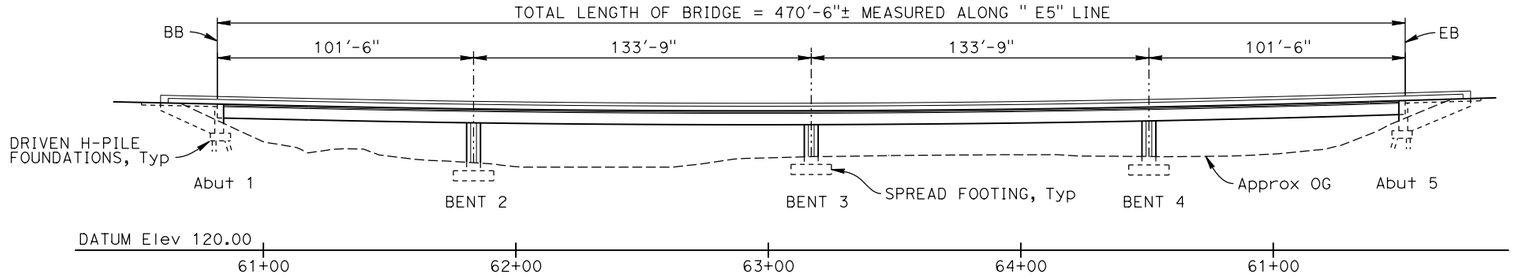
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:53

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

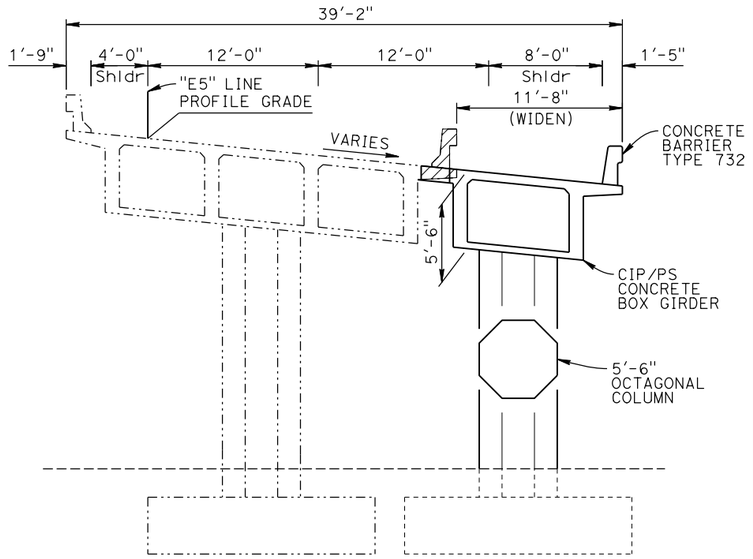
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



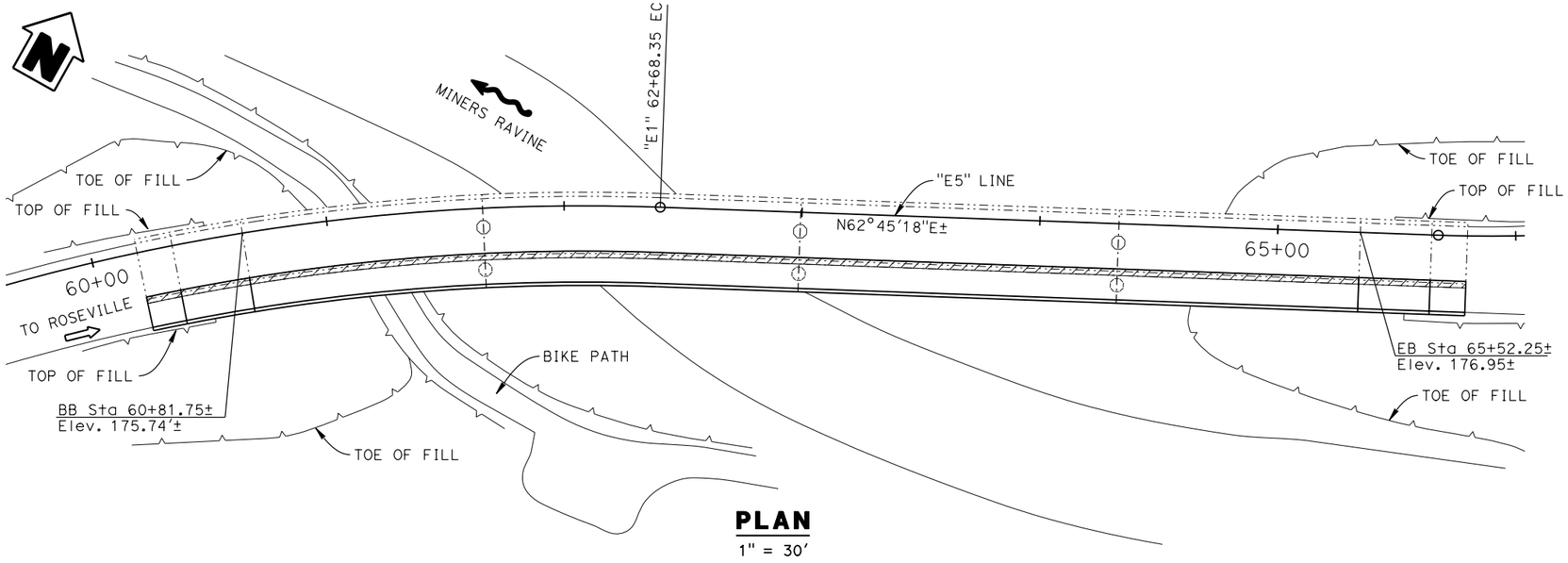
DEVELOPED ELEVATION

1" = 30'



TYPICAL SECTION

3/16" = 1'-0"



PLAN

1" = 30'

STRUCTURE DEPTH	= 5'-9"
LENGTH	= 470'-6"±
WIDTH	= 14'-2"
AREA	= 6,665 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 261
TOTAL COST	= $ 1,751,000

LEGEND

- Indicates Existing Structure
- Indicates New Construction
- Indicates Existing Bridge Removal

ALTERNATIVE 3

PLANNING STUDY

MINERS RAVINE BRIDGE OFF RAMP (WIDEN)

BRIDGE NO. 19-0056S	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_MRS-a-gp01.dgn

CONTRACT NO.: X

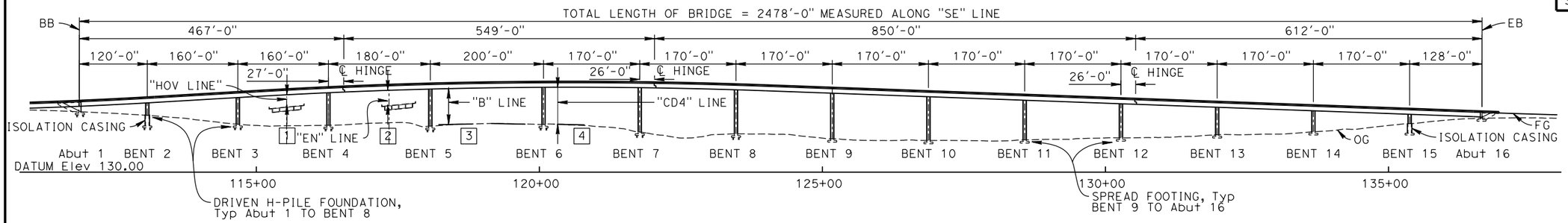
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:53

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



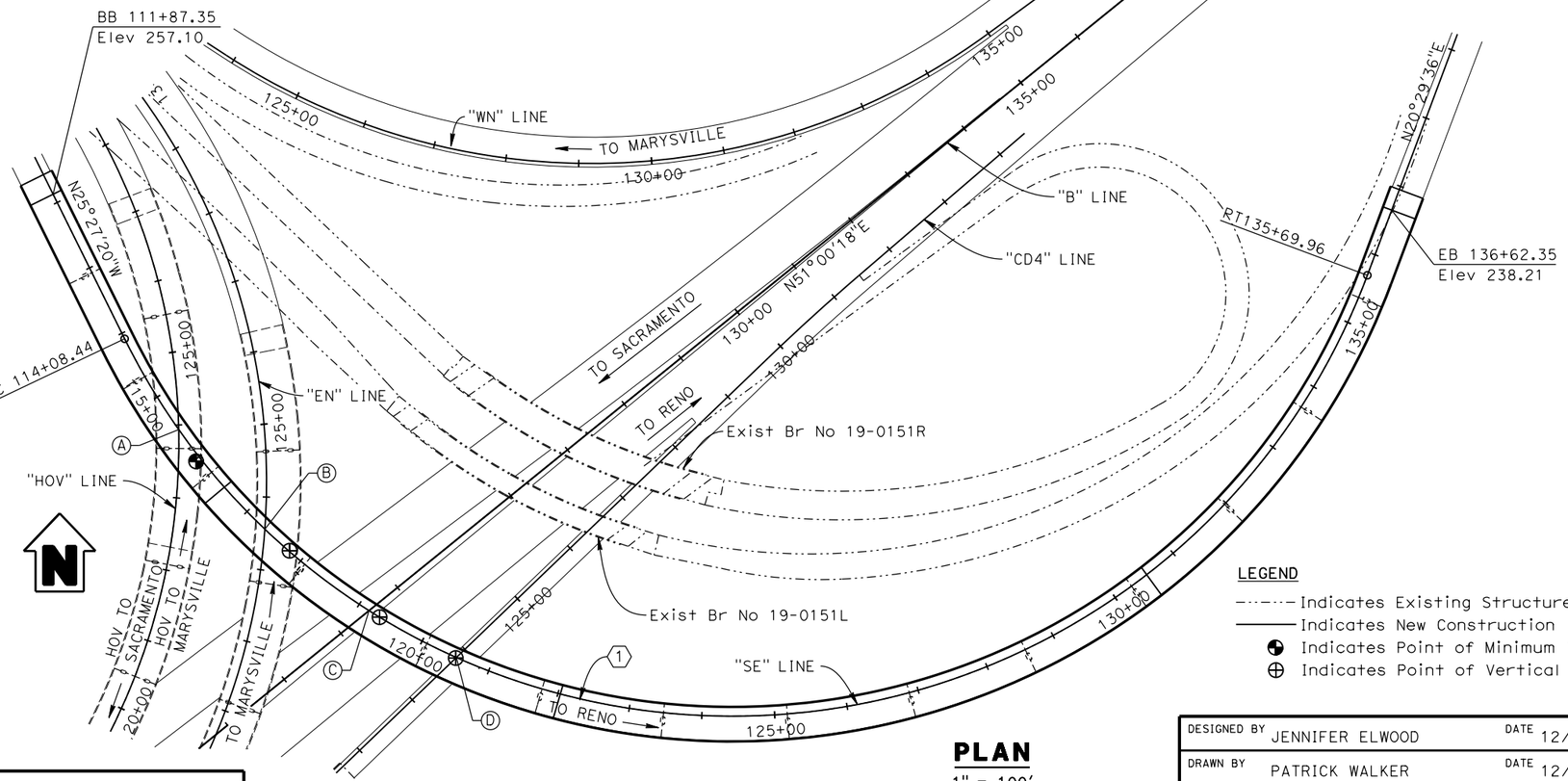
DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 133°10'03"
R = 930.00'
L = 2161.52'
T = 2147.44'

Ⓐ "SE" 115+53.49 = "HOV" 123+93.71
Ⓑ "SE" 117+34.36 = "EN" 123+55.85
Ⓒ "SE" 119+17.08 = "B" 123+48.55
Ⓓ "SE" 120+53.16 = "CD4" 23+82.92

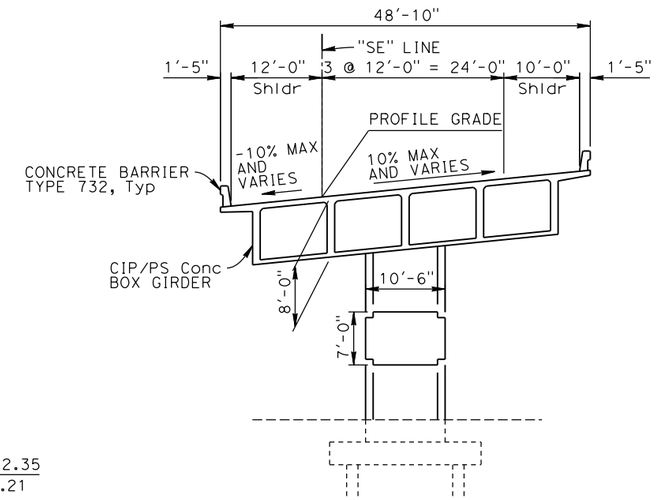
1 20'-0" MINIMUM VERTICAL CLEARANCE
2 23'-4" VERTICAL CLEARANCE
3 62'-0" VERTICAL CLEARANCE
4 66'-3" VERTICAL CLEARANCE



PLAN

1" = 100'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance



TYPICAL SECTION

1" = 10'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 2478'-0"
WIDTH	= 48'-10"
AREA	= 121,258 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 211
REMOVAL AREA *	= 9,222 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 25,958,000

* REMOVAL OF BR. NO. 19-0151L

ALTERNATIVE 3

PLANNING STUDY

S65/E80 CONNECTOR

DESIGNED BY JENNIFER ELWOOD	DATE 12/16/14
DRAWN BY PATRICK WALKER	DATE 12/16/14
CHECKED BY MARK BRADY	DATE 12/16/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

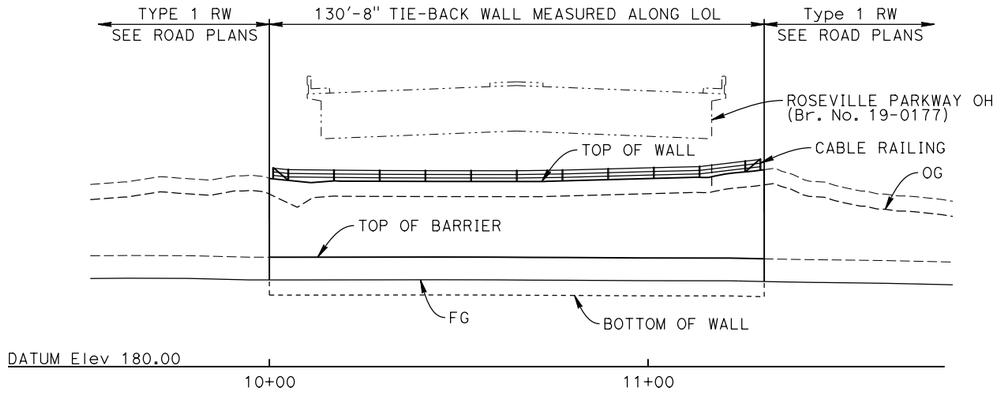
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:54

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

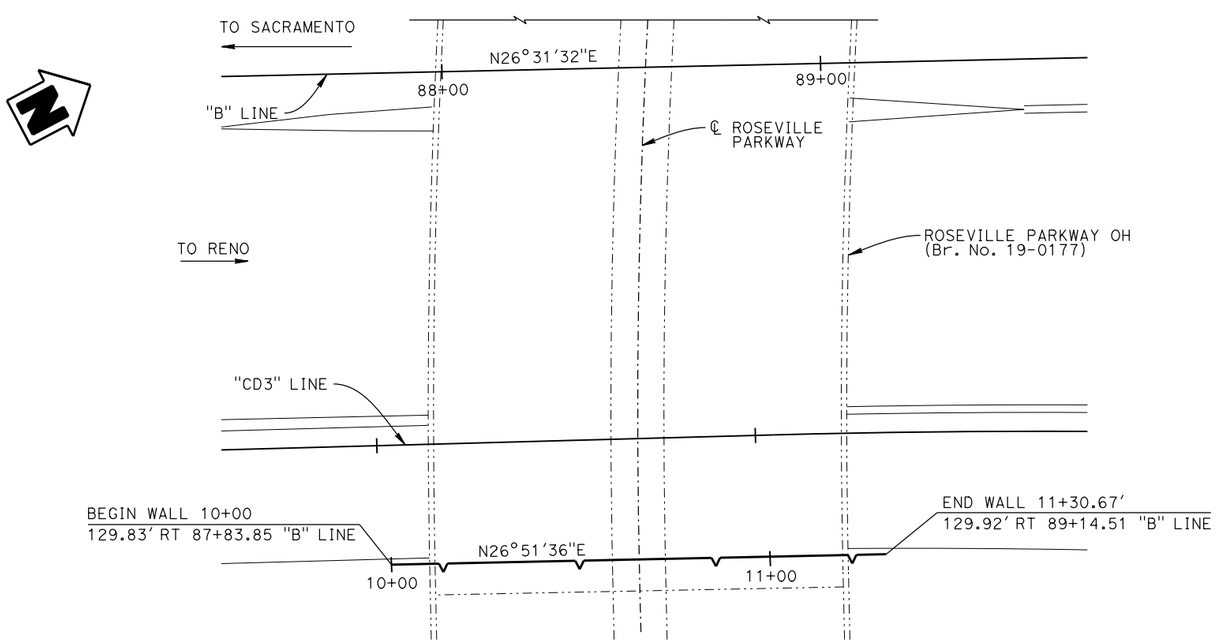
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



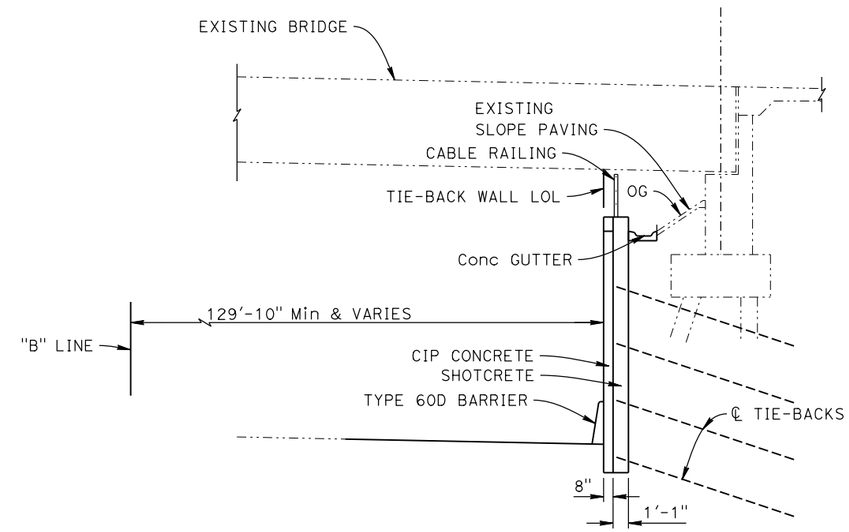
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



PLAN

1" = 20'



TYPICAL SECTION

3/16" = 1'

STRUCTURE LENGTH = 130'-8"
HEIGHT = 13'-6" TO 15'-0"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 88
TOTAL COST = $ 174,000

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3

PLANNING STUDY

ROSEVILLE PKWY TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

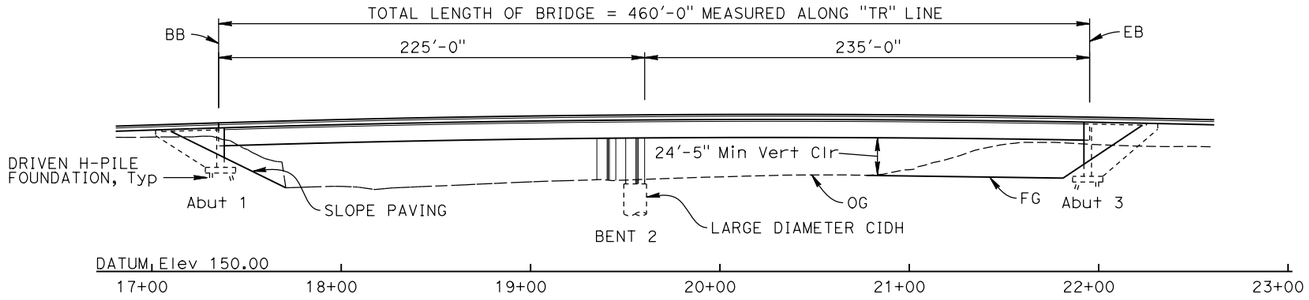
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:54

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

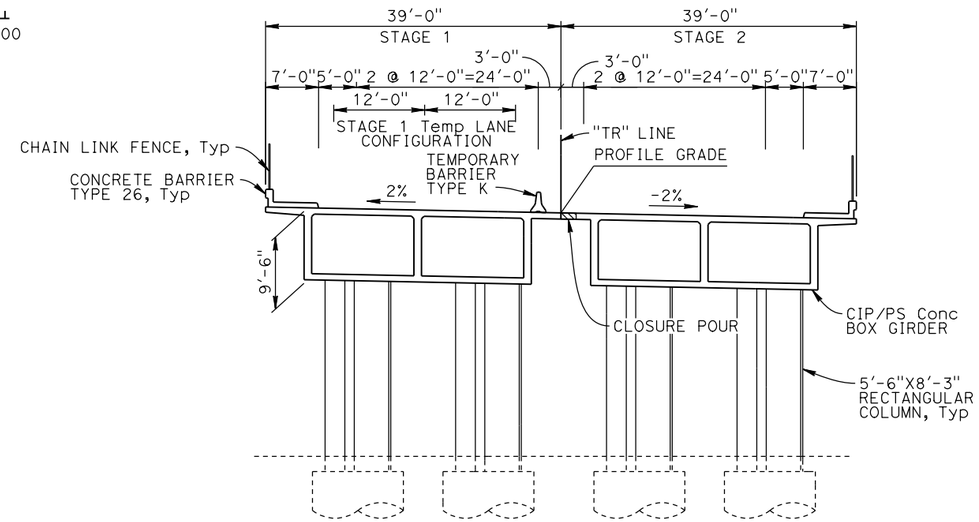
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 40'

STRUCTURE DEPTH	= 9'-6"
LENGTH	= 460'-0"
WIDTH	= 78'-0"
AREA	= 35,840 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 249
REMOVAL AREA	= 22,570 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 9,248,000

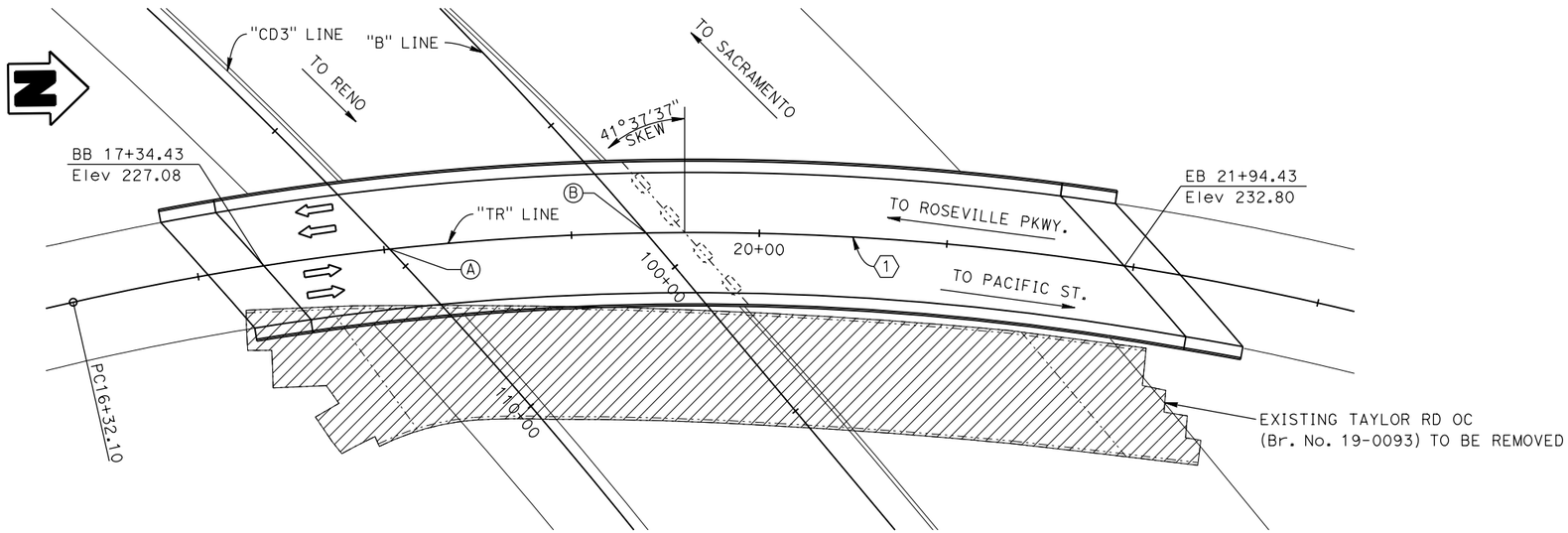


TYPICAL SECTION

1" = 10'

① CURVE DATA
Δ = 28°26'05"
R = 1491.00'
L = 739.96'
T = 377.76'

Ⓐ "TR" 18+02.96 = "CD3" 108+87.65
Ⓑ "TR" 19+39.71 = "B" 99+76.31



PLAN

1" = 40'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge to be removed

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3

PLANNING STUDY

TAYLOR ROAD OC (REPLACE)

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

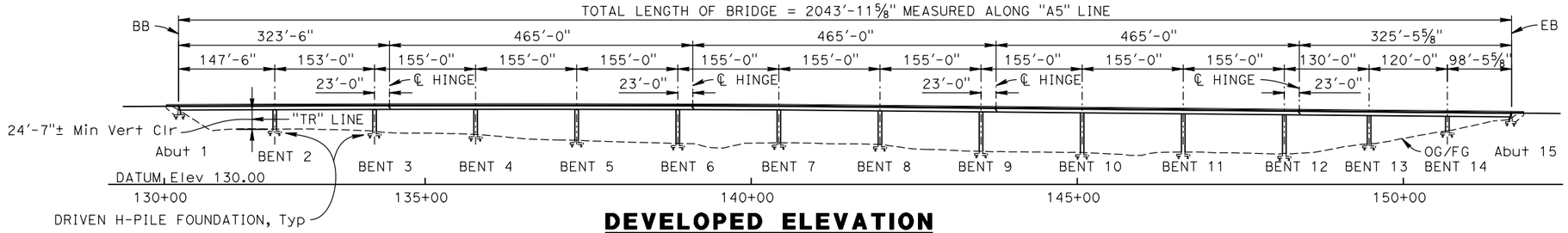
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:54

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

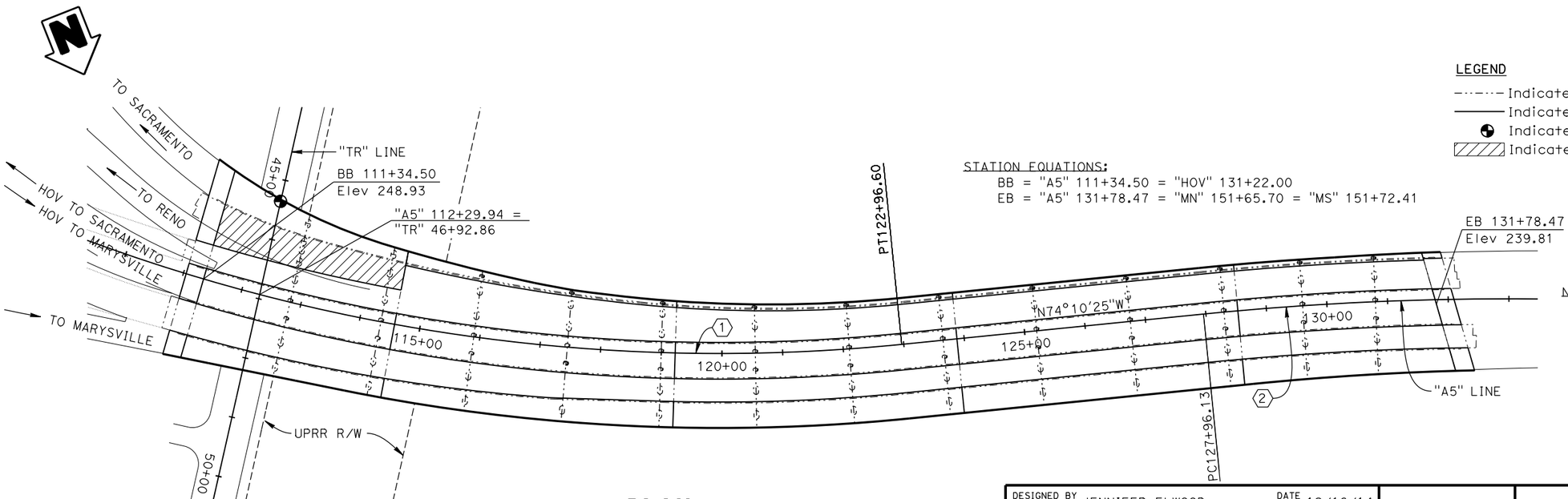


DEVELOPED ELEVATION
1" = 100'

STRUCTURE DEPTH	= 6'-0"
LENGTH	= 2043'-11⅝"
WIDTH LEFT	= 10'-9" TO 59'-2"
WIDTH CENTER	= 60'-6"
WIDTH RIGHT	= 32'-10" TO 41'-6"
AREA LEFT	= 49,181 SQ FT
AREA CENTER	= 124,074 SQ FT
AREA RIGHT	= 84,607 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 248
REMOVAL AREA	= 36,893 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 62,345,000

① **CURVE DATA**
Δ = 35°10'43"
R = 3000.00'
L = 1841.95'
T = 951.04'

② **CURVE DATA**
Δ = 16°14'18"
R = 5000.00'
L = 1417.06'
T = 713.31'



PLAN
1" = 100'

STATION EQUATIONS:
BB = "A5" 111+34.50 = "HOV" 131+22.00
EB = "A5" 131+78.47 = "MN" 151+65.70 = "MS" 151+72.41

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge Removal

NOTE:
For Typical Sections, see E. Roseville Viaduct Widen (2 of 2).

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
E. ROSEVILLE VIADUCT (WIDEN) 1 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_VIADUCT-a-gp01.dgn

CONTRACT NO.: X

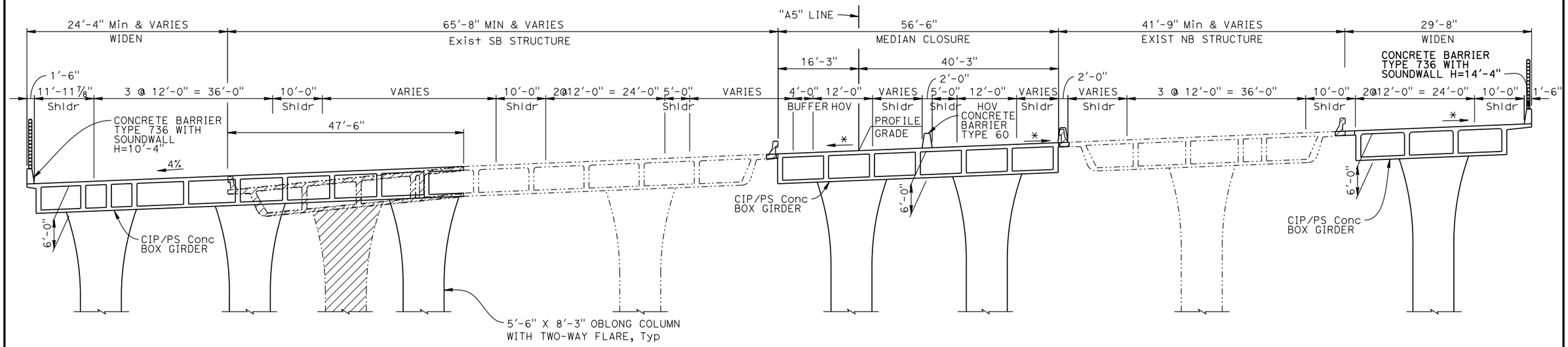
USERNAME => pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 23:35

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

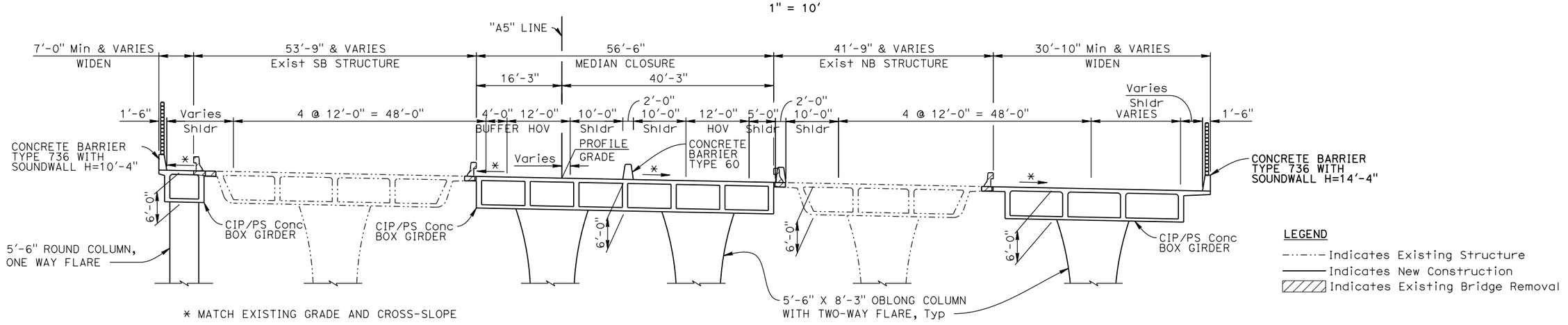
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION-FRAME 1

1" = 10'



TYPICAL SECTION-FRAMES 2,3,4,5

1" = 10'

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	12/16/14
DRAWN BY	PATRICK WALKER	DATE	12/16/14
CHECKED BY	MARK BRADY	DATE	12/16/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3

PLANNING STUDY

E. ROSEVILLE VIADUCT (WIDEN) 2 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_VIADUCT-a-gp02.dgn

USERNAME =>pwalker DATE PLOTTED => 17-DEC-2014 TIME PLOTTED => 21:54

Attachment F
Preliminary Cost Estimates

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

Project Description: I-80/SR 65 SYSTEM INTERCHANGE IMPROVEMENTS

Limits: I-80 FROM DOUGLAS BLVD TO ROCKLIN ROAD AND SR 65 FROM I-80 TO PLEASANT GROVE BLVD

Alternative: ALTERNATIVE 1 - TAYLOR ROAD FULL ACCESS INTERCHANGE

Proposed Improvement (Scope): UPGRADE THE I-80/SR 65 INTERCHANGE AND ADJACENT TRANSPORTATION FACILITIES TO REDUCE TRAFFIC CONGESTION AND COMPLY WITH CURRENT DESIGN STANDARDS. ALTERNATIVE 1 PROPOSES A FULL ACCESS INTERCHANGE WITHIN THE I-80/SR 65 INTERCHANGE FOOTPRINT TO PROVIDE ACCESS TO TAYLOR ROAD

TOTAL ROADWAY ITEMS	**$ 162,600,000**
TOTAL STRUCTURE ITEMS	**$ 181,000,000**
SUBTOTAL CONSTRUCTION COSTS	**$ 343,600,000**
TOTAL RIGHT OF WAY ITEMS	**$ 3,640,000**
TOTAL PROJECT CAPITAL OUTLAY COST	**$ 347,300,000**
3% COMPOUNDED TO 2020	**$ 414,700,000**

Prepared by Lauren Proctor, PE (*Name*) 916-286-0332 (*Phone No.*) 07-18-2014 (*Date*)

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

CALTRANS IMPROVEMENTS

I. ROADWAY ITEMS:

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost	Section Cost
Roadway Excavation	608,130	CY	$ 25.00	$ 15,203,250	
Imported Borrow	474,700	CY	$ 15.00	$ 7,120,500	
Clearing & Grubbing	1	LS	$ 300,000.00	$ 300,000	
Existing Pavement Excavation	553,200	CY	$ 25.00	$ 13,830,000	
				Subtotal Earthwork	$ 36,453,750

Section 2 Structural Section					
HMA (Type A)	146,900	TON	$ 85.00	$ 12,486,500	
Aggregate Base Class II	149,000	CY	$ 50.00	$ 7,450,000	
Pavement Reinforcing Fabric	337,600	SQYD	$ 1.50	$ 506,400	
Minor Concrete (Curb, Gutter, Sidewalk)	600	CY	$ 485.00	$ 291,000	
Cold Plane AC Pavement	499,700	SQYD	$ 2.00	$ 999,400	
				Subtotal Structural Section	$ 21,733,300

Section 3 Drainage					
Remove Existing Drainage Facilities	1	LS	$ 300,000.00	$ 300,000	
Project Drainage (X-Drains, overside, etc.)	1	LS	$ 19,177,500.00	$ 19,177,500	
Ditch Excavation	1	LS	$ 200,000.00	$ 200,000	
				Subtotal Drainage	$ 19,677,500

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

Section 4 Specialty Items	Quantity	Unit	Unit Price	Item Cost	Section Cost
Retaining Walls	12,070	SF	$ 65.00	$ 784,550	
Noise Barriers	155,700	SF	$ 20.00	$ 3,114,000	
Barriers and Guardrails	10,740	LF	$ 45.00	$ 483,300	
Highway Planting	1	LS	$ 5,000,000.00	$ 5,000,000	
Replacement Planting	1	LS	$ 2,000,000.00	$ 2,000,000	
Erosion Control	1	LS	$ 335,000.00	$ 335,000	
Water Pollution Control	1	LS	$ 100,000.00	$ 100,000	
Hazardous Waste Mitigation Work	1	LS	$ 2,322,478.00	$ 2,322,478	
Storm Water Treatment BMPs	1	LS	$ 3,500,000.00	$ 3,500,000	
Prepare SWPPP	1	LS	$ 30,000.00	$ 30,000	
Storm Water Construction BMPs	1	LS	$ 1,500,000.00	$ 1,500,000	
Environmental Mitigation	1	LS	$ 250,000.00	$ 250,000	
Resident Engineer Office Space	1	LS	$ 250,000.00	$ 250,000	
				Subtotal Specialty Items	$ 19,669,328

Section 5 Traffic Items					
Lighting	1	LS	$ 5,500,000.00	$ 5,500,000	
Traffic Striping	228,300	LF	$ 5.00	$ 1,141,500	
Traffic Signs	1	LS	$ 40,000.00	$ 40,000	
Traffic Signals	1	EA	$ 300,000.00	$ 300,000	
COZEEP/FSP	780	DAYS	$ 4,000.00	$ 3,120,000	
Traffic Control	780	DAYS	$ 3,000.00	$ 2,340,000	
Public Information	1	LS	$ 100,000.00	$ 100,000	
New Ramp Meter Installation	1	LS	$ 250,000.00	$ 250,000	
Temporary Railing (Type K)	66,800	LF	$ 18.00	$ 1,202,400	
				Subtotal Traffic Items	$ 13,993,900

TOTAL SECTIONS 1 thru 5	$ 111,527,778

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

			Item Cost	Section Cost
Section 6 Minor Item				
Subtotal Sections 1-5	$ 111,527,778	x 8%	$ 8,922,200	
		Total Minor Items		$ 8,922,200
Section 7 Roadway Mobilization				
	$ 120,449,978 (Subtotal Sections 1 thru 6)	x 10%	$ 12,045,000	
		Total Roadway Mobilization		$ 12,045,000
Section 8 Roadway Additions				
Supplemental Work	$ 120,449,978 (Subtotal Sections 1 thru 6)	x 5%	$ 6,022,500	
Contingencies*	$ 120,449,978 (Subtotal Sections 1 thru 6)	x 20%	$ 24,090,000	
		Total Roadway Additions		$ 30,112,500
		TOTAL ROADWAY ITEMS (Total of Sections 1-8)		$ 162,607,478

Estimate Prepared By:	Lauren Proctor, PE	916-286-0332	07-18-2014
	(Print Name)	Phone#	Date
Estimate Checked By:	John O'Reilly	916-563-2598	7-23-2014
	(Print Name)	Phone#	Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

II. STRUCTURE ITEMS

Bridge Name	Area (Sq-Ft)	Cost/Sq-Ft	Demolition Cost	Total Cost
E80/N65 Connector	108,918	$ 275	$ 190,500	$ 30,143,000
80/65 HOV Connector	91,541	$ 275	$ -	$ 25,173,800
S65/E80 Connector	135,807	$ 275	$ 138,330	$ 37,485,300
S65/W80 Connector	11,558	$ 300	$ -	$ 3,467,400
"T" Undercrossing (Left)	11,875	$ 300	$ -	$ 3,562,500
"T" Undercrossing (Right)	14,007	$ 300	$ -	$ 4,202,100
Taylor Road OC (Replace)	35,880	$ 300	$ 338,600	$ 11,102,600
E. Roseville Viaduct	258,416	$ 250	$ 553,395	$ 65,157,400

SUBTOTAL STRUCTURES ITEMS (Sum of Total Cost for Structures)	$ 180,294,100

Railroad Related Costs:		
Flagging (Day): 250 Days @ $1000/Day	$ 250,000.00	$ 250,000
Flagging (Night): 250 Nights @ $2000/Night	$ 500,000.00	$ 500,000
SUBTOTAL RAILROAD ITEMS		$ 750,000

TOTAL STRUCTURES ITEMS (Sum of Structures Items plus Railroad Items)	$ 181,044,100

Estimate Prepared By Jennifer Elwood, PE (Print Name) 916-286-0267 Phone # 07-18-2014 Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

III. RIGHT OF WAY ITEMS

A.	Acquisition, including excess lands, damage to remainder(s) and Goodwill	$ 3,588,200	
B.	Project Permit Fees	$ -	
C.	Utility Relocation (Agency Share)	$ -	
D.	Relocation Assistance	$ 20,000	
E.	Clearance/Demolition	$ 15,000	
F.	Title and Escrow Fees	$ 15,000	
	TOTAL RIGHT OF WAY ITEMS (Escalated Value)		**$ 3,639,000**

Anticipated Date of Right of Way Certification (Date to which values are escalated) _____

H. Construction Contract Work

Brief Description of Work:

_____

_____

_____

_____

_____

Right of Way Branch Cost Estimate for Work* _____

*This dollar amount is to be included in the Roadway and/or Structure Items of Work, as appropriate. DO NOT include in Right of Way Items.

Estimate Prepared By Lauren Proctor, PE (Print Name) 916-286-0332 Phone # 07-18-2014 Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

Project Description: I-80/SR 65 SYSTEM INTERCHANGE IMPROVEMENTS

Limits: I-80 FROM DOUGLAS BLVD TO ROCKLIN ROAD AND
Alternative: SR 65 FROM I-80 TO PLEASANT GROVE BLVD
ALTERNATIVE 2 - COLLECTOR DISTRIBUTOR RAMPS

Proposed Improvement (Scope): UPGRADE THE I-80/SR 65 INTERCHANGE AND ADJACENT TRANSPORTATION FACILITIES TO REDUCE TRAFFIC CONGESTION COMPLY WITH CURRENT DESIGN STANDARDS. ALTERNATIVE 2 PROPOSES AN EASTBOUND COLLECTOR-DISTRIBUTOR SYSTEM TO PROVIDE ACCESS TO TAYLOR ROAD

TOTAL ROADWAY ITEMS	**$ 151,600,000**
TOTAL STRUCTURE ITEMS	**$ 194,000,000**
SUBTOTAL CONSTRUCTION COSTS	**$ 345,600,000**
TOTAL RIGHT OF WAY ITEMS	**$ 5,490,000**
TOTAL PROJECT CAPITAL OUTLAY COST	**$ 351,100,000**
3% COMPOUNDED TO 2020	**$ 419,200,000**

Prepared by Lauren Proctor, PE 916-286-0332 7-18-2014
Name *Phone No.* *Date*

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

CALTRANS IMPROVEMENTS

I. ROADWAY ITEMS:

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost	Section Cost
Roadway Excavation	188,400	CY	$ 25.00	$ 4,710,000	
Imported Borrow	847,200	CY	$ 15.00	$ 12,708,000	
Clearing & Grubbing	1	LS	$ 300,000.00	$ 300,000	
Existing Pavement Excavation	190,700	CY	$ 25.00	$ 4,767,500	
				Subtotal Earthwork	$ 22,485,500

Section 2 Structural Section					
HMA (Type A)	158,100	TON	$ 85.00	$ 13,438,500	
Aggregate Base	154,900	CY	$ 50.00	$ 7,745,000	
Pavement Reinforcing Fabric	309,700	SQYD	$ 1.50	$ 464,550	
Concrete (Curb, Gutter, Sidewalk)	540	CY	$ 485.00	$ 261,972	
Cold Plane AC Pavement	106,500	SQYD	$ 2.00	$ 213,000	
				Subtotal Structural Section	$ 22,123,022

Section 3 Drainage					
Remove Existing Drainage Facilities	1	LS	$ 300,000.00	$ 300,000	
Project Drainage (X-Drains, overside, etc.)	1	LS	$ 17,559,500.00	$ 17,559,500	
Ditch Excavation	1	LS	$ 200,000.00	$ 200,000	
				Subtotal Drainage	$ 18,059,500

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

Section 4 Specialty Items	Quantity	Unit	Unit Price	Item Cost	Section Cost
Retaining Walls	109,000	SF	$ 65.00	$ 7,085,000	
Noise Barriers	155,700	SF	$ 20.00	$ 3,114,000	
Barriers and Guardrails	29,100	LF	$ 45.00	$ 1,309,500	
Highway Planting	1	LS	$ 5,000,000.00	$ 5,000,000	
Replacement Planting	1	LS	$ 2,000,000.00	$ 2,000,000	
Erosion Control	1	LS	$ 335,000.00	$ 335,000	
Water Pollution Control	1	LS	$ 100,000.00	$ 100,000	
Hazardous Waste Mitigation Work	1	LS	$ 947,537.00	$ 947,537	
Storm Water Treatment BMPs	1	LS	$ 2,500,000.00	$ 2,500,000	
Prepare SWPPP	1	LS	$ 30,000.00	$ 30,000	
Storm Water Construction BMPs	1	LS	$ 1,500,000.00	$ 1,500,000	
Environmental Mitigation	1	LS	$ 300,000.00	$ 300,000	
Resident Engineer Office Space	1	LS	$ 250,000.00	$ 250,000	
				Subtotal Specialty Items	$ 24,471,037

Section 5 Traffic Items					
Lighting	1	LS	$ 5,500,000.00	$ 5,500,000	
Traffic Striping	737,500	LF	$ 5.00	$ 3,687,500	
Traffic Signs	1	LS	$ 40,000.00	$ 40,000	
COZEEP/FSP	780	DAYS	$ 4,000.00	$ 3,120,000	
Traffic Control	780	DAYS	$ 3,000.00	$ 2,340,000	
Public Information	1	LS	$ 100,000.00	$ 100,000	
New Ramp Meter Installation	1	LS	$ 200,000.00	$ 200,000	
Temporary Railing (Type K)	101,200	LF	$ 18.00	$ 1,821,600	
				Subtotal Traffic Items	$ 16,809,100

TOTAL SECTIONS 1 thru 5	$ 103,948,159

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

			Item Cost	Section Cost
Section 6 Minor Item				
Subtotal Sections 1-5	$ 103,948,159	x 8%	$ 8,315,900	
		Total Minor Items		$ 8,315,900
Section 7 Roadway Mobilization				
	$ 112,264,059 (Subtotal Sections 1 thru 6)	x 10%	$ 11,226,400	
		Total Roadway Mobilization		$ 11,226,400
Section 8 Roadway Additions				
Supplemental Work	$ 112,264,059 (Subtotal Sections 1 thru 6)	x 5%	$ 5,613,200	
Contingencies*	$ 112,264,059 (Subtotal Sections 1 thru 6)	x 20%	$ 22,452,800	
		Total Roadway Additions		$ 28,066,000
		TOTAL ROADWAY ITEMS (Total of Sections 1-8)		$ 151,556,459

Estimate Prepared By:	Lauren Proctor, PE	916-286-0267	7-18-2014
	(Print Name)	Phone#	Date
Estimate Checked By:	John O'Reilly	916-563-2598	7-23-2014
	(Print Name)	Phone#	Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

II. STRUCTURE ITEMS

Bridge Name	Area (Sq-Ft)	Cost/Sq-Ft	Demolition Cost	Total Cost
NB SR-65 On Ramp ("CD3")	8,736	$ 300	$ -	$ 2,620,800
EB I-80 On Ramp ("CD4")	35,867	$ 300	$ -	$ 10,760,100
E80/N65 Connector ("EN")	115,185	$ 275	$ 190,500	$ 31,866,400
80/65 HOV Connector ("HOV")	90,888	$ 275	$ -	$ 24,994,200
Miners Ravine Bridge ("CD1")	9,547	$ 300	$ -	$ 2,864,100
S65/E80 Connector ("SE")	130,581	$ 275	$ 138,300	$ 36,048,100
Taylor Road OC (Replace) "TR"	41,177	$ 300	$ 338,600	$ 12,691,700
Eureka Road On Ramp UC	17,820	$ 350	$ -	$ 6,237,000
E. Roseville Viaduct	258,416	$ 250	$ 553,395	$ 65,157,400

		SUBTOTAL STRUCTURES ITEMS (Sum of Total Cost for Structures)	$ 193,239,800
Railroad Related Costs:			$ -
Flagging (Day): 250 Days @ $1000/Day	$ 250,000.00		$ 250,000
Flagging (Night): 250 Nights @ $2000/Night	$ 500,000.00		$ 500,000
		SUBTOTAL RAILROAD ITEMS	$ 750,000
		TOTAL STRUCTURES ITEMS (Sum of Structures Items plus Railroad Items)	$ 193,989,800

Estimate Prepared By Jennifer Elwood, PE (Print Name) 916-286-0267 Phone # 7-18-2014 Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

III. RIGHT OF WAY ITEMS

		2014 VALUE
A.	Acquisition, including excess lands, damage to remainder(s) and Goodwill	$ 3,437,200
B.	Project Permit Fees	
C.	Utility Relocation (Agency Share)	$ 2,000,000
D.	Relocation Assistance	$ 20,000
E.	Clearance/Demolition	$ 15,000
F.	Title and Escrow Fees	$ 16,500

TOTAL RIGHT OF WAY ITEMS **$ 5,488,700**
(Escalated Value)

Anticipated Date of Right of Way Certification
(Date to which values are escalated)

F. Construction Contract Work

Brief Description of Work:

Right of Way Branch Cost Estimate for Work*

*This dollar amount is to be included in the Roadway and/or Structure Items of Work, as appropriate. DO NOT include in Right of Way Items.

Estimate Prepared By Lauren Proctor, PE '916-286-0332 7-18-2014
(Print Name) Phone # Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

Project Description: I-80/SR 65 SYSTEM INTERCHANGE IMPROVEMENTS

Limits: I-80 FROM DOUGLAS BLVD TO ROCKLIN ROAD AND
Alternative: SR 65 FROM I-80 TO PLEASANT GROVE BLVD
ALTERNATIVE 3 - TAYLOR ROAD INTERCHANGE ELIMINATED

Proposed Improvement (Scope): UPGRADE THE I-80/SR 65 INTERCHANGE AND ADJACENT TRANSPORTATION FACILITIES TO REDUCE TRAFFIC CONGESTION COMPLY WITH CURRENT DESIGN STANDARDS. ALTERNATIVE 3 REMOVES THE EXISITNG TAYLOR ROAD INTERCHANGE. TAYLOR ROAD WOULD BE ACCESSED FROM ADJACENT INTERCHANGES

TOTAL ROADWAY ITEMS	**$ 150,700,000**
TOTAL STRUCTURE ITEMS	**$ 185,300,000**
SUBTOTAL CONSTRUCTION COSTS	**$ 336,000,000**
TOTAL RIGHT OF WAY ITEMS	**$ 5,740,000**
TOTAL PROJECT CAPITAL OUTLAY COST	**$ 341,800,000**
3% COMPOUNDED TO 2020	**$ 408,100,000**

Prepared by	Dave Melis, PE	916-363-4210	7-16-2014
	Name	*Phone No.*	*Date*

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

CALTRANS IMPROVEMENTS

I. ROADWAY ITEMS:

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost	Section Cost
Roadway Excavation	206,300	CY	$ 25.00	$ 5,157,500	
Imported Borrow	476,800	CY	$ 15.00	$ 7,152,000	
Clearing & Grubbing	1	LS	$ 300,000.00	$ 300,000	
Existing Pavement Excavation	513,100	CY	$ 25.00	$ 12,827,500	
				Subtotal Earthwork	$ 25,437,000
Section 2 Structural Section					
HMA (Type A)	162,800	TON	$ 85.00	$ 13,838,000	
Aggregate Base	163,800	CY	$ 50.00	$ 8,190,000	
Pavement Reinforcing Fabric	325,300	SQYD	$ 1.50	$ 487,950	
Minor Concrete (Curb, Gutter, Sidewalk)	1,290	CY	$ 485.00	$ 625,650	
Cold Plane AC Pavement	106,500	SQYD	$ 2.00	$ 213,000	
				Subtotal Structural Section	$ 23,354,600
Section 3 Drainage					
Remove Existing Drainage Facilities	1	LS	$ 300,000.00	$ 300,000	
Project Drainage	1	LS	$ 16,809,000.00	$ 16,809,000	
(X-Drains, overside, etc.)			.		
Ditch Excavation	1	LS	$ 200,000.00	$ 200,000	
				Subtotal Drainage	$ 17,309,000

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

Section 4 Specialty Items	Quantity	Unit	Unit Price	Item Cost	Section Cost
Retaining Walls	109,000	SF	$ 65.00	$ 7,085,000	
Noise Barriers	155,700	SF	$ 20.00	$ 3,114,000	
Barriers and Guardrails	34,000	LF	$ 45.00	$ 1,530,000	
Highway Planting	1	LS	$ 5,000,000.00	$ 5,000,000	
Replacement Planting	1	LS	$ 2,000,000.00	$ 2,000,000	
Erosion Control	1	LS	$ 335,000.00	$ 335,000	
Water Pollution Control	1	LS	$ 100,000.00	$ 100,000	
Hazardous Waste Mitigation Work	1	LS	$ 1,438,600.00	$ 1,438,600	
Storm Water Treatment BMPs	1	LS	$ 3,500,000.00	$ 3,500,000	
Prepare SWPPP	1	LS	$ 30,000.00	$ 30,000	
Storm Water Construction BMPs	1	LS	$ 1,500,000.00	$ 1,500,000	
Environmental Mitigation	1	LS	$ 25,000.00	$ 25,000	
Resident Engineer Office Space	1	LS	$ 250,000.00	$ 250,000	
				Subtotal Specialty Items	$ 25,907,600

Section 5 Traffic Items					
Lighting	1	LS	$ 5,500,000.00	$ 5,500,000	
Traffic Striping	268,600	LF	$ 5.00	$ 1,343,000	
Traffic Signs	1	LS	$ 40,000.00	$ 40,000	
COZEEP/FSP	1	LS	$ 4,000.00	$ 4,000	
Traffic Control	780	DAYS	$ 3,000.00	$ 2,340,000	
Public Information	1	LS	$ 100,000.00	$ 100,000	
New Ramp Meter Installation	1	LS	$ 200,000.00	$ 200,000	
Temporary Railing (Type K)	103,100	LF	$ 18.00	$ 1,855,800	
				Subtotal Traffic Items	$ 11,382,800

TOTAL SECTIONS 1 thru 5	$ 103,391,000

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

			Item Cost	Section Cost
Section 6 Minor Item				
Subtotal Sections 1-5	$ 103,391,000	x 8%	$ 8,271,300	
		Total Minor Items		$ 8,271,300
Section 7 Roadway Mobilization				
	$ 111,662,300 (Subtotal Sections 1 thru 6)	x 10%	$ 11,166,200	
		Total Roadway Mobilization		$ 11,166,200
Section 8 Roadway Additions				
Supplemental Work	$ 111,662,300 (Subtotal Sections 1 thru 6)	x 5%	$ 5,583,100	
Contingencies*	$ 111,662,300 (Subtotal Sections 1 thru 6)	x 20%	$ 22,332,500	
		Total Roadway Additions		$ 27,915,600
		TOTAL ROADWAY ITEMS (Total of Sections 1-8)		$ 150,744,100

Note: Import/Export quantities do no account for shrinkage or swell.

Estimate Prepared By:	Dave Melis, PE	916-286-0267	7-16-2014
	(Print Name)	Phone#	Date
Estimate Checked By:	John O'Reilly	916-563-25922-3954	7-23-2014
	(Print Name)	Phone#	Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

II. STRUCTURE ITEMS

Bridge Name	Area (Sq-Ft)	Cost/Sq-Ft	Demolition Cost	Total Cost
NB SR-65 On Ramp ("CD3")	8,736	$ 300	$ -	$ 2,620,800
EB I-80 On Ramp ("CD4")	35,867	$ 300	$ -	$ 10,760,100
E80/N65 Connector ("EN")	115,185	$ 275	$ 190,500	$ 31,866,400
80/65 HOV Connector ("HOV")	90,888	$ 275	$ -	$ 24,994,200
S65/E80 Connector ("SE")	130,581	$ 275	$ 138,300	$ 36,048,100
Taylor Road OC (Replace) ("TR")	35,840	$ 300	$ 338,600	$ 11,090,600
E. Roseville Viaduct	258,416	$ 250	$ 553,395	$ 65,157,400
Miners Ravine Bridge (Widen) ("E5")	6,665	$ 300	$ 14,085	$ 2,013,600

SUBTOTAL STRUCTURES ITEMS (Sum of Total Cost for Structures)		$ 184,551,200
Railroad Related Costs:		
Flagging (Day): 250 Days @ $1000/Day	$ 250,000.00	$ 250,000
Flagging (Night): 250 Nights @ $2000/Night	$ 500,000.00	$ 500,000
SUBTOTAL RAILROAD ITEMS		$ 750,000
TOTAL STRUCTURES ITEMS (Sum of Structures Items plus Railroad Items)		$ 185,301,200

Estimate Prepared By	Jennifer Elwood, PE	916-286-0267	7-16-2014
	(Print Name)	Phone #	Date

NOTE: If appropriate, attach additional pages and backup.

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

III. RIGHT OF WAY ITEMS

A.	Acquisition, including excess lands, damage to remainder(s) and Goodwill	$ 3,679,600	
B.	Project Permit Fees		
C.	Utility Relocation (Agency Share)	$ 2,000,000	
D.	Relocation Assistance	$ 20,000	
E.	Clearance/Demolition	$ 15,000	
F.	Title and Escrow Fees	$ 16,500	
	TOTAL RIGHT OF WAY ITEMS (Escalated Value)		**$ 5,731,100**

Anticipated Date of Right of Way Certification (Date to which values are escalated) _____

F. Construction Contract Work

Brief Description of Work:

_____

_____

_____

_____

_____

Right of Way Branch Cost Estimate for Work* _____

*This dollar amount is to be included in the Roadway and/or Structure Items of Work, as appropriate. DO NOT include in Right of Way Items.

Estimate Prepared By Lauren Proctor, PE (Print Name) 916-286-0332 Phone # 7-16-2014 Date

Attachment G
Exceptions to Design Standards

Fact Sheet Exceptions to Mandatory Design Standards

Prepared by:

LAUREN PROCTOR, Registered Civil Engineer
CH2M HILL

Submitted by: _____ _____ (916) 286-0332
(Lauren Proctor), Design Engineer Date Telephone

Recommended for Approval: _____ _____ _____
(Wayne Lewis), Project Manager Date Telephone

Concurrence by: _____ _____ _____
Date Telephone
Chief Office of Design

Approved by: _____ _____
Date
District Coordinator

DRAFT

1. PROPOSED PROJECT

A. Project Description:

The project is located in Placer County in the cities of Roseville and Rocklin at the I-80/SR 65 interchange (see Attachment 1). The project limits consist of I-80 from the Douglas Blvd interchange to the Rocklin Rd interchange (PM 1.9 – 6.1) and SR 65 from the I-80 separation to the Pleasant Grove Blvd interchange (PM R4.8 – R7.3). The project area also includes various local roads specifically, portions of Galleria Blvd/Stanford Ranch Rd, Pleasant Grove Blvd, Eureka Rd/Atlantic St, East Roseville Parkway, and Taylor Rd.

The project would increase capacity at the interchange with the following improvement:

- Replace the eastbound I-80 to northbound SR 65 two-lane loop off-ramp with a three-lane direct flyover ramp.
- Construct new median HOV direct connectors from eastbound I-80 to northbound SR 65 and from southbound SR 65 to westbound I-80.
- Widen the southbound SR 65 connector to westbound I-80 to three lanes.
- Widen the southbound SR 65 connector to eastbound I-80 to two lanes.
- Widen the westbound I-80 connector to northbound SR 65 to two lanes.
- Widen I-80 mainline to add additional lanes and auxiliary lanes.
- Widen Taylor Rd to four lanes.

B. Existing Highway:

The existing I-80/SR 65 freeway-to-freeway interchange was constructed in 1985.

I-80 is the principal east-west route in northern California, providing access across the Sierra Nevada for major good movement into the Sacramento and San Francisco Bay areas. The interstates accommodates high commute, interregional, and recreational traffic volumes, as well as high levels of truck freight traffic within the greater Sacramento region.

The existing I-80 mainline facility between Douglas Blvd and separation with SR 65 is a ten-lane freeway. East of the SR 65 separation, I-80 changes to 6 lanes. An existing bottleneck, on SR 65 at the merge between the EB I-80 to NB SR 65 and WB I-80 to NB SR 65 lanes causes traffic to queue back onto I-80 mainline in both directions.

SR 65 is an important interregional route that serves both local and regional traffic. The route serves as a major connector for both automobile and truck traffic originating from the I-80 corridor in the Roseville/Rocklin area to the SR 70/99 corridor in the Marysville/Yuba City area. SR 65 is a vital economic link from residential areas to

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shopping and employment centers in southern Placer County. It is also an important route for transporting aggregate, lumber, and other commodities.

In the northbound direction, SR 65 begins at the I-80 separation as a three-lane facility joining the two eastbound I-80 to northbound SR 65 connector ramp lanes with the single lane westbound I-80 to northbound SR 65 connector ramp. The outside lane immediately ends along the East Roseville Viaduct and continues with two lanes through the Galleria Boulevard/Stanford Ranch Road interchange. A partial auxiliary lane begins prior to the Pleasant Grove Boulevard interchange and ends at the northbound off-ramp. Northbound SR 65 continues as a two lane facility with auxiliary lanes past the Pleasant Grove interchanges towards Lincoln.

In the southbound direction, SR 65 has two lanes and auxiliary lanes from Lincoln through the Pleasant Grove Boulevard interchange. A third southbound lane develops under the Galleria Boulevard/Stanford Ranch Road interchange prior to the southbound Galleria Boulevard on-ramp. The three lanes continue across the East Roseville Viaduct and split into four lanes, two serving the southbound SR 65 to westbound I-80 connector ramp, and two serving the southbound SR 65 to eastbound I-80 connector ramp.

C. Safety Improvements:

Project does not include any additional and/or specific safety improvements. Non-standard features of existing facilities to be modified, where feasible are upgraded to standards.

D. Total Project Cost

The estimated project cost for these improvements is $ 351,100,000. Below is the summary of project cost:

Roadway Items	$ 151.6 million
Structure Items	$ 194.0 million
Right-of-Way & Utility	$ 5.5 million
Total	**$ 351.1 million**

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2. FEATURES REQUIRING AN EXCEPTION

A. Design Exception Feature #1

Non-standard Feature: Standards for Superelevation

Location A: Eureka EB on-ramp, "E2" station 69+53.56 to 72+50.32, the proposed 200' curve will have superelevation rate of 6%. (See Attachment 2)

The standard superelevation required for 200' curve is 12%.

Location B: Eureka EB Loop on-ramp, "E1" station 59+55.81 to 61+01.82, the proposed 81' curve will have superelevation rate of 5%. (See Attachment 3)

The standard superelevation required for 81' curve is 12%.

Location C: Taylor EB Loop off-ramp, "T1" station 107+53.03 to 109+01.46, the proposed 100' curve will have superelevation rate of 5%. (See Attachment 4)

The standard superelevation required for 100' curve is 12%.

Location D: Taylor WB on-ramp, "T2" station 8+91.54 to 11+81.10, the proposed 850' curve will have superelevation rate of 6%. (See Attachment 5)

The standard superelevation required for 850' curve is 10%.

Location E: SR 65 SB to I-80 EB Connector, "SE" station 105+95.49 to 110+58.44, the proposed 860' curve will have superelevation rate of 4%. (See Attachment 6)

The standard superelevation required for 860' curve is 10%.

Location F: SR 65 SB to I-80 WB Connector, "SW" station 27+91.06 to 30+98.79, the proposed 930' curve will have superelevation rate of 4%. (See Attachment 7)

The standard superelevation required for 930' curve is 10%.

Location G: HOV Direct Connector, "HOV" station 131+21.31 to 131+94.99, the proposed 880' curve will have superelevation rate of 4%. (See Attachment 8)

The standard superelevation required for 880' curve is 10%.

Standard for Which Exception Is Requested:

HDM Topic 202 - Superelevation, Index 202.2 - Standard for Superelevation, Table 202.2

"Based on an emax selected by the designer for one of the conditions, superelevation rates from Table 202.2 shall be used within the given range of curve radii. If less than standard superelevation rates are approved (see index

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82.1), Figure 202.2 shall be used to determine superelevation based on the curve radius and maximum comfortable speed."

Table 202.2 – Standard Superelevation rates

For Ramps – curve radii under 625' is 12% and between 850' to 1,099' is 10%.

Reason for Requesting Exception:

Location A: The reason for the design exception for location A is due to the existing Eureka Rd/Taylor Rd intersection and Eureka Rd 2% cross slope to the west. A higher superelevation rate would require an alignment with a longer tangent to accommodate superelevation runoff, which would shift the alignment further to the south and closer to the intersection. A 12% superelevation rate will also create a grade break of greater than 10% at the gore.

The proposed design with a non-standard feature will still meet the 25 mph design speed at the ramp terminus based on comfortable speed. The maximum comfortable speed based on the proposed design with 6% superelevation rate is 26 mph.

Conformance to standard would require relocating the Eureka Rd/Taylor Rd intersection to the south, realigning the EB off-ramp, impacting an environmental sensitive area, and acquiring new right of way.

Additional cost to make standard is $7.5 million.

Location B: The reason for the design exception for location B is due to the ADA requirement for pedestrian crossing with a gradient no greater than 5%. A higher superelevation rate would require an alignment with a longer tangent to accommodate pedestrian crossing where the slope is less than 5%, which would shift the alignment further to the south and impact Eureka Rd/Taylor Rd intersection.

Conformance to standard would require relocating the Eureka Rd/Taylor Rd intersection to the south, realigning the EB off-ramp, impacting an environmental sensitive area, and acquiring new right of way.

Additional cost to make standard is $7.5 million.

Location C: The reason for the design exception for location C is due to the ADA requirement for pedestrian crossing with a gradient no greater than 5%. A higher superelevation rate would require an alignment with a longer tangent to accommodate pedestrian crossing where the slope is less than 5%, which would shift the alignment further to the south and impact Residence Inn hotel.

Conformance to standard would require acquiring right of way where an existing hotel is located.

Additional cost to make standard is $9.0 million.

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Location D: The reason for the design exception for location D is due to the mainline I-80 sloping to the opposite direction and a 10% superelevation rate would create a grade break of greater than 10% at the gore. A higher superelevation rate would require an alignment with a longer tangent and a physical gore area shifted further west to accommodate superelevation runoff and avoid a grade break across the gore of greater than 10%. It would also shorten the weaving length available the Atlantic Street off-ramp. Due to the location being immediately adjacent and parallel to UPRR on the north side, all improvement to conform to full standard would have to be to the south side of I-80.

The proposed design with a non-standard feature will still meet the 50 mph design speed at inlet nose based on comfortable speed. The maximum comfortable speed based on the proposed design with 6% superelevation rate is 52 mph.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

Location E: The reason for the design exception for location B is to match the 4% slope of East Roseville Viaduct. The Viaduct has a minimum clearance required over UPRR.

The proposed design with a non-standard feature will still meet the 45 mph design speed based on comfortable speed. The maximum comfortable speed based on the proposed design with 4% superelevation rate is 49 mph.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct. A 2100’ length of existing viaduct will need to be replaced along with reconstruction 300’ of roadway to conform.

Additional cost to make standard is $53 million.

Location F: The reason for the design exception for location B is to match the 4% slope of East Roseville Viaduct. The Viaduct has a minimum clearance required over UPRR.

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The proposed design with a non-standard feature will still meet the 45 mph design speed based on comfortable speed. The maximum comfortable speed based on the proposed design with 4% superelevation rate is 51 mph.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct. A 2100' length of existing viaduct will need to be replaced along with reconstruction 300' of roadway to conform.

Additional cost to make standard is $53 million.

Location G: The reason for the design exception for location B is to match the 4% slope of East Roseville Viaduct. The Viaduct has a minimum clearance required over UPRR.

The proposed design with a non-standard feature will still meet the 45 mph design speed based on comfortable speed. The maximum comfortable speed based on the proposed design with 4% superelevation rate is 49 mph.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct. A 2100' length of existing viaduct will need to be replaced along with reconstruction 300' of roadway to conform.

Additional cost to make standard is $53 million.

B. Design Exception Feature #2

Non-standard Feature: Lane Width

Location A: The width of all general purpose lane EXCEPT the outside lane of eastbound I-80 will be 11 feet between station "ME1" 61+78 and station "ME1" 102+57, a total length of 4,079 feet. (See Attachment 9)

Location B: The width of HOV lane of westbound I-80 will be 11 feet between station "MW1 85+25 and station "MW1" 101+56 for total length of 1,631 feet. All general purpose lane of westbound I-80 will be 11 feet between station "MW1" 65+64 and station "MW1" 105+15, a total length of 3,951 feet. (See Attachment 9)

Location C: The width of collector-distributor lane will be 11 feet from station "CD1" 82+36 and station "E2" 83+68 to station"CD3" 92+60, a total length of 960 feet. (See Attachment 9)

Location D: The width of Taylor Rd WB on-ramp lane will be 11 feet from station "T2" 5+72 to station"T2" 11+81, a total length of 609 feet. (See Attachment 9)

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Standard for Which Exception Is Requested:
HDM Topic 301 – Traveled Way Standards, Index 301.1 – Lane Width

"The minimum lane width on two-lane and multilane highways, ramps, collector roads, and other appurtenant roadways shall be 12 feet, ..."

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and several businesses on the south side of I-80. The existing support piers and south abutment of the Roseville Parkway Overcrossing also restrict widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

C. Design Exception Feature #3

Non-standard Feature: Shoulder Width

Location A: The width of the left shoulder of eastbound I-80 will vary from 3.2 feet to 10 feet between station "ME1" 71+56 and station "ME1" 94+78, a total length of 2,322 feet. (See Attachment 10)

Location B: The width of the left shoulder of westbound I-80 will vary from 2.5 feet to 10 feet between station "MW1" 65+64 and station "MW1" 91+58, a total length of 2,594 feet. (See Attachment 10)

Location C: The width of the right shoulder of westbound I-80 will vary from 8 feet to 10 feet from station "MW1" 77+55 to station "MW1" 86+75 and vary from 2 feet to 8 feet from station "MW1" 88+83 to station "MW1" 94+75, a total length of 1,512 feet. (See Attachment 11)

Location D: The width of the right shoulder of connector distributor road will vary from 8 feet to 10 feet between station "CD1" 83+02 and station "CD3" 91+97, a total length of 890 feet. (See Attachment 11)

Standard for Which Exception Is Requested:
HDM Topic 302 – Highway Shoulder Standards, Index 302.1 - Width

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"The shoulder widths given in Table 302.1 shall be the minimum continuous usable width of paved shoulder on highways."

Table 302.1 – Standards for Paved Shoulder Width

For Freeways & Expressways – 6 or more lanes, Paved Shoulder Width Left is 10 feet
6 or more lanes, Paved Shoulder Width Right is 10 feet
Collector-Distributor, Paved Shoulder Width Right is 10 feet

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and several businesses on the south side of I-80. The existing support piers and south abutment of the Roseville Parkway Overcrossing also restrict widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

D. Design Exception Feature #4

Non-standard Feature: Horizontal Clearance

Location A: The horizontal clearance to inside shoulder barrier of eastbound I-80 will vary from 3.2 feet to 10 feet between station "ME1" 71+56 and station "ME1" 94+78, a total length of 2,322 feet. (See Attachment 12)

Location B: The horizontal clearance to inside shoulder barrier on westbound I-80 will vary from 2.5 feet to 10 feet between station "MW1" 65+64 and station "MW1" 91+58, a total length of 2,594 feet. (See Attachment 12)

Location C: The horizontal clearance to outside shoulder barrier on westbound I-80 will vary from 8 feet to 10 feet from station "MW1" 77+55 to station "MW1" 86+75 and vary from 2 feet to 8 feet from station "MW1" 88+83 to station "MW1" 94+75, a total length of 1,512 feet. (See Attachment 13)

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Location D: The horizontal clearance to outside shoulder barrier on connector distributor road will vary from 7 feet to 10 feet between station "CD1" 83+02 and station "CD3" 91+97, a total length of 890 feet. (See Attachment 13)

Standard for Which Exception Is Requested:
HDM Topic 309 - Clearances, Index 309.1(3)(a) & (b) - Horizontal Clearances for Highways, Minimum Clearances

"The minimum horizontal clearance to all objects, such as bridge rails and safety-shaped concrete barriers, as well as sand-filled barrels, metal beam guardrail, etc., on all freeway and expressway facilities, including auxiliary lanes, ramps, and collector roads, shall be equal to the standard shoulder width of the highway facility as stated in Table 302.1. A minimum clearance of 4 feet shall be provided where the standard shoulder width is less than 4 feet."

"The minimum horizontal clearance to walls, such as abutment walls, retaining walls in cut locations, and noise barriers on all facilities, including auxiliary lanes, ramps and collector roads, shall not be less than 10 feet per Table 302.1."

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and several businesses on the south side of I-80. The existing support piers and south abutment of the Roseville Parkway Overcrossing also restrict widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

E. Design Exception Feature #5

Non-standard Feature: Stopping Sight Distance
The proposed stopping sight distance for the westbound HOV lane will be 595 feet from station "MW1" 87+85 to "MW1" 97+75. The corresponding speed for the 595 feet stopping sight distance is 60 mph. (See Attachment 14)

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The 60 mph stopping sight distance provided matches the stopping sight distance of the existing facility for this location.

Standard for Which Exception Is Requested:
HDM Topic 201 – Sight Distance, Index 201.1 - General

"Table 201.1 shows the minimum standards for stopping sight distance related to design speed for motorists."

"The stopping sight for 65 mph design speed is 660 feet."

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and several businesses on the south side of I-80. The existing support piers and south abutment of the Roseville Parkway Overcrossing also restrict widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

E. Design Exception Feature #6

Non-standard Feature: Median Standards
The median will vary from 16 feet to 22 feet, between station "MW1" 65+64 to 93+13, a total length of 2749 feet. (See Attachment 15)

Standard for Which Exception Is Requested:
HDM Topic 305 - Median Standard, Index 305.1 (3)(a) - Freeways and Expressways

"In areas where restrictive conditions prevail, the minimum median width shall be 22 feet."

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and few businesses on the south side of I-80. The existing Roseville Parkway Overcrossing also create a pinch point to do a widening.

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Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

F. Design Exception Feature #7

Non-standard Feature: Interchange Spacing
Below is the list of non-standard spacing between interchanges (See Attachment 16):

- Eureka Rd/Atlantic St I/C to Taylor Rd I/C: 0.6 mile
- Eureka Rd/Atlantic St I/C to I-80/SR 65 I/C: 1.1 mile
- Taylor Rd I/C to I-80/SR 65 I/C: 0.5 mile
- Galleria Blvd/Stanford Ranch Rd I/C to I-80/SR 65 I/C: 1.0 mile

Standard for Which Exception Is Requested:
HDM Topic 501 - General, Index 501.3 - Spacing

"The minimum interchange spacing shall be one mile in urban areas, two mile in rural areas, and two miles between freeway-to-freeway interchanges and local street interchanges."

Reason for Requesting Exception:
The proposed spacing between these interchanges are the same as the current condition.

Conformance to standard would require the following:

- Close Taylor Rd Interchange
- Close Eureka Rd/Atlantic St Interchange
- Close Galleria Blvd/Stanford Ranch Rd Interchange
- Additional intersection and roadway improvements to the adjacent local streets to accommodate additional traffic due to closure of interchanges

Additional cost to make standard is greater than $75 million.

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G. Design Exception Feature #8

Non-standard Feature: Weaving Length

Location A: The weaving length between Taylor Rd WB on-ramp and Atlantic St WB off-ramp is 1720 feet. (See Attachment 17)

Location B: The weaving length between SR 65 SB to I-80 WB Connector and Atlantic St WB off-ramp is 2750 feet. (See Attachment 17)

Location C: The weaving length between Eureka EB on-ramp and Taylor Rd EB off-ramp is 1300 feet. (See Attachment 17)

Location D: The weaving length between I-80 WB to SR 65 NB Connector and Stanford Ranch Rd NB off-ramp is 2815 feet. (See Attachment 18)

Location E: The weaving length between Galleria Blvd SB on-ramp and SR 65 SB to I-80 WB Connector is 2145 feet. (See Attachment 18)

Standard for Which Exception Is Requested:
HDM Topic 504 - Interchange Design Standard, Index 504.7 - Weaving Section

"The minimum weaving length, measured as shown on Figures 504.2A and 504.2B shall be 2,000 feet in urban areas, 5,000 feet in rural areas, and 5,000 feet between freeway-to-freeway interchanges and other interchanges."

Reason for Requesting Exception:
The proposed weaving length between locations mentioned above are approximately the same as the current condition.

Conformance to standard would require the following:

- Close Taylor Rd Interchange
- Close Eureka Rd/Atlantic St Interchange
- Close Galleria Blvd/Stanford Ranch Rd Interchange
- Additional intersection and roadway improvements to the adjacent local streets to accommodate additional traffic due to closure of interchanges

Additional cost to make standard is greater than $75 million.

H. Design Exception Feature #9

Non-standard Feature: Local Street Interchanges
Taylor Rd interchange is a partial interchange with an isolated off-ramp. (See Attachment 19)

Standard for Which Exception Is Requested:
HDM Topic 502 – Interchange Types, Index 502.2 – Local Street Interchanges

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“Isolated off-ramps or partial interchanges shall not be used because of the potential for wrong-way movements.”

Reason for Requesting Exception:
The project proposes to keep the existing WB on-ramps in the same location and reconstruct the EB loop off-ramp to exit from the proposed connector-distributor road.

Conformance to standard would require closing the existing Taylor Rd Interchange and relocating the interchange access to the adjacent interchanges or expanding the interchange to a full interchange with braided ramps. Taylor Rd, Eureka Rd and Atlantic St along with intersections will need to be improved to accommodate additional traffic.

Additional cost to make standard is greater than $50 million.

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3. TRAFFIC DATA

Existing and design year (2040) average daily traffic (AADT) and peak-hour volumes are summarized in Table 1:

Table 1
Summary of Annual Average Daily Traffic

Freeway Segment	Existing		2040	
	AADT	Peak Hr	AADT	DHV
Interstate 80				
EB Douglas Blvd to Eureka Rd	77500	6518	102100	9140
EB Eureka Rd to Taylor Rd	79350	6705	108900	7460
EB Taylor Rd to SR 65	75000	6196		
EB SR 65 to Rocklin Rd	54800	4591	68650	6110
WB Rocklin Rd to SR 65	54800	4129	68650	5140
WB SR 65 to Taylor Rd	75000	5812	106500	8030
WB Taylor Rd to Atlantic St	79350	6326	108900	8720
State Route 65				
NB I-80 to Stanford Ranch Rd	53050	4359	77800	8000
NB Stanford Ranch Rd to Pleasant Grove Blvd	52200	4138	77400	7470
SB Pleasant Grove Blvd to Galleria Blvd	52200	4079	77400	6470
SB Galleria Blvd to I-80	53050	3975	77800	6750
Ramp/Connector Segment	**Existing**		**2040**	
	AADT	**Peak Hr**	**AADT**	**DHV**
Interstate 80				
EB Eureka Rd Off-ramp	10940	1094	13600	1360
EB Eureka Rd Loop On-ramp	2290	229	3100	310
EB Eureka Rd on-ramp	8990	899	15200	1520
EB Taylor Rd loop Off-ramp	5090	509	5800	580
EB I-80 to NB SR 65 loop Connector	31870	3187	47500	4750
WB I-80 to NB SR 65 Connector	11720	1172	20700	2070
WB Taylor Rd On-ramp	5140	514	7300	730
WB Atlantic St Off-ramp	3730	373	5800	580
WB Atlantic St Loop Off-ramp	8260	826	12000	1200
WB Atlantic St On-ramp	9830	983	12300	1230
State Route 65				
NB Stanford Ranch Rd Off-ramp	11460	1146	16500	1650
NB Stanford Ranch Rd On-ramp	9250	925	11200	1120
SB Pleasant Grove Blvd On-ramp	5840	584	11100	1110
SB Galleria Blvd Off-ramp	8000	800	15600	1560
SB Galleria Blvd On-ramp	9820	982	18400	1840
SB SR 65 to EB I-80 Connector	15820	1582	25900	2590
SB SR 65 to WB I-80 Connector	28310	2831	36500	3650

Data provided by Fehr & Peers

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4. ACCIDENT ANALYSIS

The actual accident rates for I 80 for the 3-year period (July 1, 2009 to June 30, 2012) from PM 1.90 to 6.10 and SR 65 from PM 4.86 to 7.30 were compared to the statewide average accident rates for similar facilities. Following are accident data from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) – Transportation System Network (TSN) Table B summarized in Table 2.

Table 2
Actual and Average Accident Rates from 7/1/2009 to 6/30/2012

Direction/ Location	Number of Accidents				Accident Rates					
					Actual			Average		
	Total	F*	I**	F+I***	F*	F+I***	Total	F*	F+I***	Total
WB & EB I-80 Mainline (PM 1.90 to 6.10)	658	5	228	233	0.008	0.37	**1.05**	0.004	0.28	0.91
NB & SB SR 65 Mainline (PM 4.86 to 7.30)	165	2	55	57	0.007	0.21	0.61	0.006	0.33	1.03
I-80 WB to SR 65 NB (PM 4.32)	9	1	5	6	0.069	0.41	**0.62**	0.005	0.13	0.38
I-80 EB to SR 65 NB (PM 4.22)	32	0	10	10	0	0.31	**0.98**	0.004	0.20	0.68
I-80 WB from SR 65 SB (PM 3.95)	18	0	5	5	0	0.19	**0.70**	0.003	0.11	0.32
I-80 EB from SR 65 SB (PM 4.50)	2	0	2	2	0	0.16	0.16	0.003	0.14	0.41

Note: Accident rates on mainline are per million vehicle miles.

* Fatalities
** Injuries
*** Fatalities plus injuries

Bold and underlined font indicates actual rates are higher than average

Mainline I 80

A total of 658 accidents were reported within the proposed project limits in both directions of I-80, including 5 fatalities and 228 injuries. As shown in Table 2, the actual accident rate on I 80 is 1.05, which is higher than the statewide average of 0.91 for a similar type facility. The accident rates for fatal and injury accidents are also higher than comparable state averages.

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During the three-year period, the types of accidents that occurred on I 80 were as follows: 408 rear-ends (62.0%); 132 sideswipes (20.1%); 79 hit objects (12.0%); 13 broadsides (2.0%); 10 overturns (1.5%); 8 other factors (1.2%) and 6 auto-pedestrian (0.9%).

The majority of the accidents took place in the left, right or interior lanes, with only 11.5% of the accidents occurring in the left or right shoulder areas or the recovery areas beyond the shoulders, where the propose design feature #3 in this Fact Sheet is located. Rear-end accidents account for 62.0% of all the accidents, which are generally congestion-related. The next most frequent accident types are side-swipe and hit object (32.1%). The other accident types are collectively less than 10% of all accidents.

The proposed addition of general purpose and HOV lanes are expected to improve traffic operations within this area.

Mainline SR 65

A total of 165 accidents were reported within the proposed project limits in both directions of SR 65, including 2 fatalities and 55 injuries. As shown in Table 2, the actual accident rate on SR 65 is 0.61, which is lower than the statewide average of 1.03 for a similar type facility. The accident rates for fatal and injury accidents are also lower than comparable state averages.

The most frequent accident type is a rear end accident which account for 69.1% of all the accidents, which is typical of congested related. The next most frequent accident types are side-swipe and hit object.

The proposed addition of general purpose and HOV lanes are expected to improve traffic operations within this area.

80/65 Connectors

A total of 60 accidents were reported at 4 different connector locations. There are 3 locations that have accident rates higher than the statewide average for a similar type of facility, as shown in Table 2. In addition, the proposed improvements are anticipated to provide improved operational conditions through addition of HOV lanes and reconfigurations of this freeway to freeway facilities, thereby helping to reduce the accident frequency at these locations.

The 3 locations that have actual accident rates higher than the statewide rate are as follows:

80 Westbound Connector from 65 Southbound (PM 3.95)

A total of 18 accidents were reported with no fatalities. The actual accident rate on the connector is 0.70, which is higher than the statewide average of 0.32 for a similar type facility.

The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects and sideswipe type of collisions. These accidents are consistent with short weaving distances and number of lanes and turning roadways of the existing facilities.

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80 Eastbound Connector to 65 Northbound (PM 4.22)
A total of 32 accidents were reported at this location with no fatalities. The actual accident rate on the connector is 0.98, which is higher than the statewide average of 0.68 for a similar type facility.

The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects, sideswipe, and head-on type of collisions. These accidents are consistent with number of lanes, turning roadways and configuration of the existing facilities.

80 Westbound Connector to 65 Northbound (PM 4.32)
A total of 9 accidents were reported at this location with no fatalities. The actual accident rate on the connector is 0.62, which is higher than the statewide average of 0.38 for a similar type facility.

The types of accidents involved mostly passenger cars that were speeding, under the influence of alcohol and made improper turns, resulting in rear-end, hit objects and side swipe type of collisions. These accidents are consistent with number of lanes and turning roadways of the existing facilities.

The project proposed to add an additional lane to each of connector and a separate HOV lane connector from I-80 to SR 65 and SR 65 to I-80. It will also eliminate the existing loop connector from WB I-80 to NB SR 65. All these improvements are expected to improve traffic operations of this freeway-to-freeway interchange.

5. INCREMENTAL IMPROVEMENTS

None

6. FUTURE CONSTRUCTION

There is a proposed "SR 65 Capacity and Operations Improvement project" which is in the PA&ED phase. This project will widen SR 65 to the north adding general purpose, HOV lanes, and auxiliary lanes.

7. PROJECT REVIEWS, CONCURRENCE

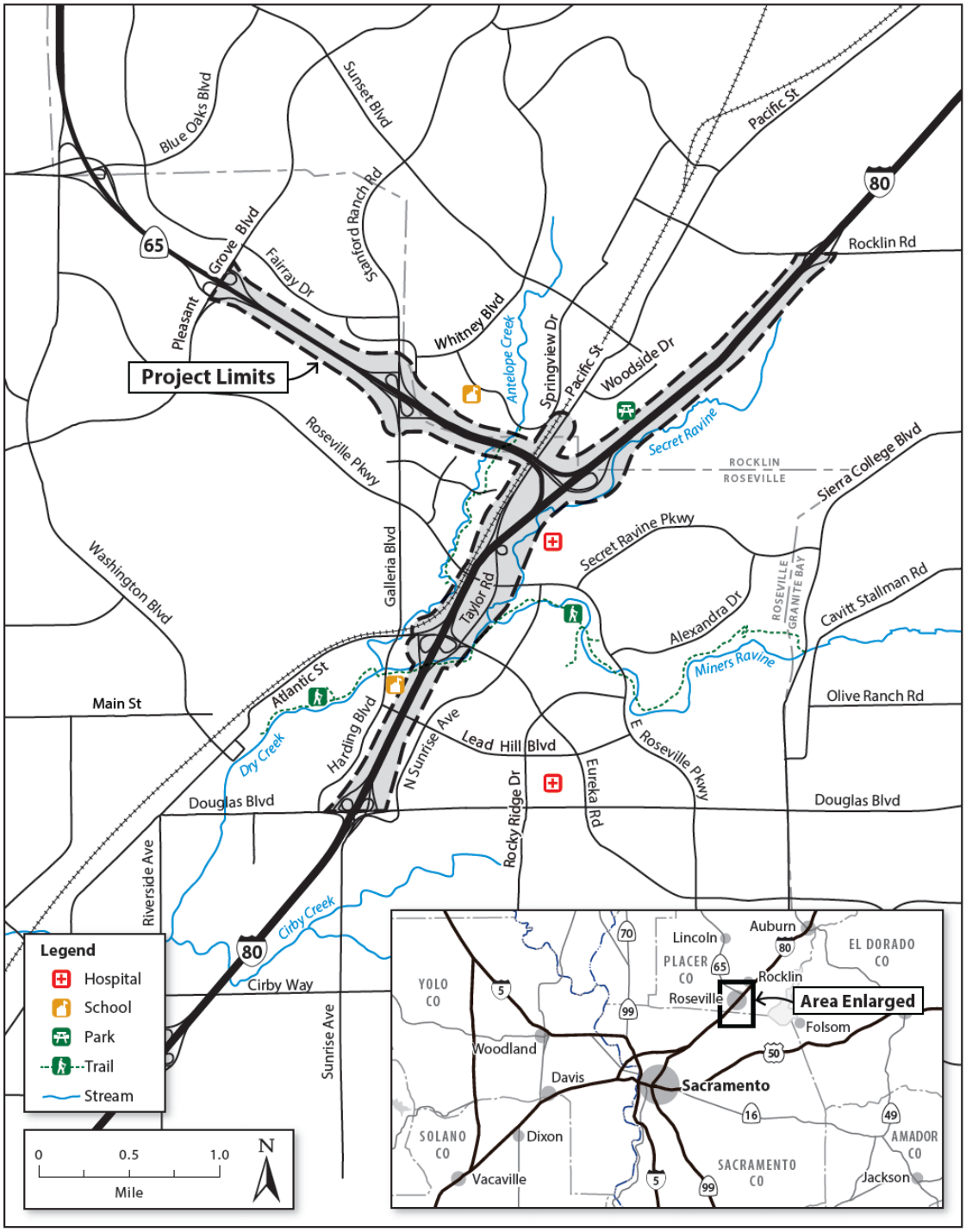
These design exceptions have been reviewed and concurred by XXXXX, HQ Design Reviewer on April 201X.

DRAFT

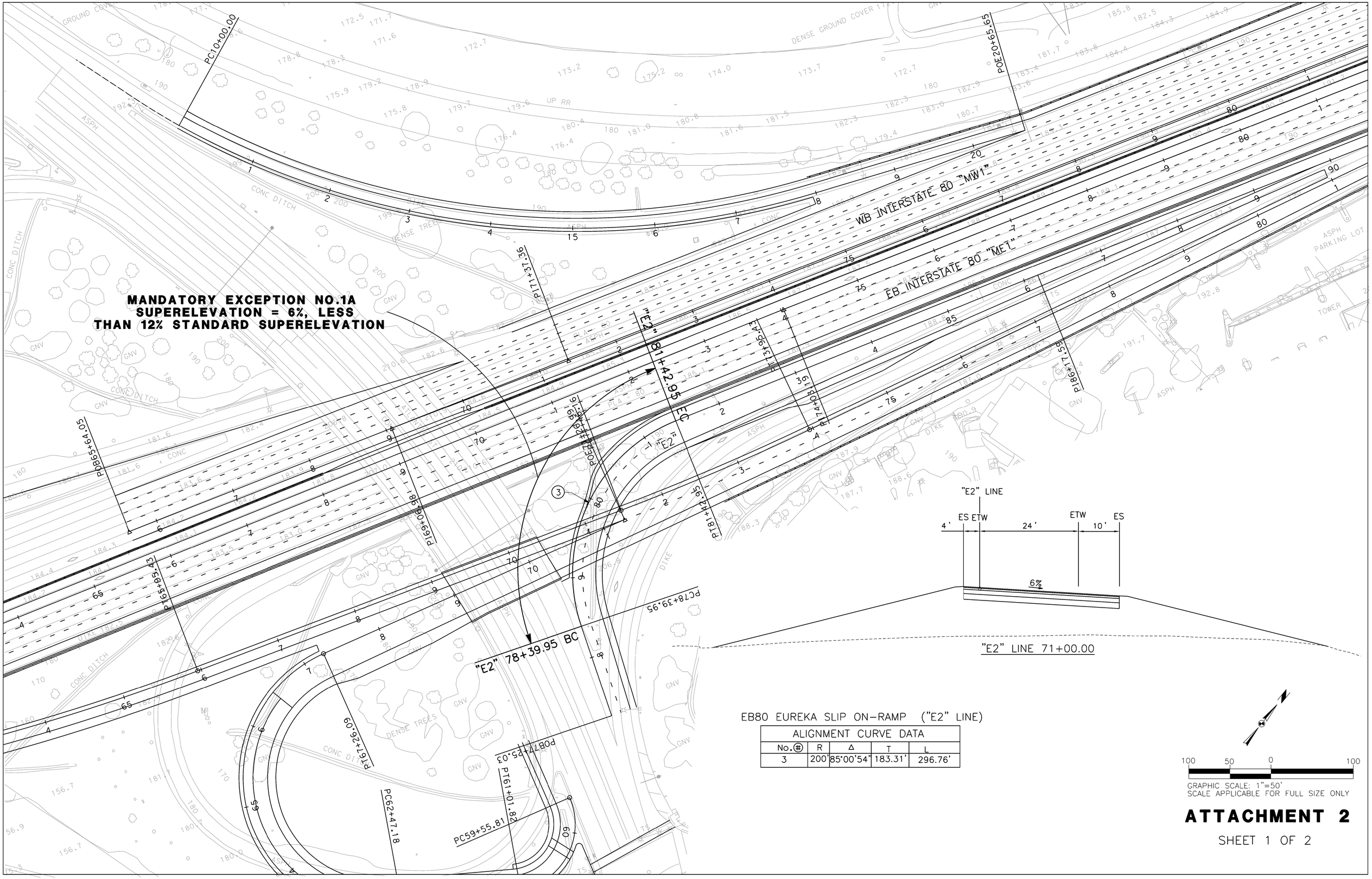
8. ATTACHMENTS

1) Attachment 1 - Vicinity Map
2) Attachment 2 - Feature #1 Location A – Superelevation Rate
3) Attachment 3 - Feature #1 Location B – Superelevation Rate
4) Attachment 4 - Feature #1 Location C – Superelevation Rate
5) Attachment 5 - Feature #1 Location D – Superelevation Rate
6) Attachment 6 - Feature #1 Location E – Superelevation Rate
7) Attachment 7 - Feature #1 Location F – Superelevation Rate
8) Attachment 8 - Feature #1 Location G – Superelevation Rate
9) Attachment 9 - Feature #2 Location A, B, C, D – Lane Width
10) Attachment 10 - Feature #3 Location A, B – Shoulder Width
11) Attachment 11 - Feature #3 Location C, D – Shoulder Width
12) Attachment 12 - Feature #4 Location A, B – Horizontal Clearance
13) Attachment 13 - Feature #4 Location C, D – Horizontal Clearance
14) Attachment 14 - Feature #5 Stopping Sight Distance
15) Attachment 15 - Feature #6 Median Standards
16) Attachment 16 - Feature #7 Interchange Spacing
17) Attachment 17 - Feature #8 Location A, B, C – Weaving Length
18) Attachment 18 - Feature #8 Location D, E – Weaving Length
19) Attachment 19 - Feature #9 Partial Interchange

DRAFT



ATTACHMENT 2
VICINITY MAP



EB80 EUREKA SLIP ON-RAMP ("E2" LINE)

ALIGNMENT CURVE DATA				
No.(#)	R	Δ	T	L
3	200'	85°00'54"	183.31'	296.76'

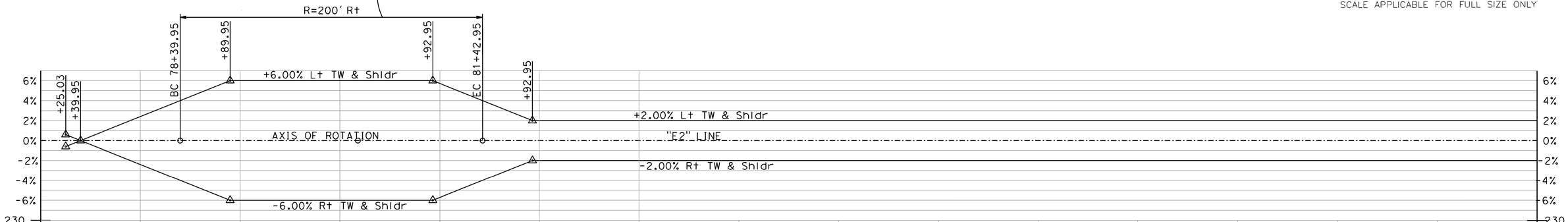
ATTACHMENT 2

SHEET 1 OF 2

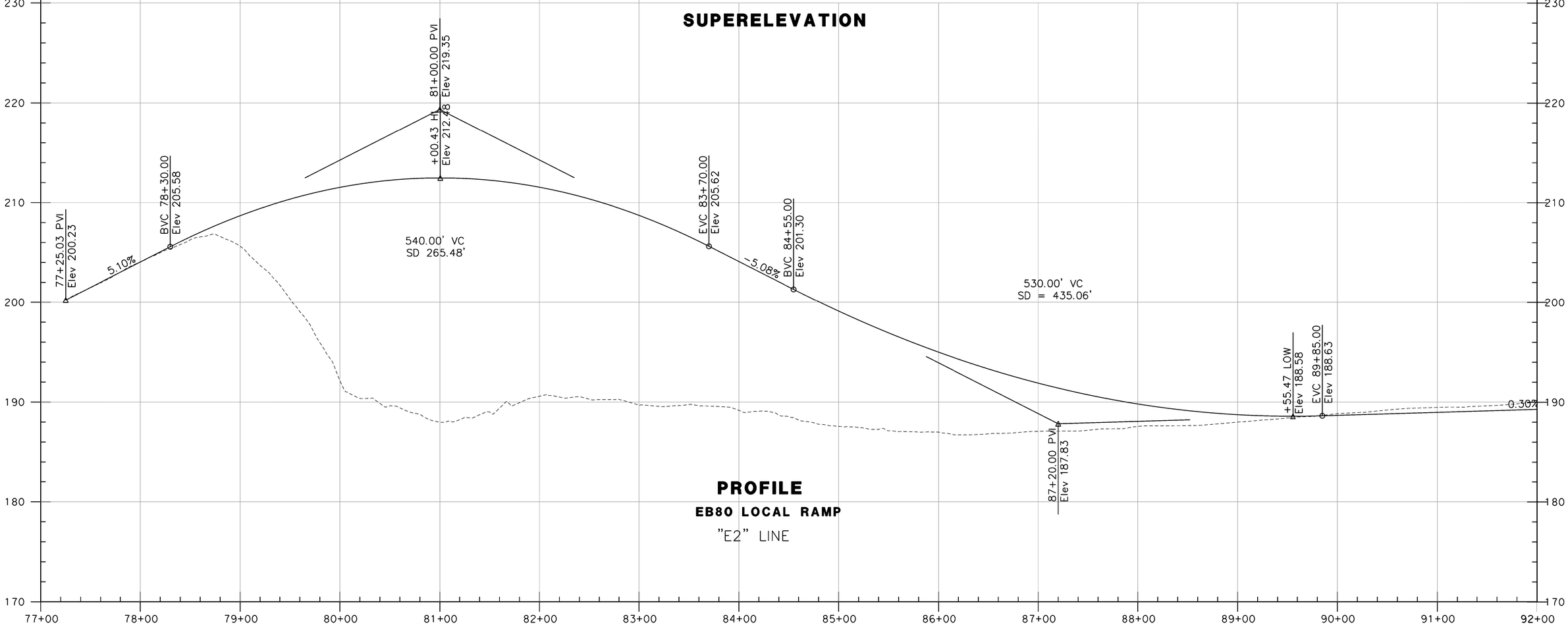
GRAPHIC SCALE: 1"=5' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

MANDATORY EXCEPTION NO.1A
SUPERELEVATION = 6%, LESS
THAN 12% STANDARD SUPERELEVATION

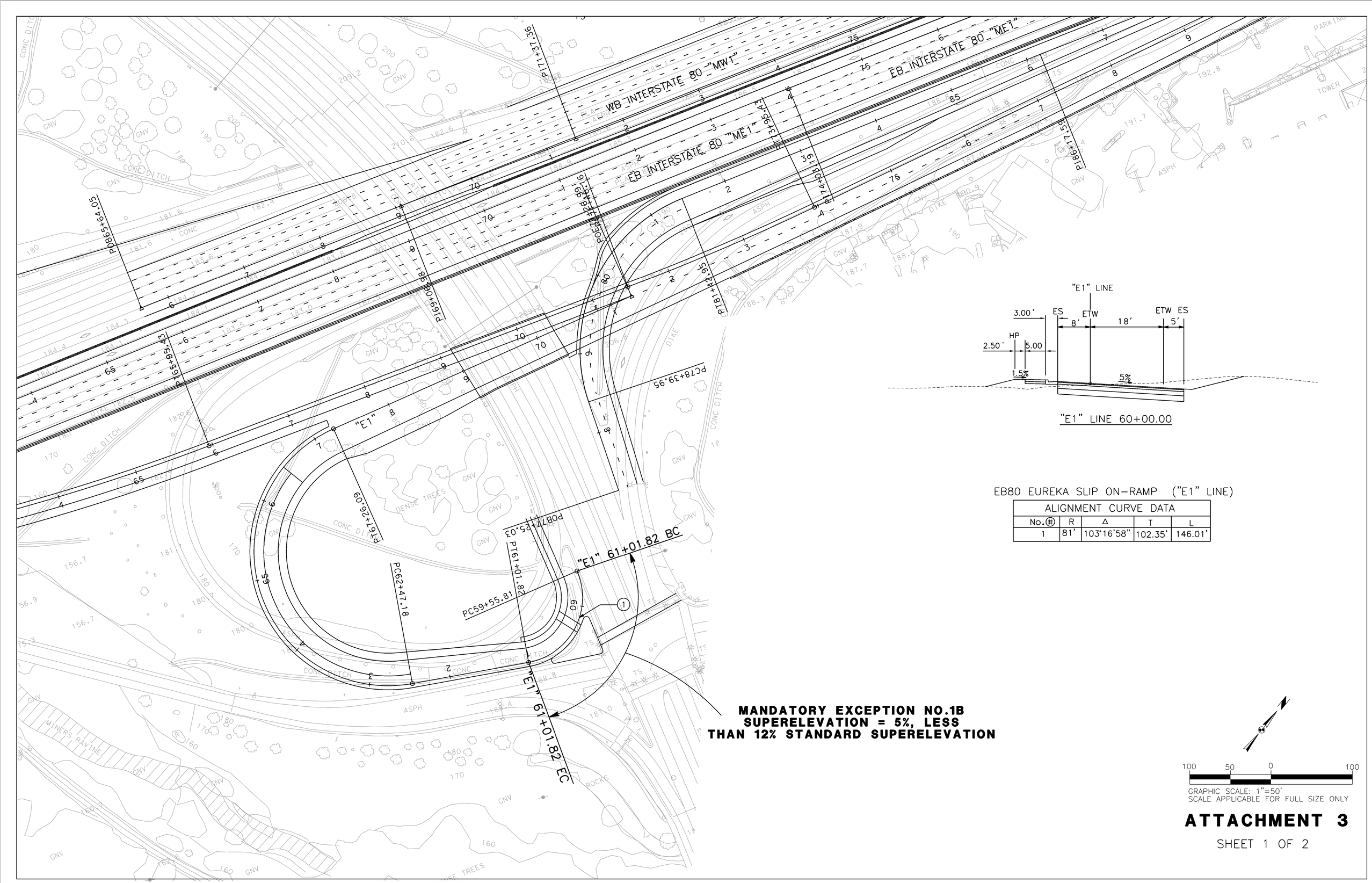


SUPERELEVATION



PROFILE
EB80 LOCAL RAMP
"E2" LINE

ATTACHMENT 2



"E1" LINE 60+00.00

EB80 EUREKA SLIP ON-RAMP ("E1" LINE)

ALIGNMENT CURVE DATA				
No.Ⓗ	R	Δ	T	L
1	81'	103°16'58"	102.35'	146.01'

MANDATORY EXCEPTION NO.1B
SUPERELEVATION = 5%, LESS
THAN 12% STANDARD SUPERELEVATION

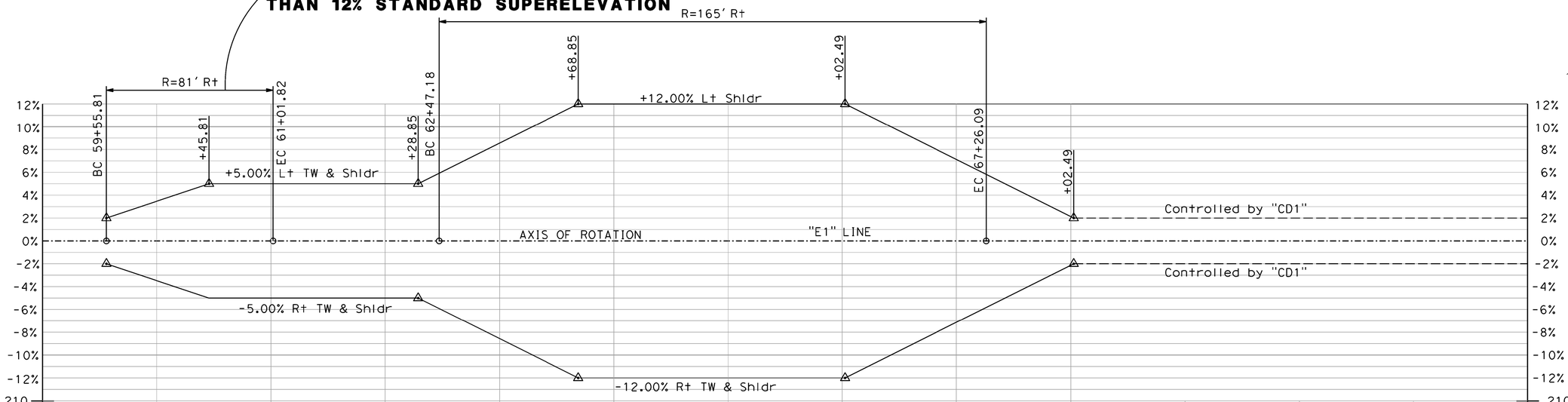
100 50 0 100

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 3

SHEET 1 OF 2

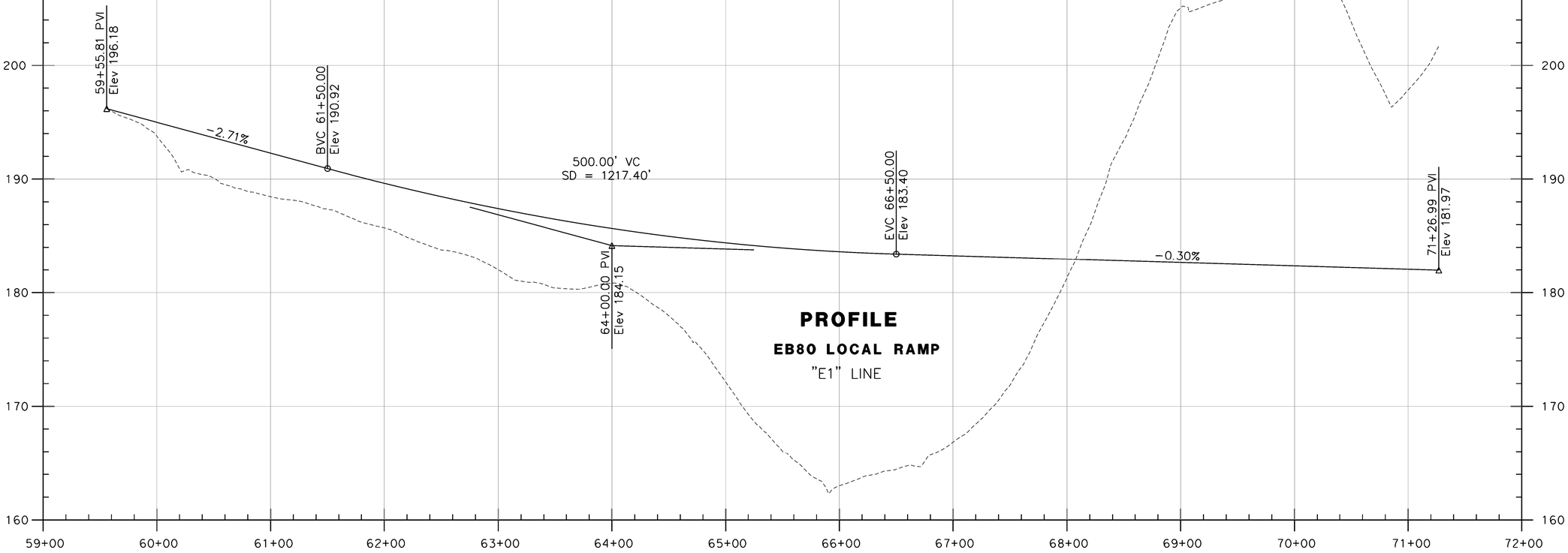
MANDATORY EXCEPTION NO.1B
SUPERELEVATION = 5%, LESS
THAN 12% STANDARD SUPERELEVATION



SUPERELEVATION

20 10 0 20
GRAPHIC SCALE: 1"=5' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

100 50 0 100
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

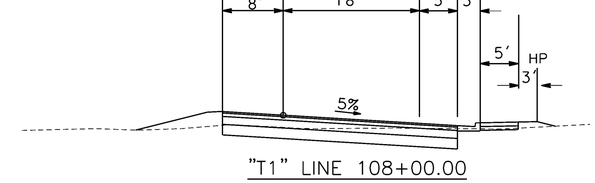


PROFILE
EB80 LOCAL RAMP
"E1" LINE

ATTACHMENT 3

MANDATORY EXCEPTION NO.1C
SUPERELEVATION = 5%, LESS
THAN 12% STANDARD SUPERELEVATION

"T1" LINE



"T1" LINE 108+00.00

EB80 EUREKA TAYLOR OFF-RAMP ("T1" LINE)

ALIGNMENT CURVE DATA				
No.Ⓗ	R	Δ	T	L
16	100'	77°09'00"	79.76'	134.65'

100 50 0 100

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

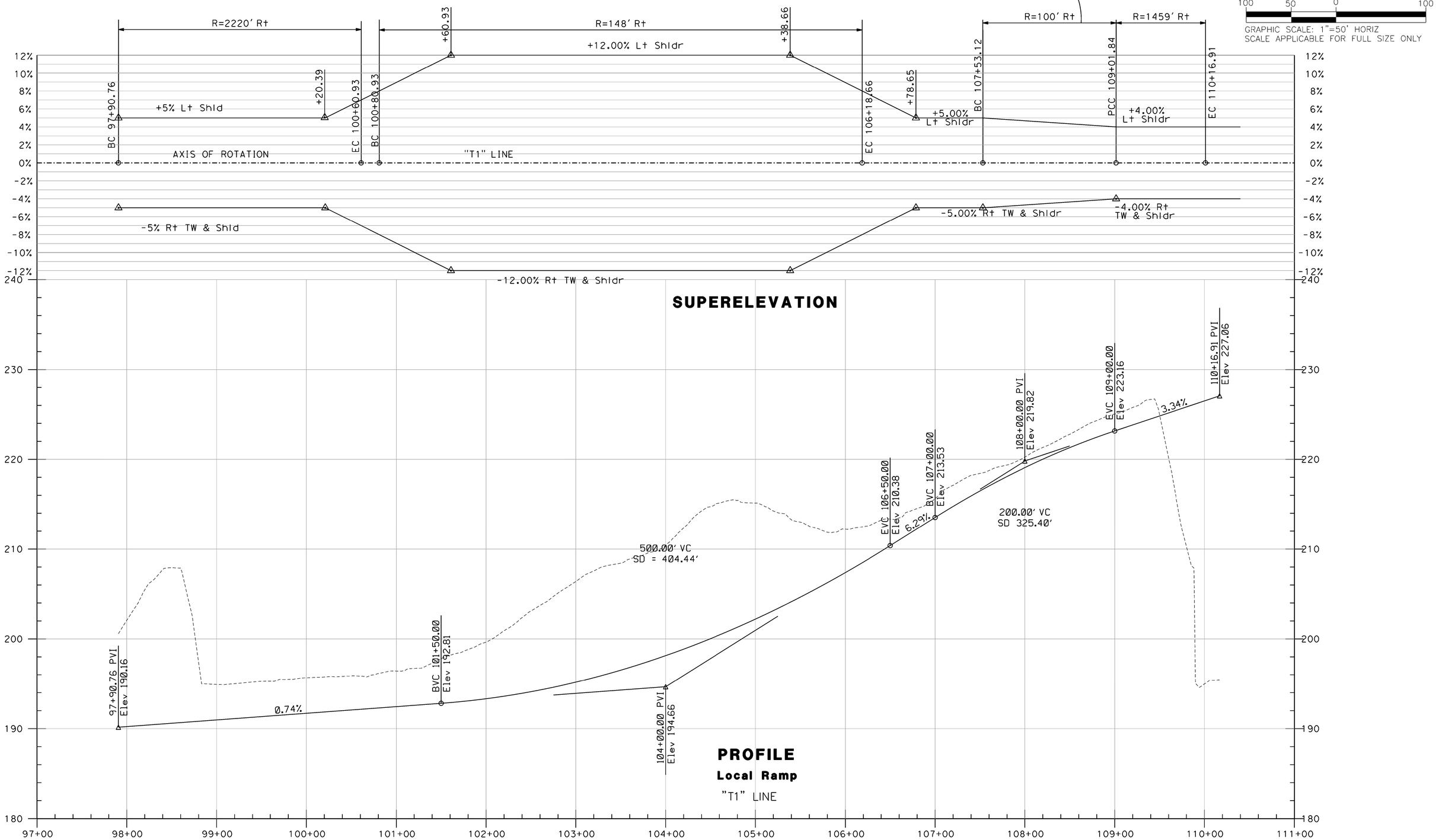
ATTACHMENT 4

SHEET 1 OF 2

MANDATORY EXCEPTION NO.1C
SUPERELEVATION = 5%, LESS
THAN 12% STANDARD SUPERELEVATION

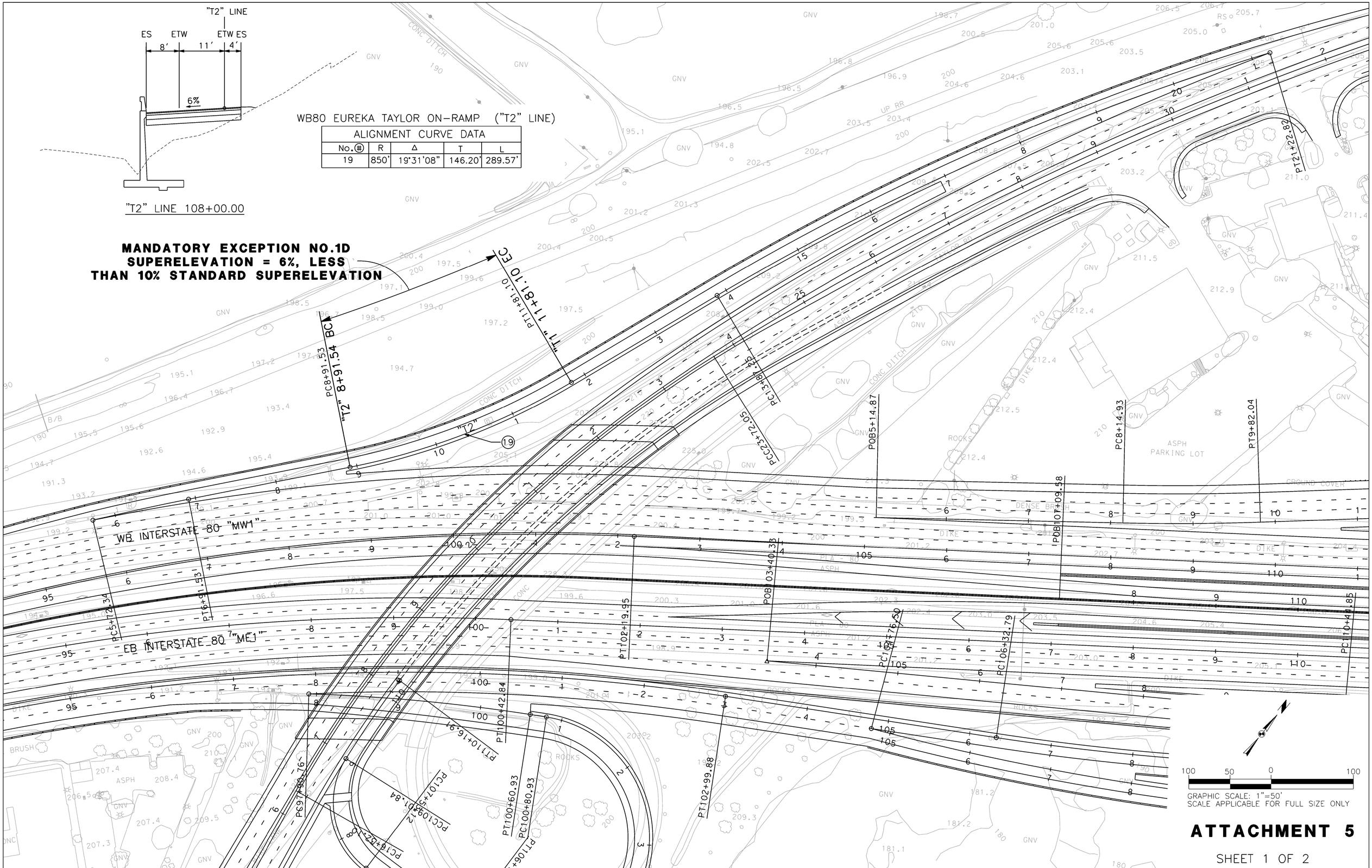
GRAPHIC SCALE: 1"=5' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY



ATTACHMENT 4

SHEET 2 OF 2



WB80 EUREKA TAYLOR ON-RAMP ("T2" LINE)

ALIGNMENT CURVE DATA				
No.#	R	Δ	T	L
19	850'	19°31'08"	146.20'	289.57'

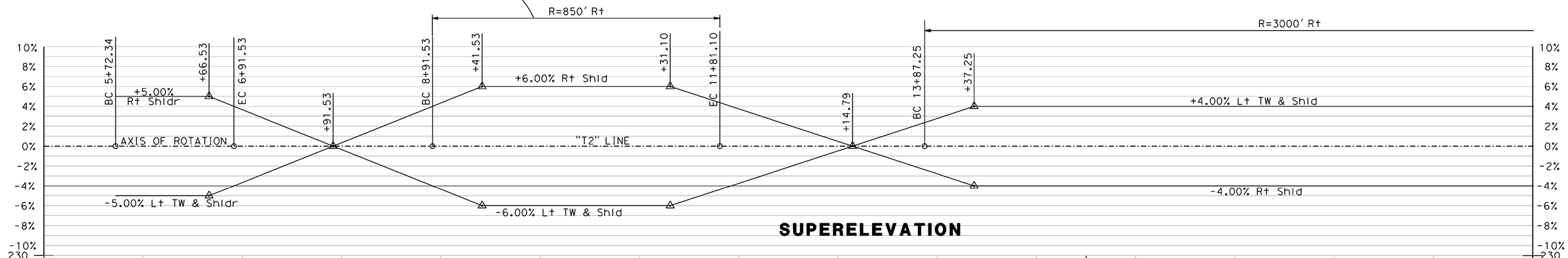
ATTACHMENT 5

SHEET 1 OF 2

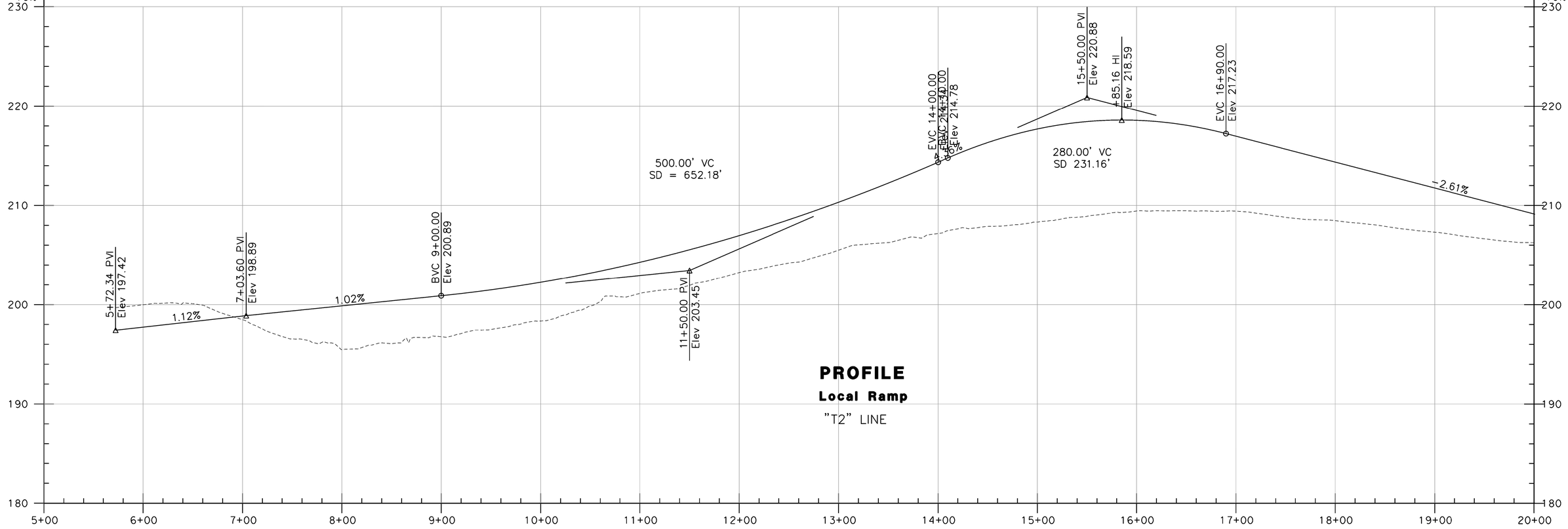
GRAPHIC SCALE: 1"=5' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

MANDATORY EXCEPTION NO.1D
SUPERELEVATION = 6%, LESS
THAN 10% STANDARD SUPERELEVATION



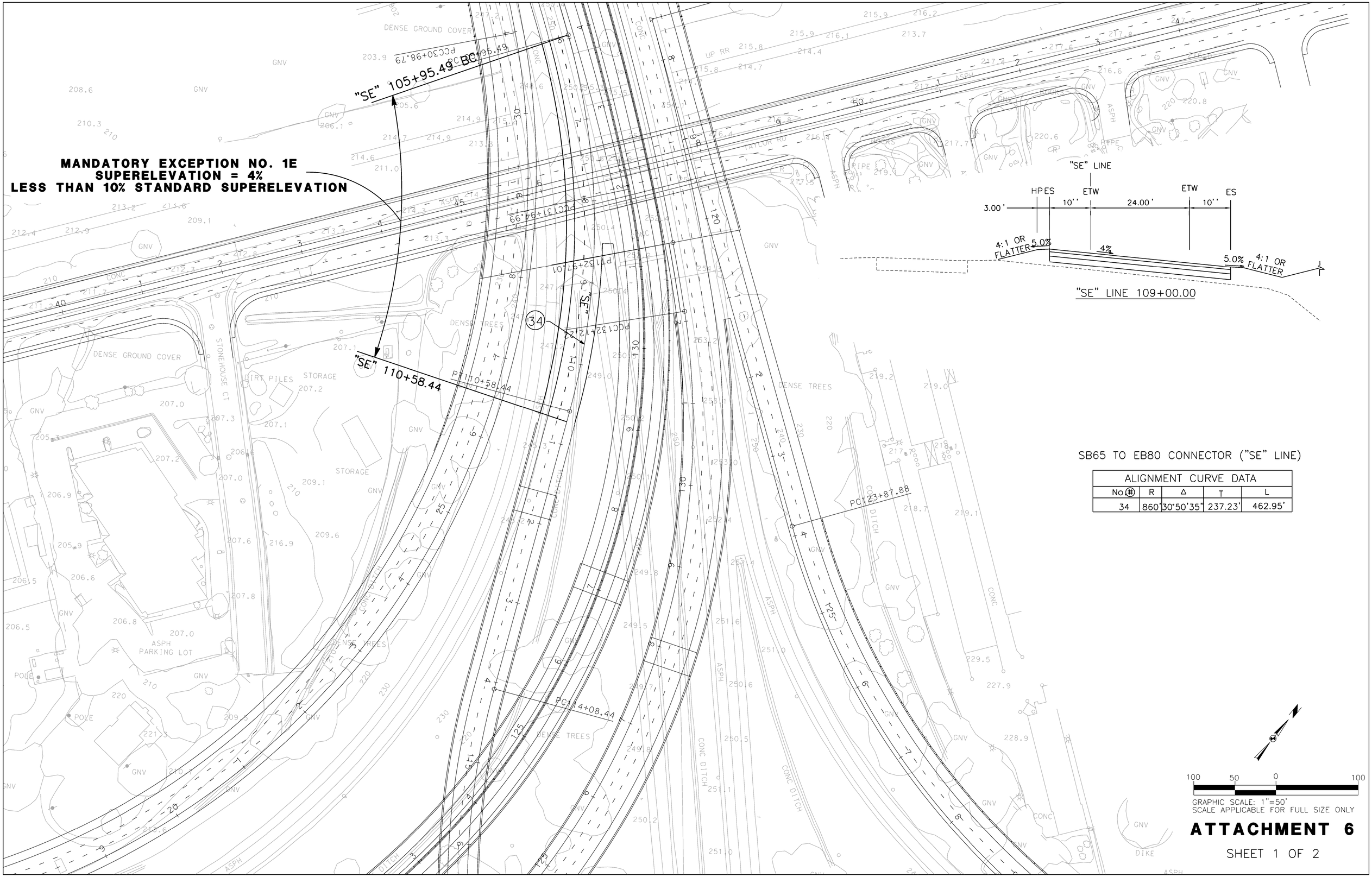
SUPERELEVATION



PROFILE
Local Ramp
"T2" LINE

ATTACHMENT 5

SHEET 2 OF 2



SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. #	R	Δ	T	L
34	860'	30°50'35"	237.23'	462.95'

ATTACHMENT 6

SHEET 1 OF 2

MANDATORY EXCEPTION NO. 1E
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION

GRAPHIC SCALE: 1"=100' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

R=860' Lt

R=930' Lt

BC 105+95.49

+68.79

+08.44

EC 110+58.44

+58.44

BC 114+08.44

+33.44

+30.00

EC 135+69.96

10%
8%
6%
4%
2%
0%
-2%
-4%
-6%
-8%
-10%

4% Lt Shld

+10% Rt TW & Shld

Controlled by
East Roseville Viaduct

AXIS OF ROTATION

"SE" LINE

-4% Rt TW & Shld

-10% Lt Shld

SUPERELEVATION

PROFILE
SB65 TO EB80 CONNECTOR
"SE" LINE

119+50.00 PVI
Elev 301.00

EVC 124+00.00
Elev 284.53

PG

BVC 115+00.00
Elev 274.47

EVC 113+20.00
Elev 263.86

900.00' VC
SD 353.81'

5.89%

-3.66%

Controlled by
East Roseville Viaduct

108+68.79 PVI
Elev 249.47

BVC 108+70.00
Elev 249.48

450.00' VC
SD = 379.67'

0.83%

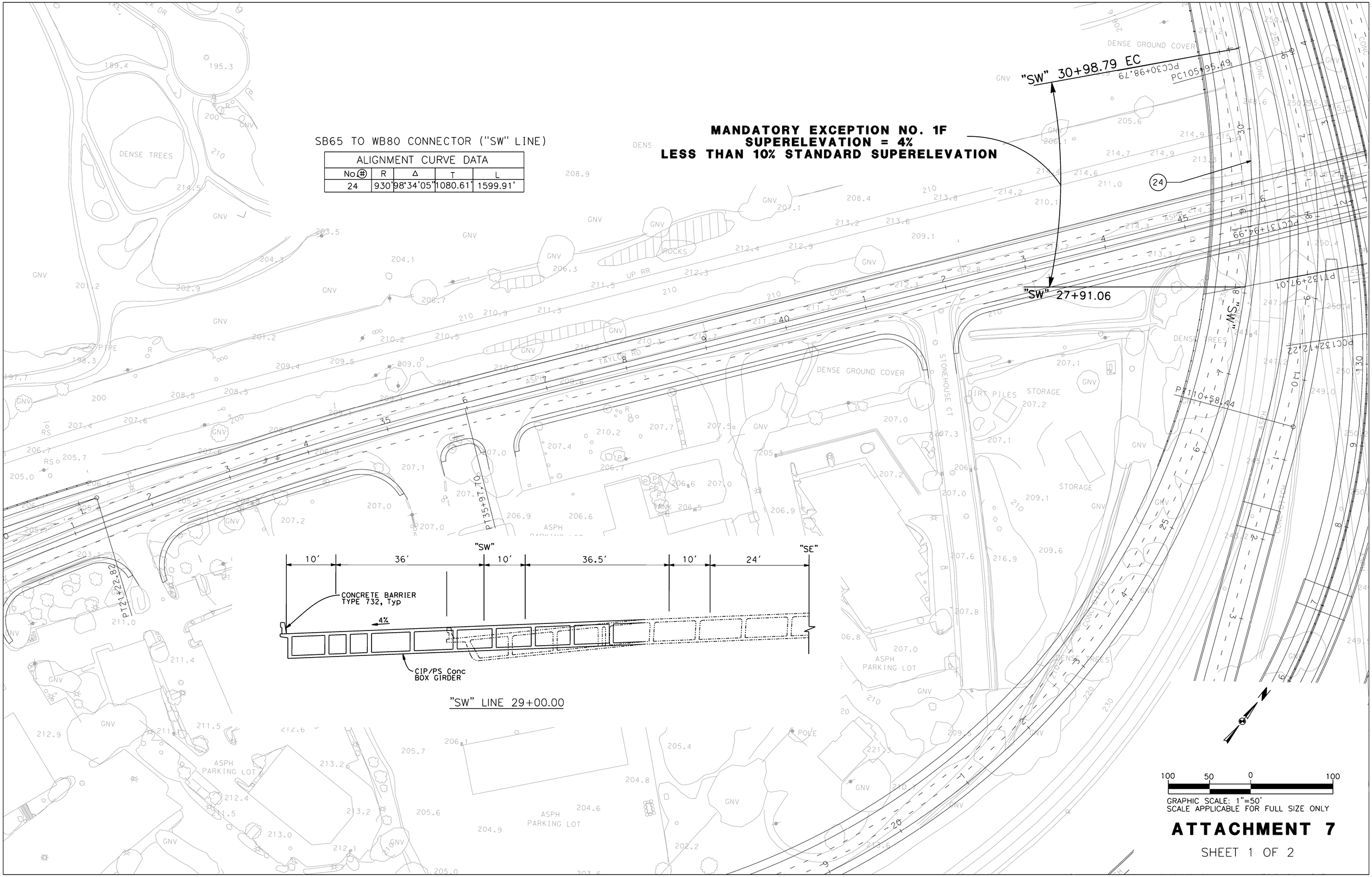
110+95.00 PVI
Elev 250.60

OG

310
300
290
280
270
260
250
240
230
220
210
200
190
180
170

105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00

ATTACHMENT 6



SB65 TO WB80 CONNECTOR ("SW" LINE)

ALIGNMENT CURVE DATA				
No.#	R	Δ	T	L
24	930'	98°34'05"	1080.61'	1599.91'

ATTACHMENT 7

SHEET 1 OF 2

MANDATORY EXCEPTION NO. 1F
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION

R=930' Lt

+10.00% Rt Shld

16+68.88

+41.06

27+91.06

EC 30+98.79

AXIS OF ROTATION

"SW" LINE

"SW" LINE

-10.00% Lt TW & Shld

SUPERELEVATION

25+00.00 PVI
Elev 241.96

EVC 28+00.00
Elev 243.46

28+14.29 PVI
Elev 243.53

0.50%

BVC 22+00.00
Elev 227.71

EVC 20+50.00
Elev 220.59

4.75%

600.00' VC
SD 433.20'

500.00' VC
SD = 501.32'

18+00.00 PVI
Elev 208.71

PROFILE
CONNECTOR RAMP
"SW" LINE

GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 7
SHEET 2 OF 2

MANDATORY EXCEPTION NO. 1G
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION

"HOV" 131+94.99

"HOV" 131+21.31

HOV CONNECTOR ("HOV" LINE)

ALIGNMENT CURVE DATA				
No.Ⓗ	R	Δ	T	L
31	180'	104°22'22"	1133.94'	1603.05'

PT35+97.70

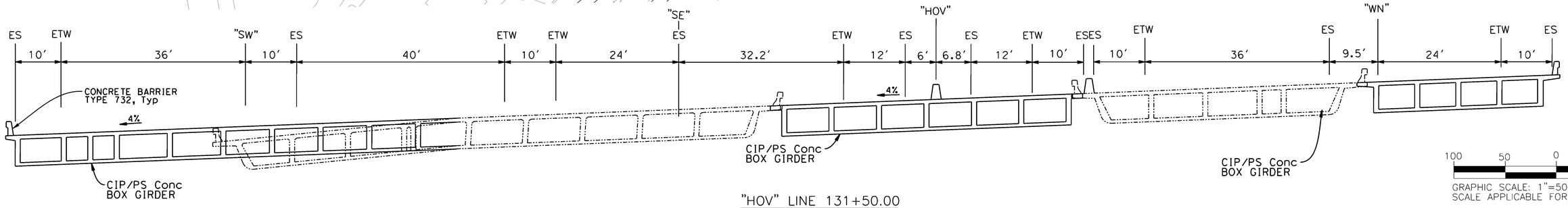
PC123+87.88

PT110+58.44

PC132+12.22

PC132+97.01

PC114+08.44



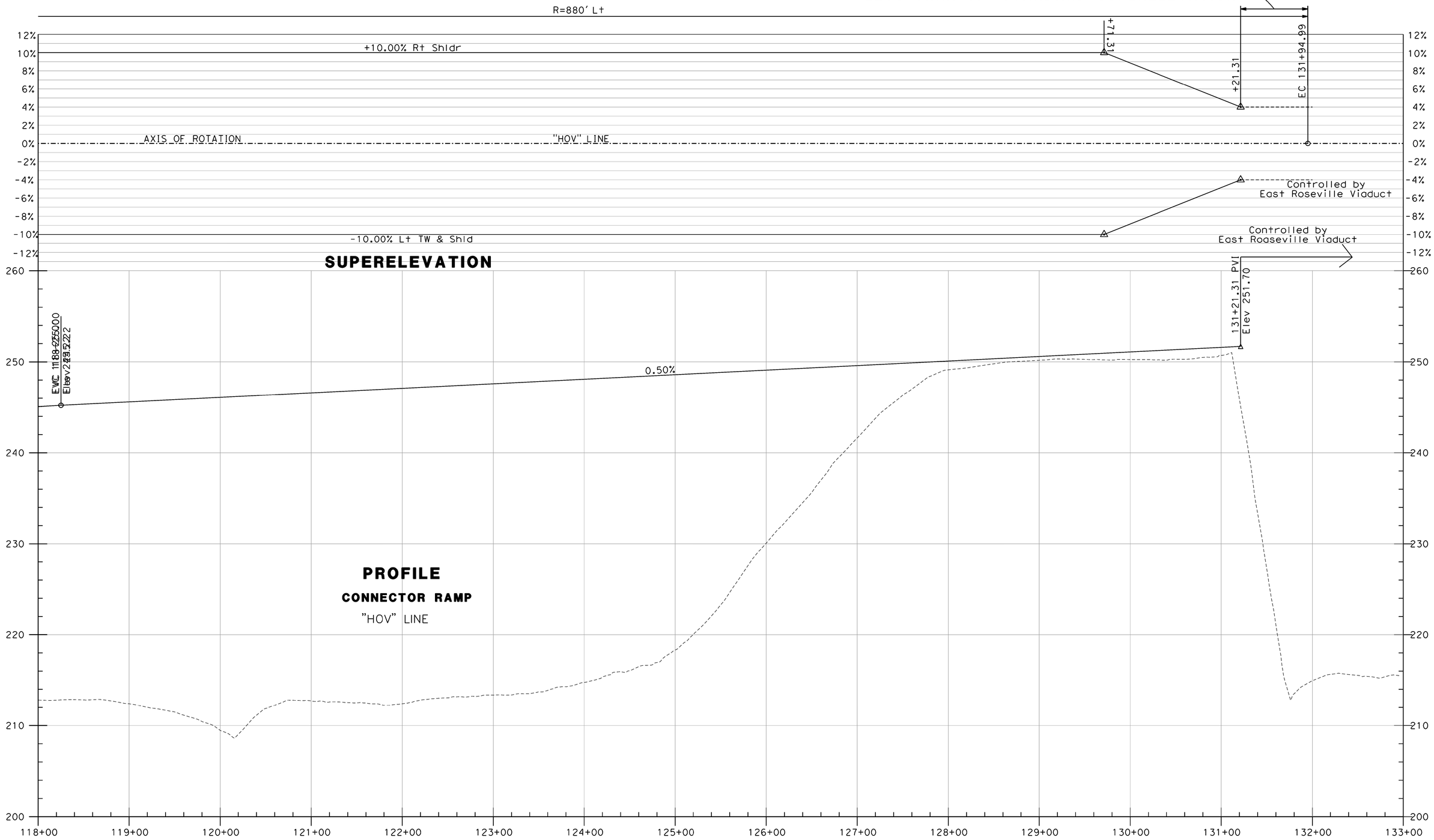
"HOV" LINE 131+50.00

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 8

SHEET 1 OF 2

MANDATORY EXCEPTION NO. 1G
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION



SUPERELEVATION

PROFILE

CONNECTOR RAMP

"HOV" LINE

100 50 0 100
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

20 10 0 20
GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 8

SHEET 2 OF 2

MANDATORY EXCEPTION NO. 2B
11 FEET LANE WIDTH

"MW1" 65+64.00

MANDATORY EXCEPTION NO. 2C
11 FEET LANE WIDTH

"CD1" 82+36.00

"E2" 83+68.00

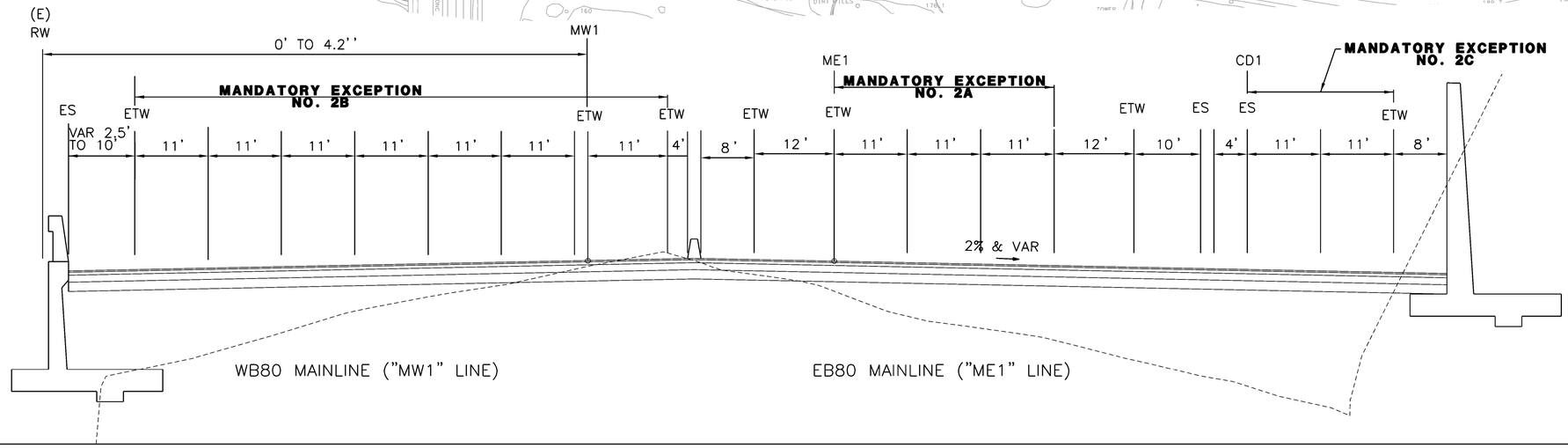
"ME1" 61+78.00

MANDATORY EXCEPTION NO. 2A
11 FEET LANE WIDTH

WB INTERSTATE 80 "MW1"

EB INTERSTATE 80 "ME1"

MATCH LINE SEE SHEET 2



200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 9

SHEET 1 OF 2

MATCH LINE SEE SHEET 1

MANDATORY EXCEPTION NO. 2B
11 FEET LANE WIDTH

MANDATORY EXCEPTION NO. 2D
11 FEET LANE WIDTH

"MW1" 104+53.00

WB INTERSTATE 80 "MW1"

EB INTERSTATE 80 "ME1"

"CD3" 92+60.00

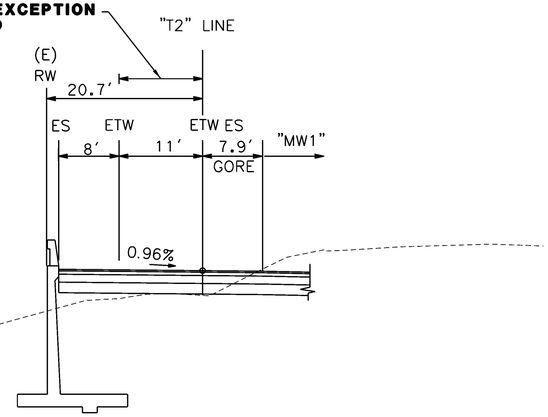
MANDATORY EXCEPTION NO. 2C
11 FEET LANE WIDTH

MANDATORY EXCEPTION NO. 2A
11 FEET LANE WIDTH

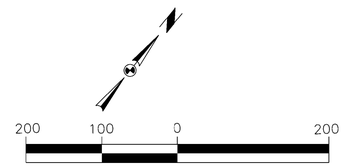
"ME1" 102+57.00

MANDATORY EXCEPTION NO. 2D

"T2" LINE



"T2" LINE 7+67.50



GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 9

SHEET 2 OF 2

MANDATORY EXCEPTION NO. 3B

SHOULDER WIDTH VARIES 2.5 FEET TO 10 FEET

"MW1" 65+64.00

"MW1" 91+58.00

WB INTERSTATE 80 "MW1"

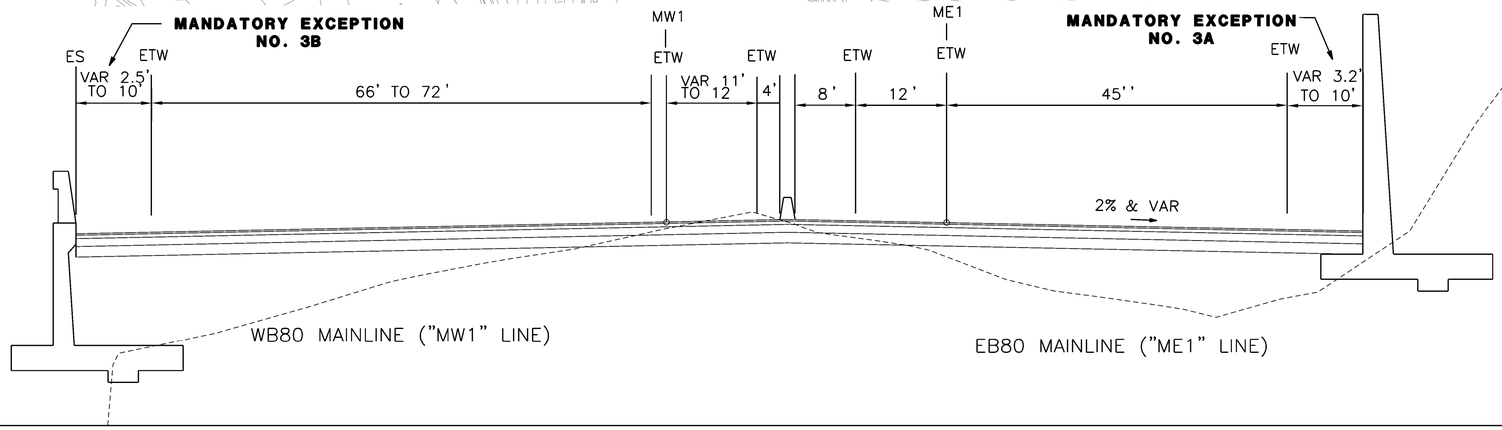
EB INTERSTATE 80 "ME1"

"ME1" 71+56.00

"ME1" 94+78.00

MANDATORY EXCEPTION NO. 3A

SHOULDER WIDTH VARIES 3.2 FEET TO 10 FEET

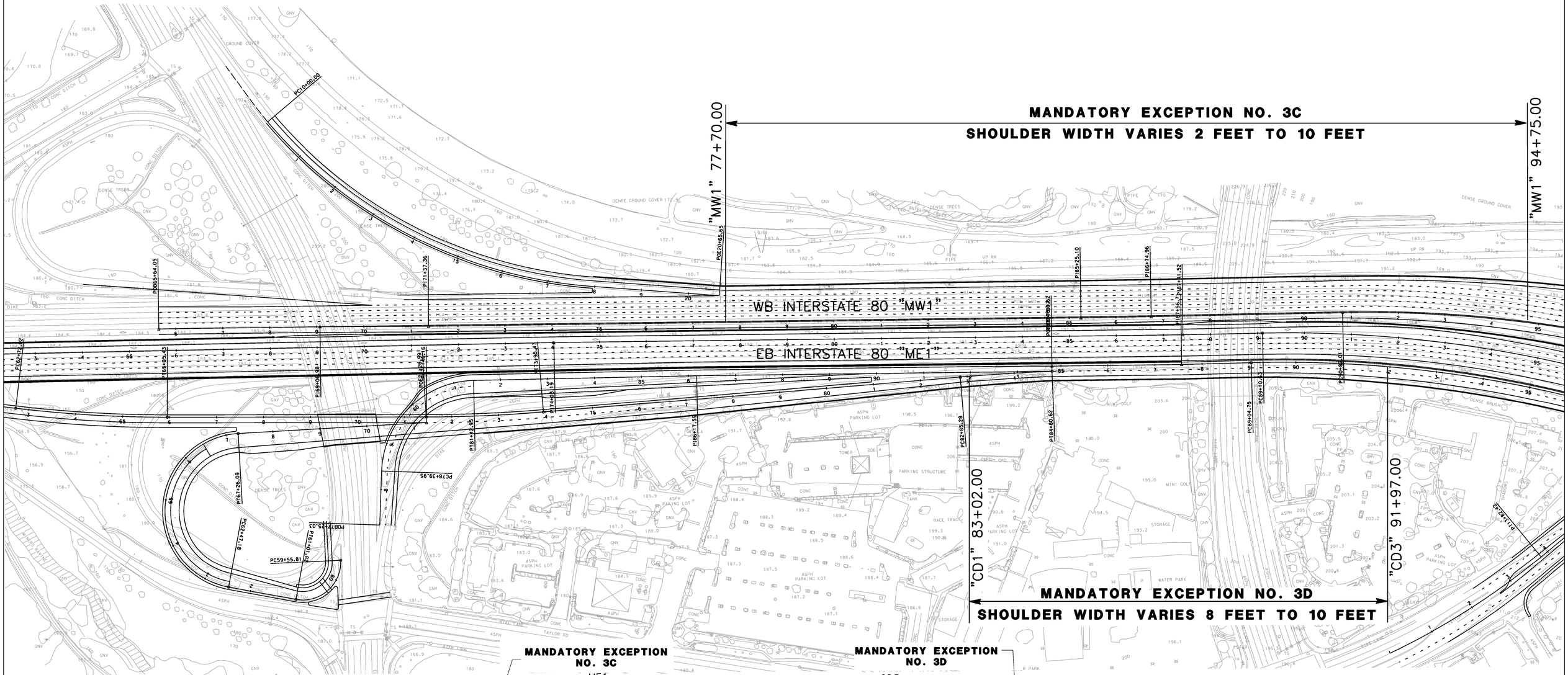


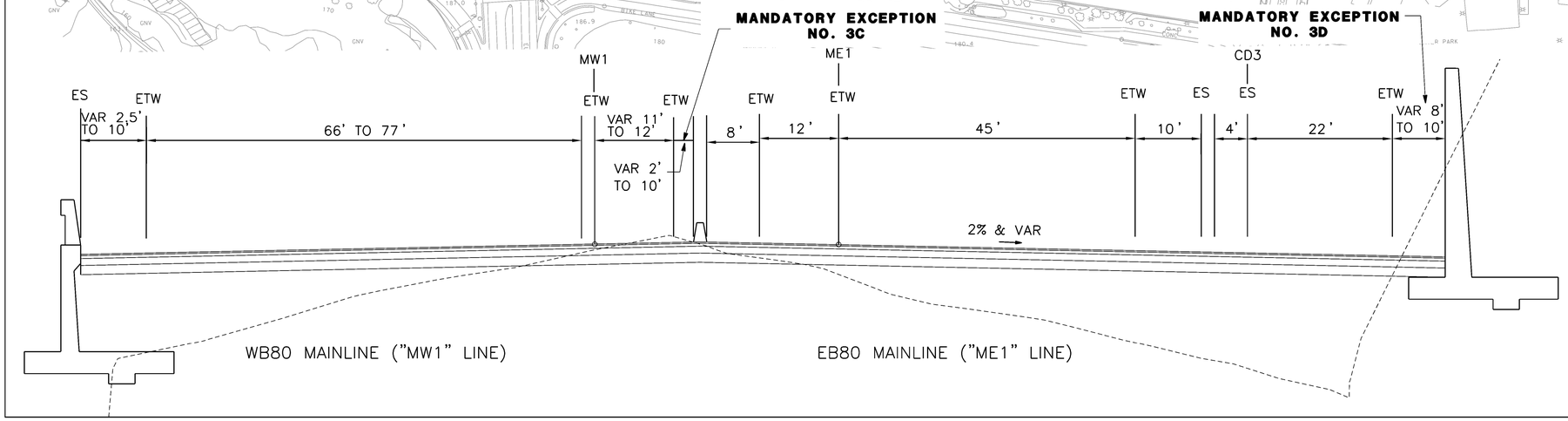
200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 10

SHEET 1 OF 1





200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 11

SHEET 1 OF 1

MANDATORY EXCEPTION NO. 4B

HORIZONTAL CLEARANCE VARIES 2.5 FEET TO 10 FEET

"MW1" 65+64.00

"MW1" 91+58.00

WB INTERSTATE 80 "MW1"

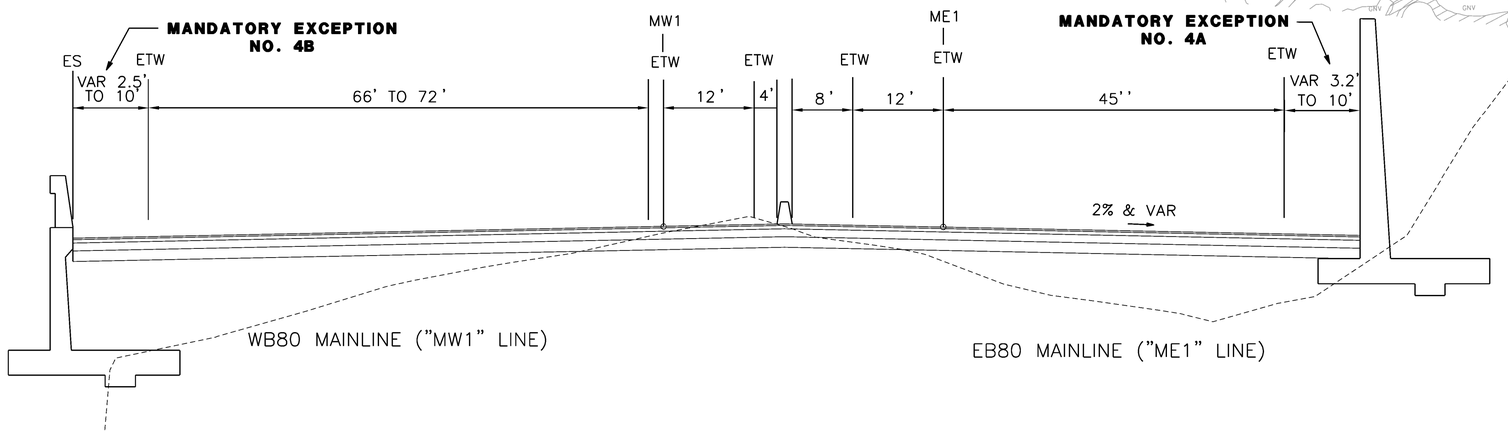
EB INTERSTATE 80 "ME1"

"ME1" 71+56.00

"ME1" 94+78.00

MANDATORY EXCEPTION NO. 4A

HORIZONTAL CLEARANCE VARIES 3.2 FEET TO 10 FEET



200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 12

SHEET 1 OF 1

MANDATORY EXCEPTION NO. 4C

HORIZONTAL CLEARANCE VARIES 2 FEET TO 10 FEET

"MW1" 77+70.00

"MW1" 94+75.00

WB INTERSTATE 80 "MW1"

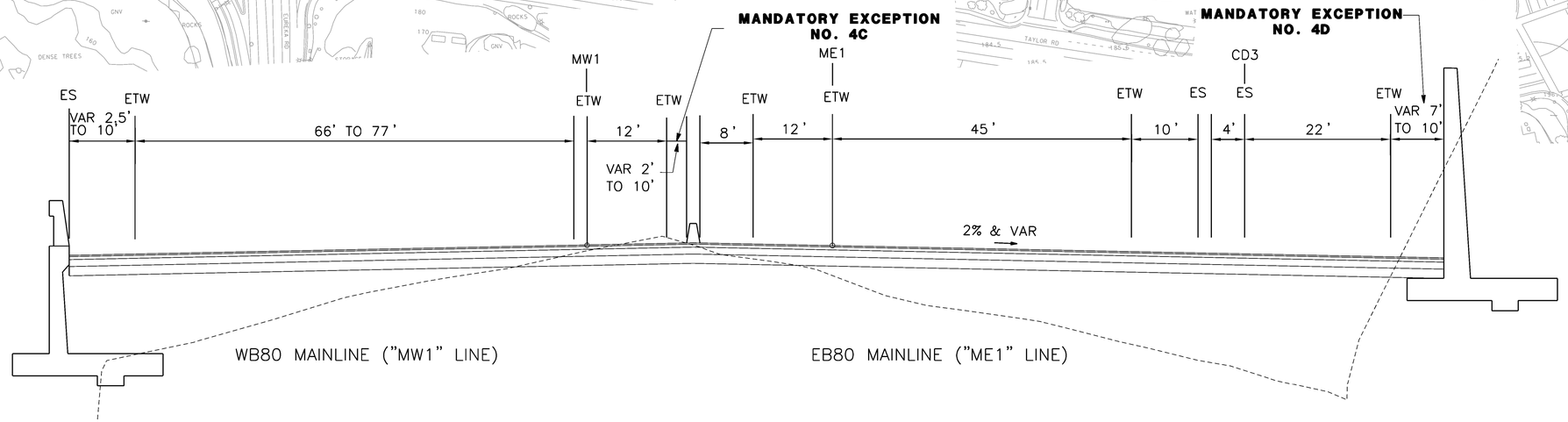
EB INTERSTATE 80 "ME1"

"CD1" 83+02.00

"CD3" 91+97.00

MANDATORY EXCEPTION NO. 4D

HORIZONTAL CLEARANCE VARIES 7 FEET TO 10 FEET



200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 13

SHEET 1 OF 1

MANDATORY EXCEPTIONS NO.5
STOPPING SIGHT DISTANCE IS 595 FEET

WB INTERSTATE 80 "MW1"

EB INTERSTATE 80 "ME1"

TAYLOR RD

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 14

SHEET 1 OF 1

MANDATORY EXCEPTION NO. 6
MINIMUM MEDIAN WIDTH VARIES 16 FEET TO 22 FEET

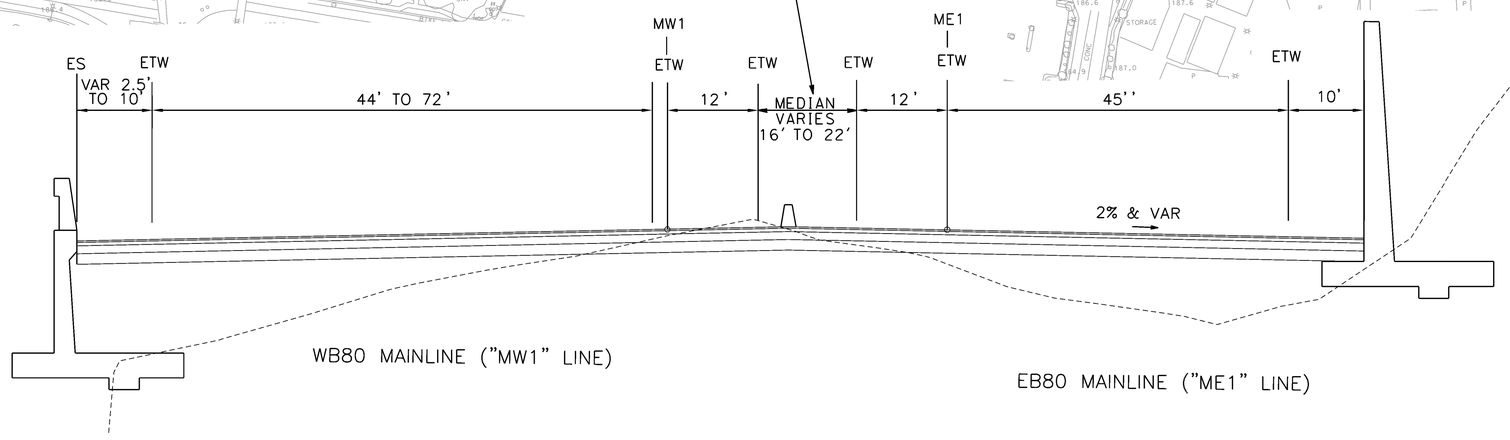
"MW1" 65+64.00

"MW1" 93+13.00

WB INTERSTATE 80 "MW1"

EB INTERSTATE 80 "ME1"

MANDATORY EXCEPTION NO. 5A



200 100 0 200

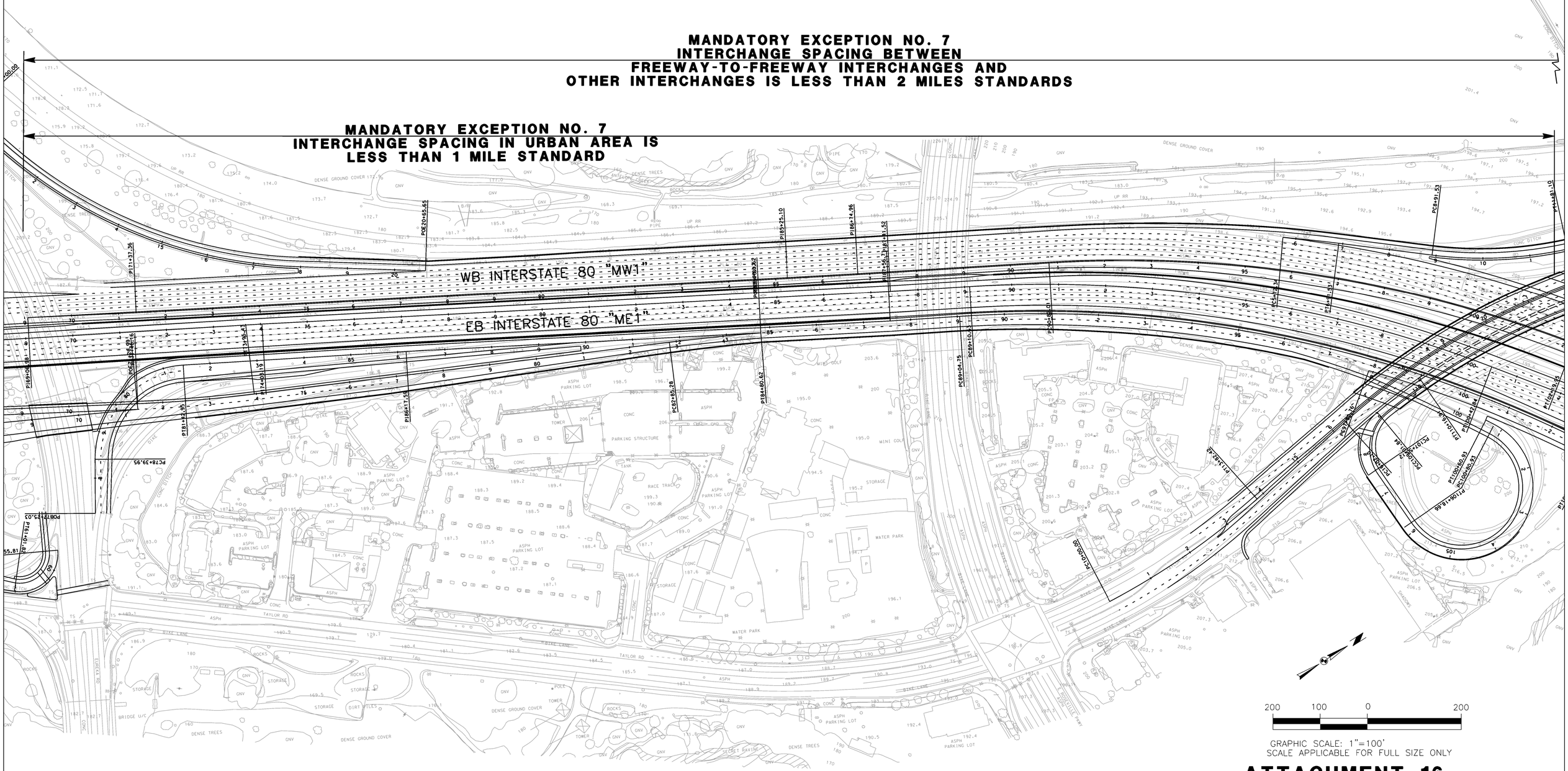
GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 15

SHEET 1 OF 1

MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING BETWEEN
FREEWAY-TO-FREEWAY INTERCHANGES AND
OTHER INTERCHANGES IS LESS THAN 2 MILES STANDARDS

MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING IN URBAN AREA IS
LESS THAN 1 MILE STANDARD



ATTACHMENT 16

SHEET 1 OF 4

MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING BETWEEN
FREEWAY-TO-FREEWAY INTERCHANGES AND
LOCAL INTERCHANGES IS LESS THAN 2 MILES STANDARD

MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING BETWEEN
FREEWAY-TO-FREEWAY INTERCHANGES AND
LOCAL INTERCHANGES IS LESS THAN 2 MILES STANDARD

WB INTERSTATE 80 :"MW1"

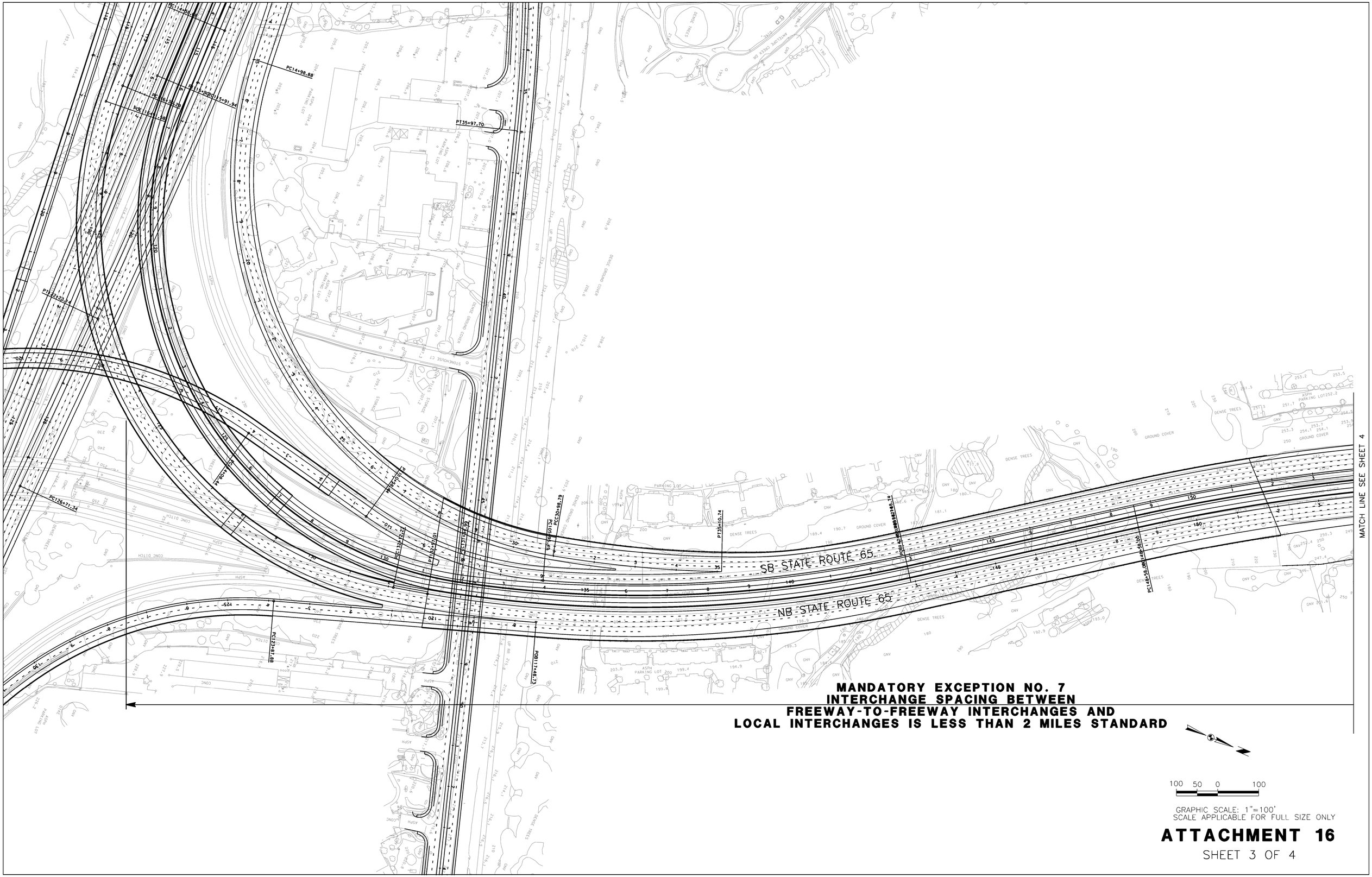
EB INTERSTATE 80 "ME1"

200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 16

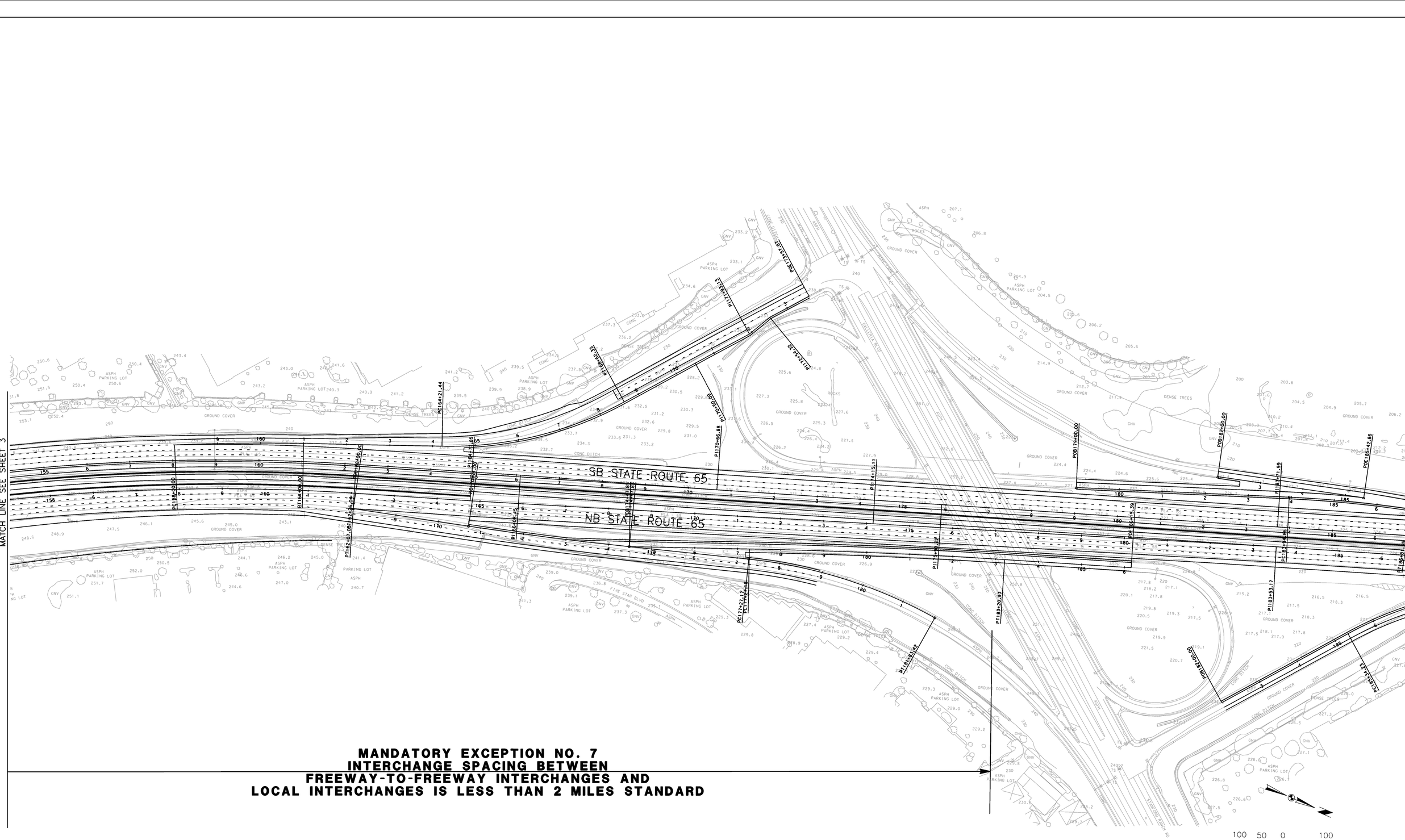
SHEET 2 OF 4



MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING BETWEEN
FREEWAY-TO-FREEWAY INTERCHANGES AND
LOCAL INTERCHANGES IS LESS THAN 2 MILES STANDARD

ATTACHMENT 16

SHEET 3 OF 4



MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING BETWEEN
FREEWAY-TO-FREEWAY INTERCHANGES AND
LOCAL INTERCHANGES IS LESS THAN 2 MILES STANDARD

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 16

SHEET 4 OF 4

MANDATORY EXCEPTION NO. 8B
WEAVING LENGTH IN FREEWAY-TO-FREEWAY
INTERCHANGES AND OTHER INTERCHANGES IS LESS THAN 5000 FEET

MANDATORY EXCEPTION NO. 8A
WEAVING LENGTH IN URBAN AREAS IS LESS THAN 2000 FEET

WB INTERSTATE 80 "MW1"

EB INTERSTATE 80 "ME1"

MANDATORY EXCEPTION NO. 8C
WEAVING LENGTH IN URBAN AREAS IS LESS THAN 2000 FEET

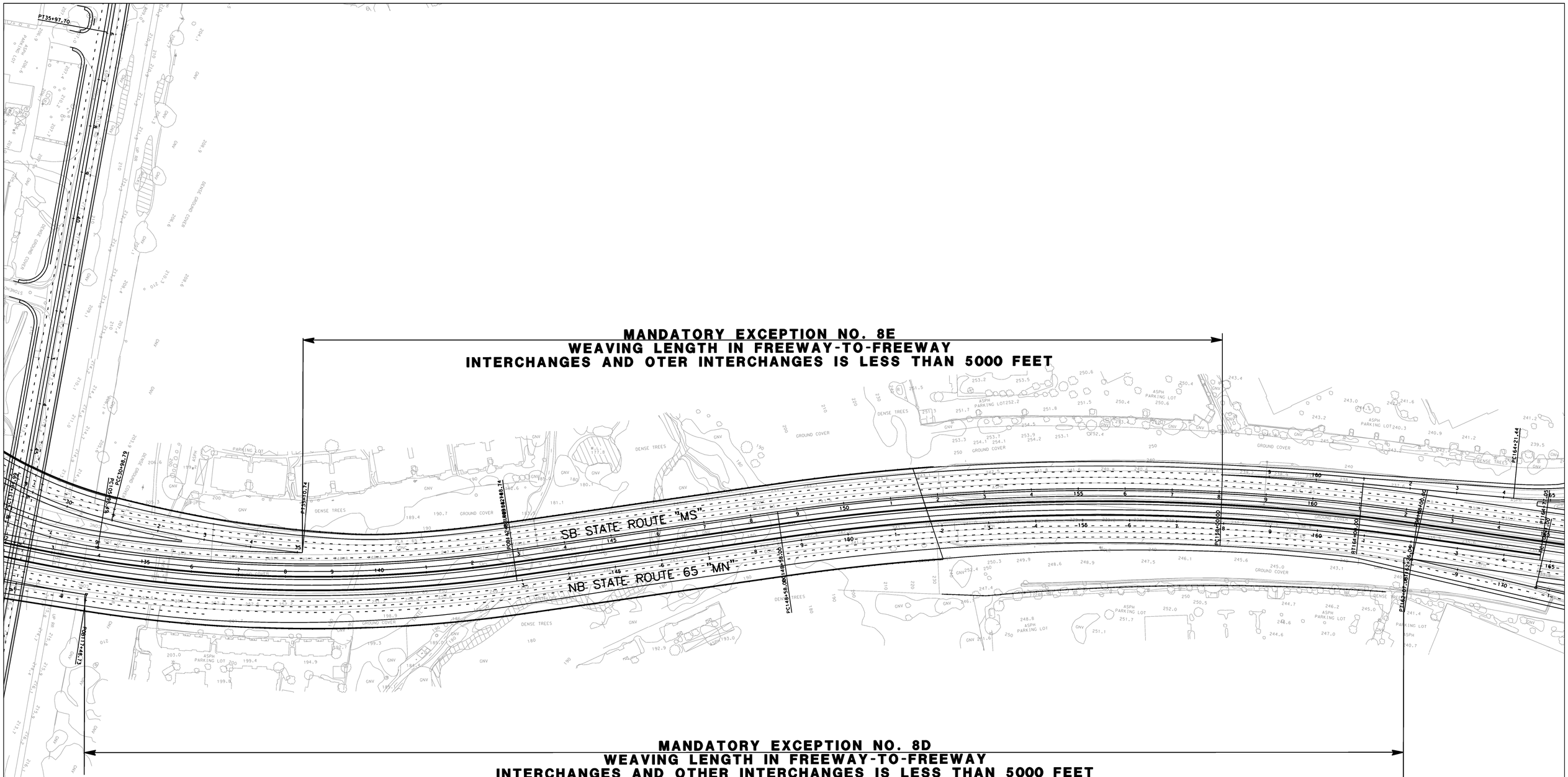
200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 17

SHEET 1 OF 2

MANDATORY EXCEPTION NO. 8E
WEAVING LENGTH IN FREEWAY-TO-FREEWAY
INTERCHANGES AND OTER INTERCHANGES IS LESS THAN 5000 FEET



MANDATORY EXCEPTION NO. 8D
WEAVING LENGTH IN FREEWAY-TO-FREEWAY
INTERCHANGES AND OTHER INTERCHANGES IS LESS THAN 5000 FEET

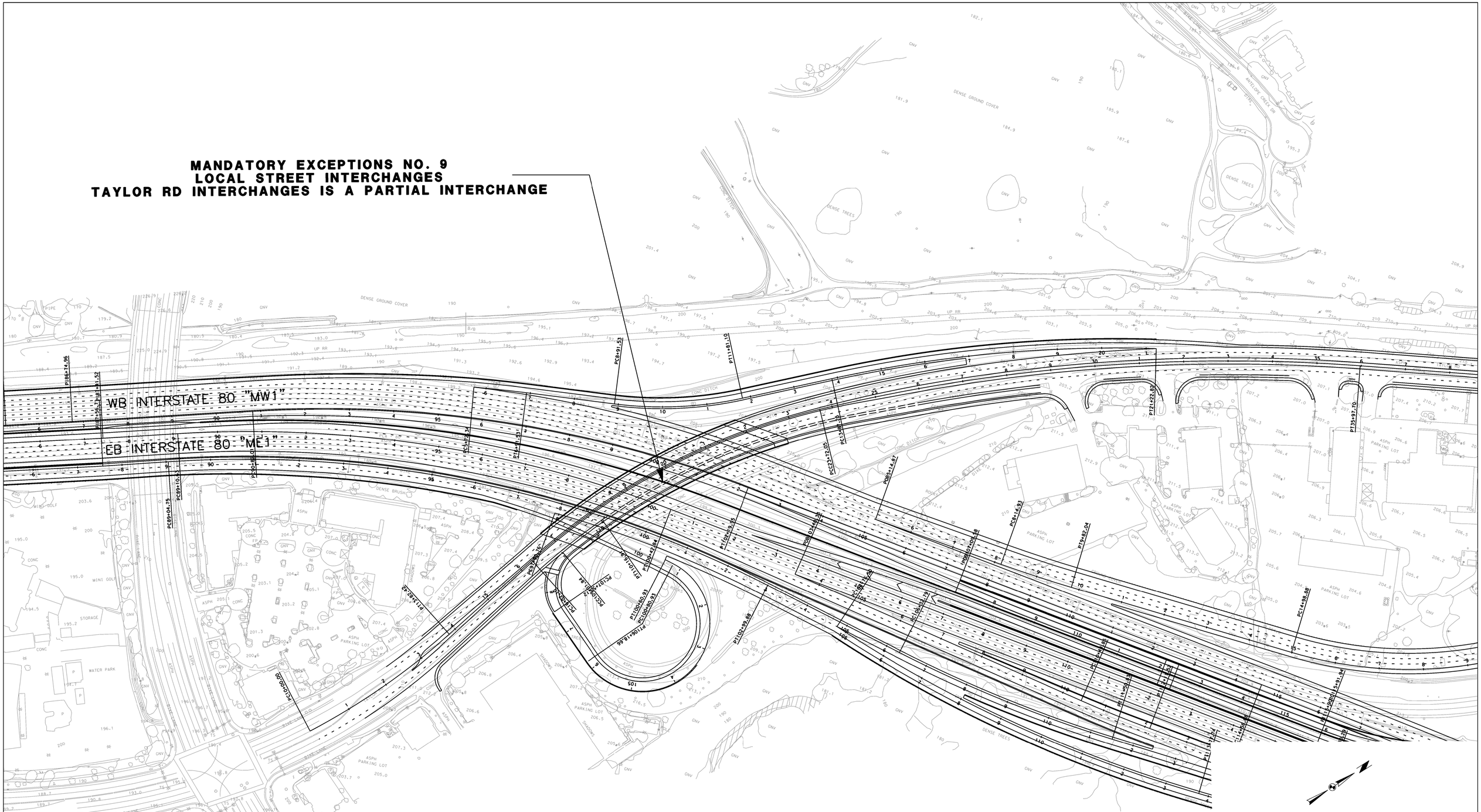
200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 18

SHEET 2 OF 2

MANDATORY EXCEPTIONS NO. 9
LOCAL STREET INTERCHANGES
TAYLOR RD INTERCHANGES IS A PARTIAL INTERCHANGE


WB INTERSTATE 80 "MW1"
EB INTERSTATE 80 "ME1"
PC89+91.53
PI186+74.96
PI181+56.71
PI181+31.52
PC89+04.75
PC89+10.53
PC90+58.00
PC5+73.34
PI5+31.23
PC5+14.87
PC101+00.00
PC101+39.28
PI101+19.95
PC101+60.84
PI101+58.84
PC101+80.84
PC101+80.84
PI100+60.93
PC100+60.93
PI100+8.66
PC100+39.86
PI100+39.86
PI181+11.07
PC89+34.46
PC89+14.92
PI89+82.04
PC89+14.93
PC89+14.93
PC89+14.93

Fact Sheet Exceptions to Advisory Design Standards

Prepared by:

LAUREN PROCTOR, Registered Civil Engineer
CH2M HILL

Submitted by: _____ _____ (916) 286 0332
(Lauren Proctor), Design Engineer Date Telephone

Recommended for Approval: _____ _____ _____
(Wayne Lewis), Project Manager Date Telephone

Concurrence by: _____ _____ _____
Date Telephone
Chief Office of Design

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1. PROPOSED PROJECT

A. Project Description:

The project is located in Placer County in the cities of Roseville and Rocklin at the I-80/SR 65 interchange (see Attachment 1). The project limits consist of I-80 from the Douglas Blvd interchange to the Rocklin Rd interchange (PM 1.9 – 6.1) and SR 65 from the I-80 separation to the Pleasant Grove Blvd interchange (PM R4.8 – R7.3). The project area also includes various local roads specifically, portions of Galleria Blvd/Stanford Ranch Rd, Pleasant Grove Blvd, Eureka Rd/Atlantic St, East Roseville Parkway, and Taylor Rd.

The project would increase capacity at the interchange with the following improvement:

- Replace the eastbound I-80 to northbound SR 65 two-lane loop off-ramp with a three-lane direct flyover ramp.
- Construct new median HOV direct connectors from eastbound I-80 to northbound SR 65 and from southbound SR 65 to westbound I-80.
- Widen the southbound SR 65 connector to westbound I-80 to three lanes.
- Widen the southbound SR 65 connector to eastbound I-80 to two lanes.
- Widen the westbound I-80 connector to northbound SR 65 to two lanes.
- Widen I-80 mainline to add additional lanes and auxiliary lanes.
- Widen Taylor Rd to four lanes

B. Existing Highway:

The existing I-80/SR 65 freeway-to-freeway interchange was constructed in 1985.

I-80 is the principal east-west route in northern California, providing access across the Sierra Nevada for major good movement into the Sacramento and San Francisco Bay areas. The interstates accommodates high commute, interregional, and recreational traffic volumes, as well as high levels of truck freight traffic within the greater Sacramento region.

The existing I-80 mainline facility between Douglas Blvd and separation with SR 65 is a ten-lane freeway. East of the SR 65 separation, I-80 changes to 6 lanes. An existing bottleneck, on SR 65 at the merge between the EB I-80 to NB SR 65 and WB I-80 to NB SR 65 lanes causes traffic to queue back onto I-80 mainline in both directions.

SR 65 is an important interregional route that serves both local and regional traffic. The route serves as a major connector for both automobile and truck traffic originating from the I-80 corridor in the Roseville/Rocklin area to the SR 70/99 corridor in the Marysville/Yuba City area. SR 65 is a vital economic link from residential areas to

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shopping and employment centers in southern Placer County. It is also an important route for transporting aggregate, lumber, and other commodities.

In the northbound direction, SR 65 begins at the I-80 separation as a three-lane facility joining the two eastbound I-80 to northbound SR 65 connector ramp lanes with the single lane westbound I-80 to northbound SR 65 connector ramp. The outside lane immediately ends along the East Roseville Viaduct and continues with two lanes through the Galleria Boulevard/Stanford Ranch Road interchange. A partial auxiliary lane begins prior to the Pleasant Grove Boulevard interchange and ends at the northbound off-ramp. Northbound SR 65 continues as a two lane facility with auxiliary lanes past the Pleasant Grove interchanges towards Lincoln.

In the southbound direction, SR 65 has two lanes and auxiliary lanes from Lincoln through the Pleasant Grove Boulevard interchange. A third southbound lane develops under the Galleria Boulevard/Stanford Ranch Road interchange prior to the southbound Galleria Boulevard on-ramp. The three lanes continue across the East Roseville Viaduct and split into four lanes, two serving the southbound SR 65 to westbound I-80 connector ramp, and two serving the southbound SR 65 to eastbound I-80 connector ramp.

C. Safety Improvements:

Project does not include any additional and/or specific safety improvements. Non-standard features of existing facilities to be modified, where feasible are upgraded to standards.

D. Total Project Cost

The estimated project cost for these improvements is $ 351,100,000. Below is the summary of project cost:

Roadway Items	$ 151.5 million
Structure Items	$ 194.0 million
Right-of-Way & Utility	$ 5.5 million
Total	**$ 351.1 million**

2. FEATURES REQUIRING AN EXCEPTION

A. Design Exception Feature #1

Non-standard Feature: Design Speed

HOV Connector and Branch Connectors are proposed to have a design speed of 45 mph. (See Attachment 2)

Standard for Which Exception Is Requested:

HDM Topic 504 – Interchange Design Standard, Index 504.4 – Freeway-to-Freeway Connections

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"The design speed for single lane directional and all branch connections should be a minimum of 50 miles per hour. When smaller radius curve, with lower design speeds, are used the vertical sight distance should be consistent with approaching vehicle speeds."

Reason for Requesting Exception:
The reason for this design exception is to avoid impact to the existing East Roseville Viaduct structure, the property in the northeast quadrant of the interchange, and Secret Ravine on the south side of I-80.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct. A 2100' length of existing viaduct will need to be replaced to accommodate the larger radii ramp alignments along with reconstruction 300' of roadway to conform and impact to additional right of way in the northeast quadrant of the interchange.

Additional cost to make standard is $56 million.

B. Design Exception Feature #2

Non-standard Feature: Vertical Curve
The realigned Eureka EB off-ramp "E5" will have vertical curve lengths of 310 feet. (See Attachment 3)

Standard for Which Exception Is Requested:
HDM Topic 204 - Grade, Index 204.4 – Vertical Curves

"For algebraic grade differences of 2 percent and greater, and design speeds equal to or greater than 40 miles per hour, the minimum length of vertical curve in feet should be equal to 10v, where V = design speed."

Reason for Requesting Exception:
The reason for this design exception is to conform to existing conditions at the west end of the I-80 eastbound Taylor Road off-ramp bridge structure over Miner's Ravine and to avoid impacts to the environmental sensitive areas in the ravine.

Conformance to standard would require replacing existing structure to meet 500' length vertical curve.

Additional cost to make standard is $4.2 million.

C. Design Exception Feature #3

Non-standard Feature: Superelevation of Compound Curves
Location A: The proposed superelevation compound curves transition for HOV Connector, "HOV" line will not occur at the PCC. (See Attachment 4)

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Location B: The proposed superelevation compound curves transition for SR 65 SB to I-80 WB Connector, "SW" line will occur within the second curve and not at the PCC. (See Attachment 4)

Standard for Which Exception Is Requested:

HDM Topic 202 - Superelevation, Index 202.6 Superelevation of Compound Curve

"*Superelevation of compound curve should follow the procedure as shown in Figure 202.6. Where feasible, the criteria in Index 202.5 should apply.*"

Reason for Requesting Exception:

Location A: The reason for this design exception is to match the 4% slope of East Roseville Viaduct. The viaduct has a minimum clearance required over UPRR.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct to be able to change horizontal alignment and maintain minimum clearance over UPRR. A 2,100' length of existing viaduct will need to be replaced along with reconstruction of 300' of roadway to conform.

Additional cost to make standard is $53 million.

Location B: The reason for this design exception is to match the 4% slope of East Roseville Viaduct. The viaduct has a minimum clearance required over UPRR.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct to be able to change horizontal alignment and maintain minimum clearance over UPRR. A 2,100' length of existing viaduct will need to be replaced along with reconstruction of 300' of roadway to conform.

Additional cost to make standard is $53 million.

F. Design Exception Feature #4

Non-standard Feature: Compound Curves

Location A: The proposed HOV Connector, "HOV" line will have a compound curve of R = 880' less than 2/3 of R = 3,012'. (See Attachment 5)

Location B: The proposed I-80 EB to SR 65 NB Connector, "EN" line will have a compound curve of R = 900' less than 2/3 of R = 3,052. (See Attachment 6)

Location C: The proposed SR 65 SB to I-80 EB Connector, "SE" line will have a compound curve of R = 860' less than 2/3 of R = 2985' and the smaller radius follow the larger radius. (See Attachment 7)

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Location D: The proposed SR 65 SB to I-80 WB Connector, "SW" line will have a compound curve of R = 930' less than 2/3 of R = 2,750' and the smaller radius follow the larger radius. (See Attachment 6)

Location E: The proposed SR 65 SB to I-80 EB Connector, "SE" line will have a compound curve of R = 930' less than 2/3 of R = 3,000'. (See Attachment 8)

Standard for Which Exception Is Requested:

HDM Topic 203 – Horizontal Alignment, Index 203.5 – Compound Curves

"Where compound curves are necessary, the shorter radius should be at least two-thirds the longer radius when the shorter radius is 1,000 feet or less. On one-way roads, the larger radius should follow the smaller radius."

Reason for Requesting Exception:

Location A, B, C, and D: The reason for this design exception is due to existing East Roseville Viaduct. The existing viaduct has a 4% superelevation with minimum clearance over UPRR.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct to be able to change horizontal alignment and maintain minimum clearance over UPRR. The 2,100' length of existing viaduct will need to be replace and reconstruct additional 300' of roadway conform.

Additional cost to make standard is $53 million.

Location E: The reason for this design exception is due to existing right of way and the proximity of Secret Ravine Creek.

Conformance to standard would require shifting the freeway entrance approximately 250 feet to the east and impact outside existing right of way. This will also impact Secret Ravine Creek, requiring a relocation/reconstruction of the creek which is an environmental sensitive area.

Additional cost to make standard is $12.3 million.

G. Design Exception Feature #5

Non-standard Feature: Median Width

Location A: The proposed I-80 mainline will have a median width vary from 22 feet to 36 feet between station "ME1" 128+73 and "ME1"134+47. (See Attachment 9)

Location B: The proposed SR 65 mainline will have a median width 22 feet between station "MS" 170+66 and "MS" 236+62. (See Attachment 10)

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Standard for Which Exception Is Requested:
HDM Topic 305 - Median Standards, Index 305.1(1)(a) - Width, Freeway and Expressway: Urban Areas

The minimum median width for freeways and expressways in urban areas should be 36 feet."

Reason for Requesting Exception:

Location A: The reason for this design exception is to conform to existing condition at the end of the project limit.

Conformance to standard would require widening I-80 to Foresthill Rd, approximately 15 mile from I-80/SR 65 Interchange, where the median is 36 feet wide.

Additional cost to make standard is greater than $100 million.

Location B: The reason for this design exception is to conform to the existing planned typical section and the proposed SR 65 Capacity and Operations Improvement project, avoiding additional impacts to roadways, structures and property outside the proposed right of way.

Conformance to standard would require reconstructing Galleria Blvd/Stanford Ranch Rd Overcrossing, realigning all ramps, and change the proposed typical section for SR 65 Capacity and Operations Improvement project to 36 feet.

Additional cost to make standard is $14 million.

H. Design Exception Feature #6

Non-standard Feature: Gore Width
The proposed gore width for Taylor WB on-ramp will be 18 feet. (See Attachment 11)

Standard for Which Exception Is Required
HDM Topic 504 – Interchange Design Standards, Index 504.2 (2) Freeway Entrances and Exits: Standard Designs

"Design of freeway entrances and exits should conform to the standard designs illustrated in Figure 504.2A-B (single lane), and Figure 504.3L (two-lane entrances and exits) and/or Figure 504.4 (diverging branch connections), as appropriate."

"Standard gore width is 23 feet."

Reason for Requesting Exceptions
The reason for the design exception is due to the mainline I-80 sloping to the opposite direction. A standard 23 feet gore would require an alignment with a longer tangent and a physical gore area shifted further west to avoid a grade break of greater than 10%. It would also shorten the weaving length available the Atlantic Street off-ramp. Due to

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the location being immediately adjacent and parallel to UPRR on the north side, all improvement to conform to full standard would have to be to the south side of I-80. Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

H. Design Exception Feature #7

Non-standard Feature: Diverge Angle for Off-ramp

Location A: The proposed diverged angle from I-80 mainline to collector-distributor road "CD1" is 2 degree. (See Attachment 12)

Location B: The proposed diverged angle from collector-distributor road "CD1" to Eureka Rd EB off-ramp "E5" is 2 degree. (See Attachment 12)

Standard for Which Exception Is Required

HDM Topic 504 – Interchange Design Standards, Index 504.2 (2) Freeway Entrances and Exits: Standard Designs

"Design of freeway entrances and exits should conform to the standard designs illustrated in Figure 504.2A-B (single lane), and Figure 504.3L (two-lane entrances and exits) and/or Figure 504.4 (diverging branch connections), as appropriate."

Reason for Requesting Exceptions

The reason for this design exception is to conform to existing condition and to avoid impact to existing structures and right of way.

Conformance to standard would require to shift "CD1" and "E5" a minimum of 200 feet to the west and replace the existing eastbound Eureka Rd off-ramp structure over the ravine and shorten the length of auxiliary lane between the Douglas Blvd on-ramp and the off-ramp, affecting weaving operations negatively.

Additional cost to make standard is $7.5 million.

H. Design Exception Feature #8

Non-standard Feature: Deceleration Length for Off-ramp

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The proposed Eureka EB off-ramp "E5" will have a deceleration length of 65 feet. (See Attachment 12)

Standard for Which Exception Is Required

HDM Topic 504 – Interchange Design Standards, Index 504.2 (2) Freeway Entrances and Exits: Standard Designs

"The minimum deceleration length shown on Figure 504.2B shall be provided prior to the first curve beyond the exit nose to assure adequate distance for vehicle to decelerate before entering the curve."

"The same standard should apply for the first curve after the exit from a collector-distributor road."

Reason for Requesting Exceptions

The reason for this design exception is to conform to existing condition and to avoid impact to existing structures and right of way.

Conformance to standard would require to shift "CD1" and "E5" a minimum of 200 feet to the west and replace the existing eastbound Eureka Rd off-ramp structure over the ravine and shorten the length of auxiliary lane between the Douglas Blvd on-ramp and the off-ramp, affecting weaving operations negatively.

Additional cost to make standard is $7.5 million.

I. Design Exception Feature #9

Non-standard Feature: Lane Requirement on Off-ramp

Location A: NB off-ramp to Galleria Blvd, "G2" will be a single-lane ramp 1,660 feet. (See Attachment 13)

Location B: SB off-ramp to Stanford Ranch Rd, "G4" will be a single-lane ramp 1,650 feet. (See Attachment 13)

Standard for Which Exception Is Required

HDM Topic 504 - Interchange Design Standards, Index 504.3(5) - Ramps: Single-lane Ramps

"If the length of a single lane ramp exceeds 1,000 feet, an additional lane should be provided on the ramp to permit passing maneuvers."

Reason for Requesting Exceptions

Location A: The reason for this design exception is due to existing condition. The proposed ramp is consistent with the existing ramp length. An additional lane for this ramp would impact the existing structure.

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Conformance to standard would require replacing Galleria Blvd/Stanford Ranch Rd Overcrossing and also impact traffic circulation.

Additional cost to make standard is $12 million.

Location B: The reason for this design exception is due to existing condition. The proposed ramp is consistent with the existing ramp length. An additional lane for this ramp would impact the existing structure.

Conformance to standard would require replacing Galleria Blvd/Stanford Ranch Rd Overcrossing and also impact traffic circulation.

Additional cost to make standard is $12 million.

J. Design Exception Feature #10

Non-standard Feature: Side Slope

Location A: The propose side slope along SR 65 SB mainline from station "MS" 217+00 to station "MS" 222+00 will be 2:1. (See Attachment 14)

Location B: The propose side slope along I-80 WB to SR 65 NB Connector from station "WN" 120+24 to station "WN" 123+88 will be 2:1 slope. (See Attachment 15)

Standard for Which Exception Is Required

HDM Topic 304 - Side Slopes, Index 304.1 - Side Slope Standards

"For a new construction, widening, or where slopes are otherwise being modified, embankment (fill) slopes should be 4:1 or flatter."

Reason for Requesting Exceptions

Location A: The reason for this design exception is to avoid impact to existing culvert, creek and the environmental sensitive area. The propose slope is matching the existing 2:1 slope condition on this culvert area.

Conformance to standard would require an additional retaining wall along this location.

Additional cost to make standard is $0.4 million.

Location B: The reason for this design exception is to avoid additional right of way and impacts to the existing storage facility.

Conformance to standard would require an additional retaining wall along this location.

Additional cost to make standard is $1.0 million.

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3. TRAFFIC DATA

Existing and design year (2040) average daily traffic (AADT) and peak-hour volumes are summarized in Table 1:

Table 1
Summary of Annual Average Daily Traffic

Freeway Segment	Existing		2040	
	AADT	Peak Hr	AADT	DHV
Interstate 80				
EB Douglas Blvd to Eureka Rd	77500	6518	102100	9140
EB Eureka Rd to Taylor Rd	79350	6705	108900	7460
EB Taylor Rd to SR 65	75000	6196		
EB SR 65 to Rocklin Rd	54800	4591	68650	6110
WB Rocklin Rd to SR 65	54800	4129	68650	5140
WB SR 65 to Taylor Rd	75000	5812	106500	8030
WB Taylor Rd to Atlantic St	79350	6326	108900	8720
State Route 65				
NB I-80 to Stanford Ranch Rd	53050	4359	77800	8000
NB Stanford Ranch Rd to Pleasant Grove Blvd	52200	4138	77400	7470
SB Pleasant Grove Blvd to Galleria Blvd	52200	4079	77400	6470
SB Galleria Blvd to I-80	53050	3975	77800	6750
Ramp/Connector Segment	**Existing**		**2040**	
	AADT	**Peak Hr**	**AADT**	**DHV**
Interstate 80				
EB Eureka Rd Off-ramp	10940	1094	13600	1360
EB Eureka Rd Loop On-ramp	2290	229	3100	310
EB Eureka Rd on-ramp	8990	899	15200	1520
EB Taylor Rd loop Off-ramp	5090	509	5800	580
EB I-80 to NB SR 65 loop Connector	31870	3187	47500	4750
WB I-80 to NB SR 65 Connector	11720	1172	20700	2070
WB Taylor Rd On-ramp	5140	514	7300	730
WB Atlantic St Off-ramp	3730	373	5800	580
WB Atlantic St Loop Off-ramp	8260	826	12000	1200
WB Atlantic St On-ramp	9830	983	12300	1230
State Route 65				
NB Stanford Ranch Rd Off-ramp	11460	1146	16500	1650
NB Stanford Ranch Rd On-ramp	9250	925	11200	1120
SB Pleasant Grove Blvd On-ramp	5840	584	11100	1110
SB Galleria Blvd Off-ramp	8000	800	15600	1560
SB Galleria Blvd On-ramp	9820	982	18400	1840
SB SR 65 to EB I-80 Connector	15820	1582	25900	2590
SB SR 65 to WB I-80 Connector	28310	2831	36500	3650

Data provided by Fehr & Peers

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4. ACCIDENT ANALYSIS

The actual accident rates for I 80 for the 3-year period (July 1, 2009 to June 30, 2012) from PM 1.90 to 6.10 and SR 65 from PM 4.86 to 7.30 were compared to the statewide average accident rates for similar facilities. Following are accident data from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) – Transportation System Network (TSN) Table B summarized in Table 2.

Table 2
Actual and Average Accident Rates from 7/1/2009 to 6/30/2012

Direction/ Location	Number of Accidents				Accident Rates					
					Actual			Average		
	Total	F*	I**	F+I***	F*	F+I***	Total	F*	F+I***	Total
WB & EB I-80 Mainline (PM 1.90 to 6.10)	658	5	228	233	0.008	0.37	**1.05**	0.004	0.28	0.91
NB & SB SR 65 Mainline (PM 4.86 to 7.30)	165	2	55	57	0.007	0.21	0.61	0.006	0.33	1.03
I-80 EB off to Atlantic/Taylor (PM 2.85)	13	0	3	3	0	0.23	**1.01**	0.003	0.35	1.01
I-80 EB loop off to Taylor Rd (PM 3.60)	7	0	3	3	0	0.62	**1.44**	0.003	0.30	1.06
I-80 WB on from Taylor Rd (PM 3.61)	2	0	0	0	0	0	0.36	0.003	0.18	0.57
I-80 WB on from SR 65 SB (PM 3.95)	18	0	5	5	0	0.19	**0.70**	0.003	0.11	0.32
I-80 EB off to SR 65 NB (PM 4.22)	32	0	10	10	0	0.31	**0.98**	0.004	0.20	0.68
I-80 WB off to SR 65 NB (PM 4.32)	9	1	5	6	0.069	0.41	**0.62**	0.005	0.13	0.38
I-80 EB on from SR 65 SB (PM 4.50)	2	0	2	2	0	0.16	0.16	0.003	0.14	0.41

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SR 65 NB loop off to Galleria Blvd (PM 5.81)	5	0	1	1	0	0.14	0.70	0.003	0.30	1.06
SR 65 SB loop off to Stanford Ranch (PM 6.04)	4	0	2	2	0	0.70	**1.39**	0.003	0.30	1.06

Note: Accident rates on mainline are per million vehicle miles.

* Fatalities
** Injuries
*** Fatalities plus injuries

Bold and underlined font indicates actual rates are higher than average

Mainline I 80

A total of 658 accidents were reported within the proposed project limits in both directions of I-80, including 5 fatalities and 228 injuries. As shown in Table 2, the actual accident rate on I 80 is 1.05, which is higher than the statewide average of 0.91 for a similar type facility. The accident rates for fatal and injury accidents are also higher than comparable state averages.

During the three-year period, the types of accidents that occurred on I 80 were as follows: 408 rear-ends (62.0%); 132 sideswipes (20.1%); 79 hit objects (12.0%); 13 broadsides (2.0%); 10 overturns (1.5%); 8 other factors (1.2%) and 6 auto-pedestrian (0.9%).

The majority of the accidents took place in the left, right or interior lanes, with only 11.5% of the accidents occurring in the left or right shoulder areas or the recovery areas beyond the shoulders, where the propose design feature #3 in this Fact Sheet is located. Rear-end accidents account for 62.0% of all the accidents, which are generally congestion-related. The next most frequent accident types are side-swipe and hit object (32.1%). The other accident types are collectively less than 10% of all accidents.

The proposed addition of general purpose lanes and HOV are expected to improve traffic operations within this area.

Mainline SR 65

A total of 165 accidents were reported within the proposed project limits in both directions of SR 65, including 2 fatalities and 55 injuries. As shown in Table 2, the actual accident rate on SR 65 is 0.61, which is lower than the statewide average of 1.03 for a similar type facility. The accident rates for fatal and injury accidents are also lower than comparable state averages.

The most frequent accident type is a rear end accident which account for 69.1% of all the accidents, which is typical of congested related. The next most frequent accident types are side-swipe and hit object.

The proposed addition of general purpose and HOV lanes are expected to improve traffic operations within this area.

DRAFT

80/65 Connectors

A total of 60 accidents were reported at 4 different connector locations. There are 3 locations that have accident rates higher than the statewide average for a similar type of facility, as shown in Table 2. In addition, the proposed improvements are anticipated to provide improved operational conditions through addition of HOV lanes and reconfigurations of this freeway to freeway facilities, thereby helping to reduce the accident frequency at these locations.

The 3 locations that have actual accident rates higher than the statewide rate are as follows:

80 Westbound Connector from 65 Southbound (PM 3.95)

A total of 18 accidents were reported with no fatalities. The actual accident rate on the connector is 0.70, which is higher than the statewide average of 0.32 for a similar type facility.

The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects and sideswipe type of collisions. These accidents are consistent with short weaving distances and number of lanes and turning roadways of the existing facilities.

80 Eastbound Connector to 65 Northbound (PM 4.22)

A total of 32 accidents were reported at this location with no fatalities. The actual accident rate on the connector is 0.98, which is higher than the statewide average of 0.68 for a similar type facility.

The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects, sideswipe, and head-on type of collisions. These accidents are consistent with number of lanes, turning roadways and configuration of the existing facilities.

80 Westbound Connector to 65 Northbound (PM 4.32)

A total of 9 accidents were reported at this location with no fatalities. The actual accident rate on the connector is 0.62, which is higher than the statewide average of 0.38 for a similar type facility.

The types of accidents involved mostly passenger cars that were speeding, under the influence of alcohol and made improper turns, resulting in rear-end, hit objects and side swipe type of collisions. These accidents are consistent with number of lanes and turning roadways of the existing facilities.

The project proposed to add an additional lane to each of connector and a separate HOV lane connector from I-80 to SR 65 and SR 65 to I-80. It will also eliminate the existing loop connector from WB I-80 to NB SR 65. All these improvements are expected to improve traffic operations of this freeway-to-freeway interchange.

I-80 EB Off-ramp to Atlantic St/Taylor Rd Intersection (PM 2.85)

A total of 13 accidents were reported with no fatalities. The actual accident rate on the off-ramp is 1.01, which is the statewide average for a similar type facility.

DRAFT

The types of accidents involve passenger cars that were speeding and involved in rear-end and hit objects type collisions. These accidents are consistent with short weaving distances, number of ramps and turning roadways, and short acceleration/deceleration distances of the existing facilities.

The proposed CD road, auxiliary lane, and ramp reconstruction will provide improved operational conditions and is anticipated to reduce the accident frequency at this location to less than the statewide rate.

I-80 EB Loop Off-ramp to Taylor Rd (PM 3.60)
A total of 7 accidents were reported at this location with no fatalities. The actual accident rate on the off-ramp is 1.44, which is higher than the statewide average of 1.06 for a similar type facility.

The types of accidents involved mostly passenger cars that were under the influence of alcohol and made improper turns, resulting in the vehicles hitting objects and overturn. These accidents are consistent with short weaving distance and short deceleration distances, and short separation distances of the existing facilities.

The proposed project adds CD road and separate the ramps movement from mainline. The proposed ramp reconstruction will provide improved operational conditions and is anticipated to reduce the accident frequency at this location to less than the statewide rate.

SR 65 SB Loop Off-ramp to Stanford Rd (PM 6.04)
A total of 4 accidents were reported at this location with no fatalities. The actual accident rate on the on-ramp is 1.39, which is higher than the statewide average of 1.06 for a similar type facility.

The types of accidents involved passenger cars that were speeding and made improper turns, resulting in rear-end type of collisions. These accidents are consistent with configuration of the turning roadways of the existing facilities.

There is a separate project, SR 65 Capacity and Operations Improvement project that will add an auxiliary lane.

5. INCREMENTAL IMPROVEMENTS

None

6. FUTURE CONSTRUCTION

There is a proposed "SR 65 Capacity and Operations Improvement project" which is in the PA&ED phase. This project will widen SR 65 to the north adding general purpose, HOV lanes, and auxiliary lanes.

DRAFT

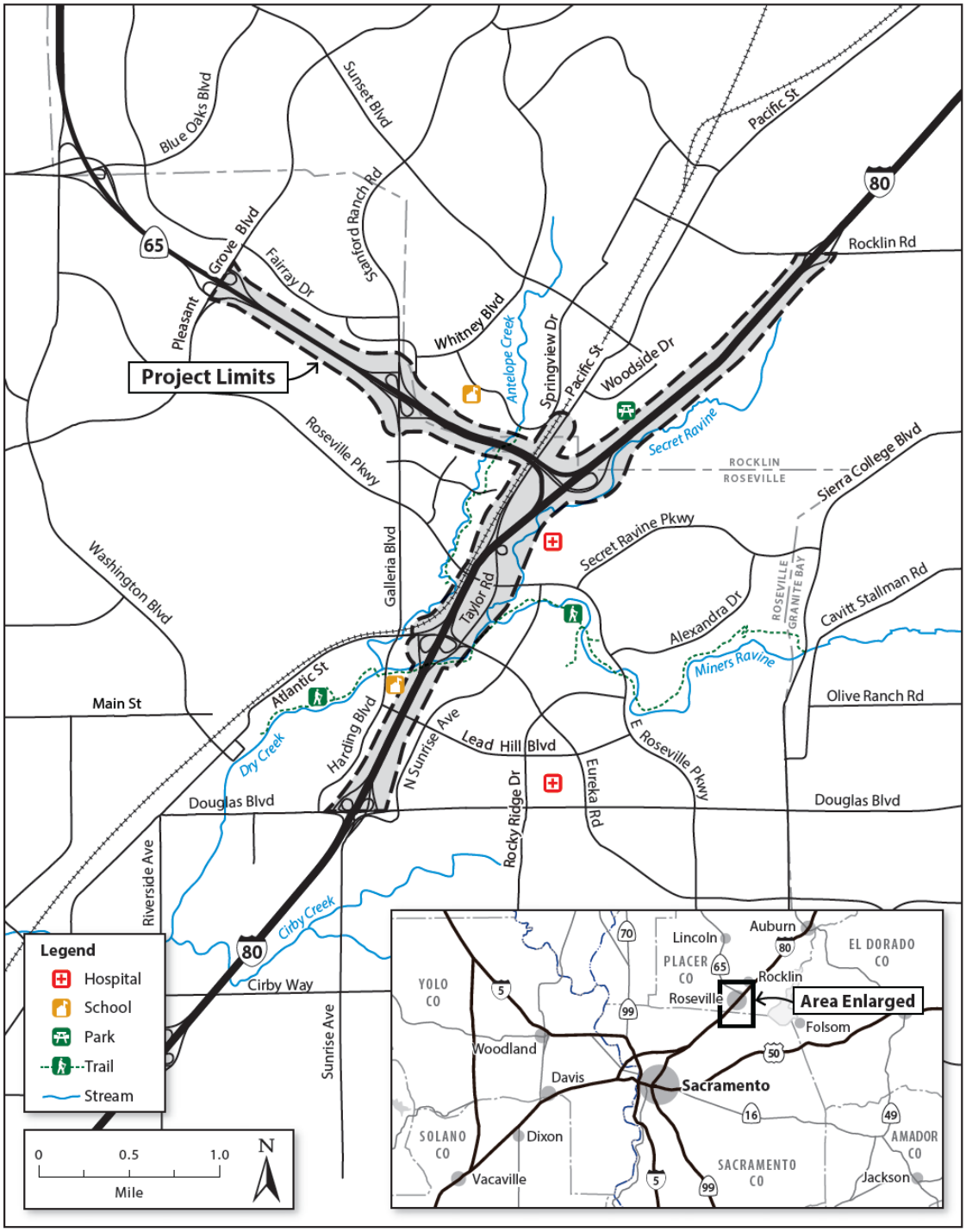
7. PROJECT REVIEWS, CONCURRENCE

These design exceptions have been reviewed and concurred by XXXXX, HQ Design Reviewer on April 201X.

8. ATTACHMENTS

1) Attachment 1 - Vicinity Map
2) Attachment 2 - Feature #1 Design Speed
3) Attachment 3 - Feature #2 Vertical Curve
4) Attachment 4 - Feature #3 Superelevation of Compound Curves
5) Attachment 5 - Feature #4 Location A - Compound Curves
6) Attachment 6 - Feature #4 Location B, D - Compound Curves
7) Attachment 7 - Feature #4 Location C - Compound Curves
8) Attachment 8 - Feature #4 Location E - Compound Curves
9) Attachment 9 - Feature #5 Location A – Median Width
10) Attachment 10 - Feature #5 Location B – Median Width
11) Attachment 11 - Feature #6 Gore Width
12) Attachment 12 - Feature #7, #8 Diverge Angle and Deceleration Length for off-ramp
13) Attachment 13 - Feature #9 Lane Requirement on Off-ramp
14) Attachment 14 - Feature #10 Location A – Side Slope
15) Attachment 15 - Feature #10 Location B – Side Slope

DRAFT



ATTACHMENT 2
VICINITY MAP

ADVISORY EXCEPTION NO. 1A
DESIGN SPEED OF HOV AND CONNECTOR RAMPS IS 45 MPH

PT35+97.10

PC14+98.88

PC132+97.01

PC132+12.28

PT110+58.44

PC114+08.44

PC123+87.88

"SW"

"SE"

"HOV"

"EN"

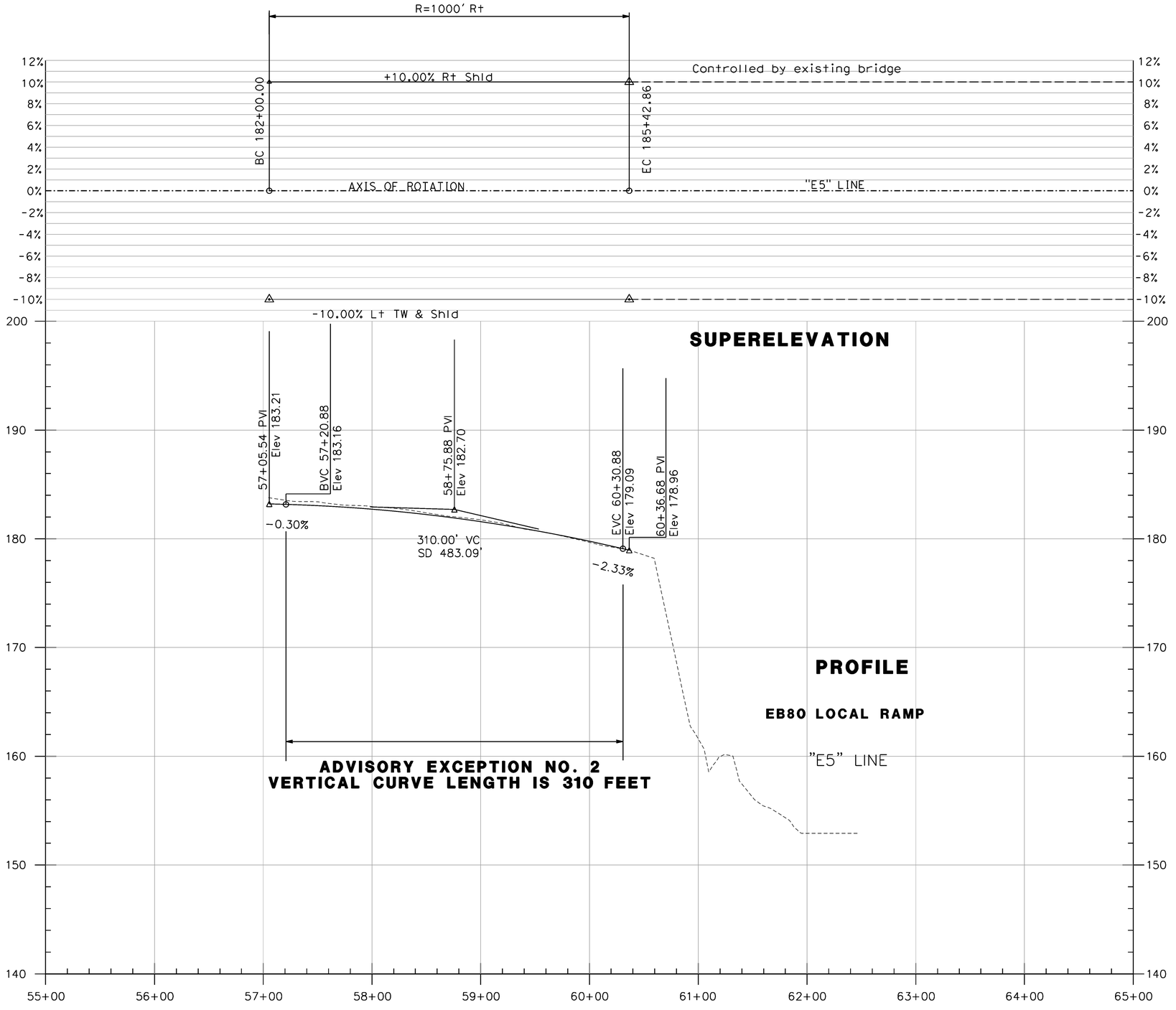
"NW"

100 50 0 100

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 2

SHEET 1 OF 1



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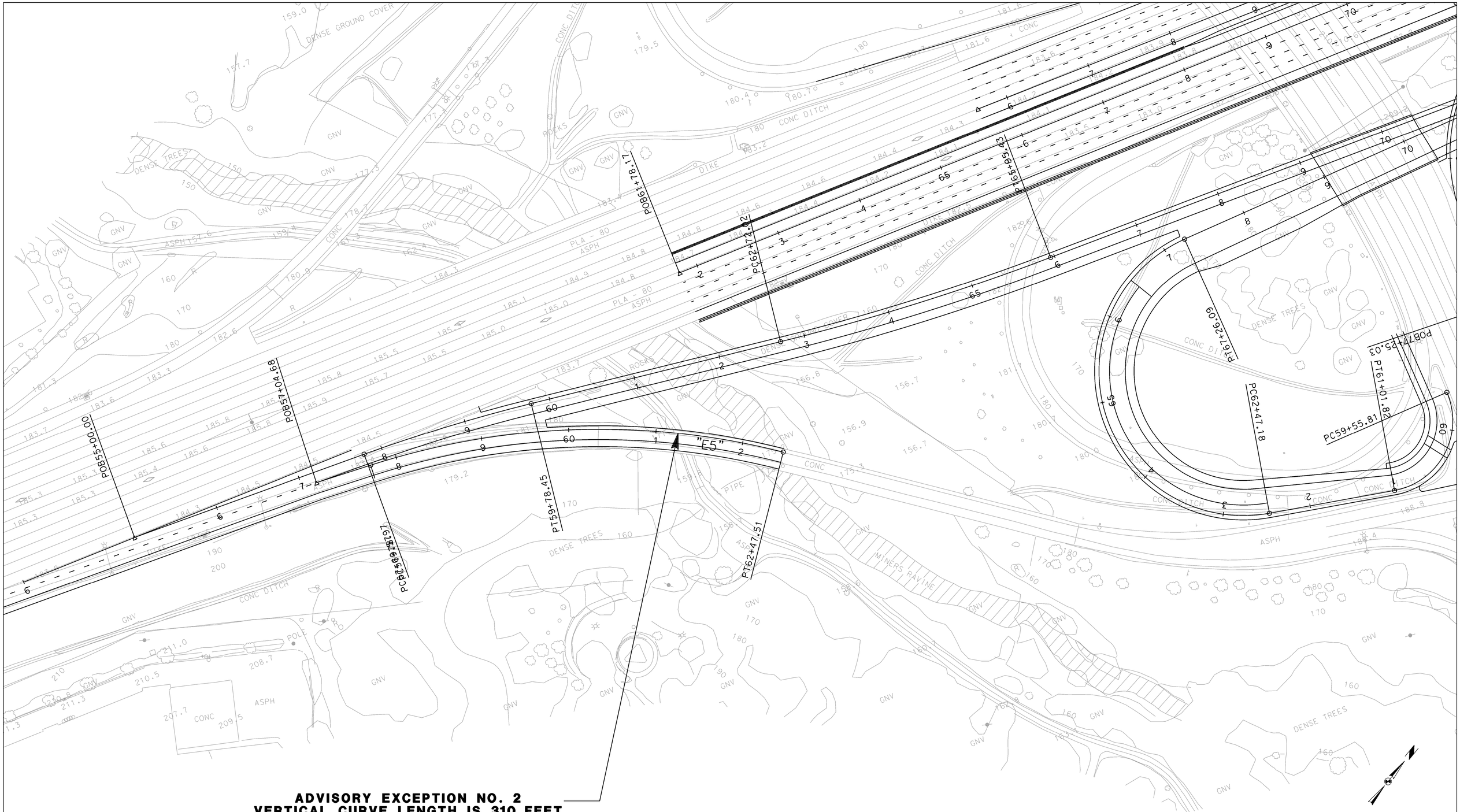
GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 3

SHEET 1 OF 2

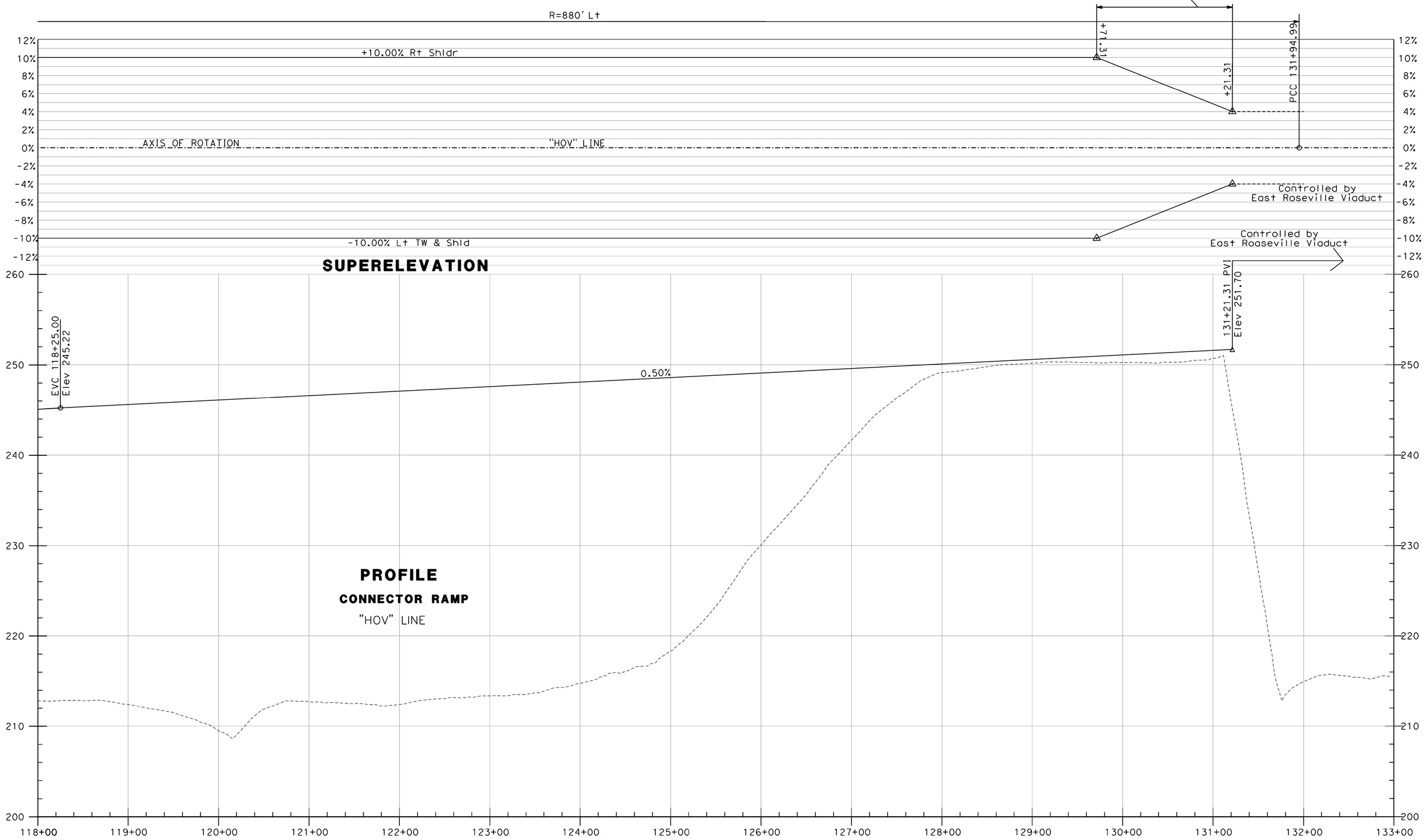


ADVISORY EXCEPTION NO. 2
VERTICAL CURVE LENGTH IS 310 FEET

ATTACHMENT 3

SHEET 2 OF 2

ADVISORY EXCEPTION NO. 3A
SUPERELEVATION COMPOUND CURVE TRANSITION
WILL NOT OCCUR AT PCC

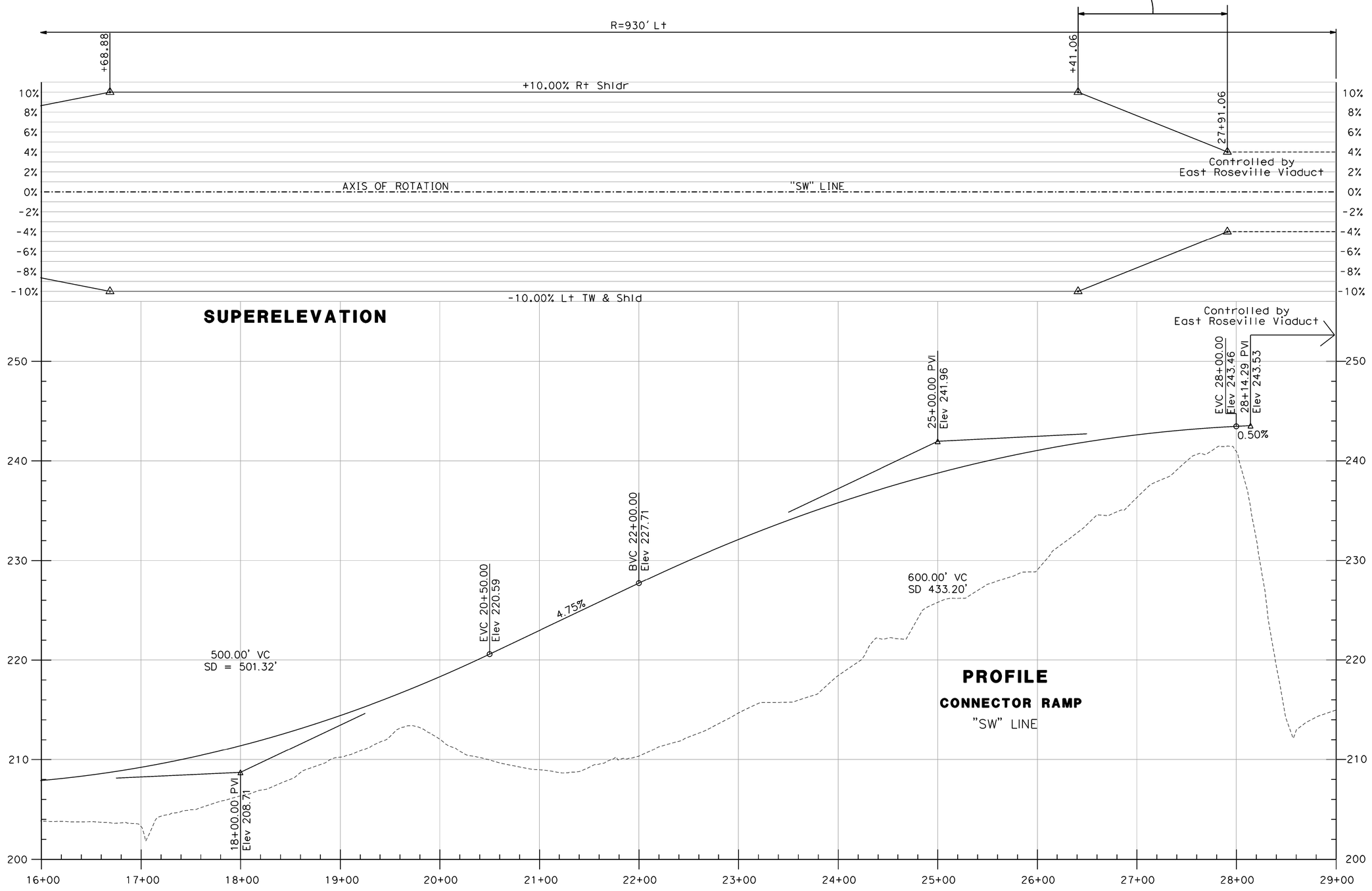


100 50 0 100
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

20 10 0 20
GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 4

ADVISORY EXCEPTION NO. 3B
SUPERELEVATION COMPOUND CURVE TRANSITION
OCCURS IN SECOND CURVE NOT AT PCC



100 50 0 100
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

20 10 0 20
GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 4

POB117+48.73

PC105+95.49

PC130+98.79

PC131+84.99

PT132+97.01

PC132+12.22

PT110+58.44

PC123+87.88

"SE"

ADVISORY EXCEPTION NO. 3A
SUPERELEVATION COMPOUND CURVE TRANSITION WILL NOT OCCUR AT PCC

ADVISORY EXCEPTION NO. 3B
SUPERELEVATION COMPOUND CURVE TRANSITION OCCURS IN SECOND CURVE NOT AT PCC

100 50 0 100

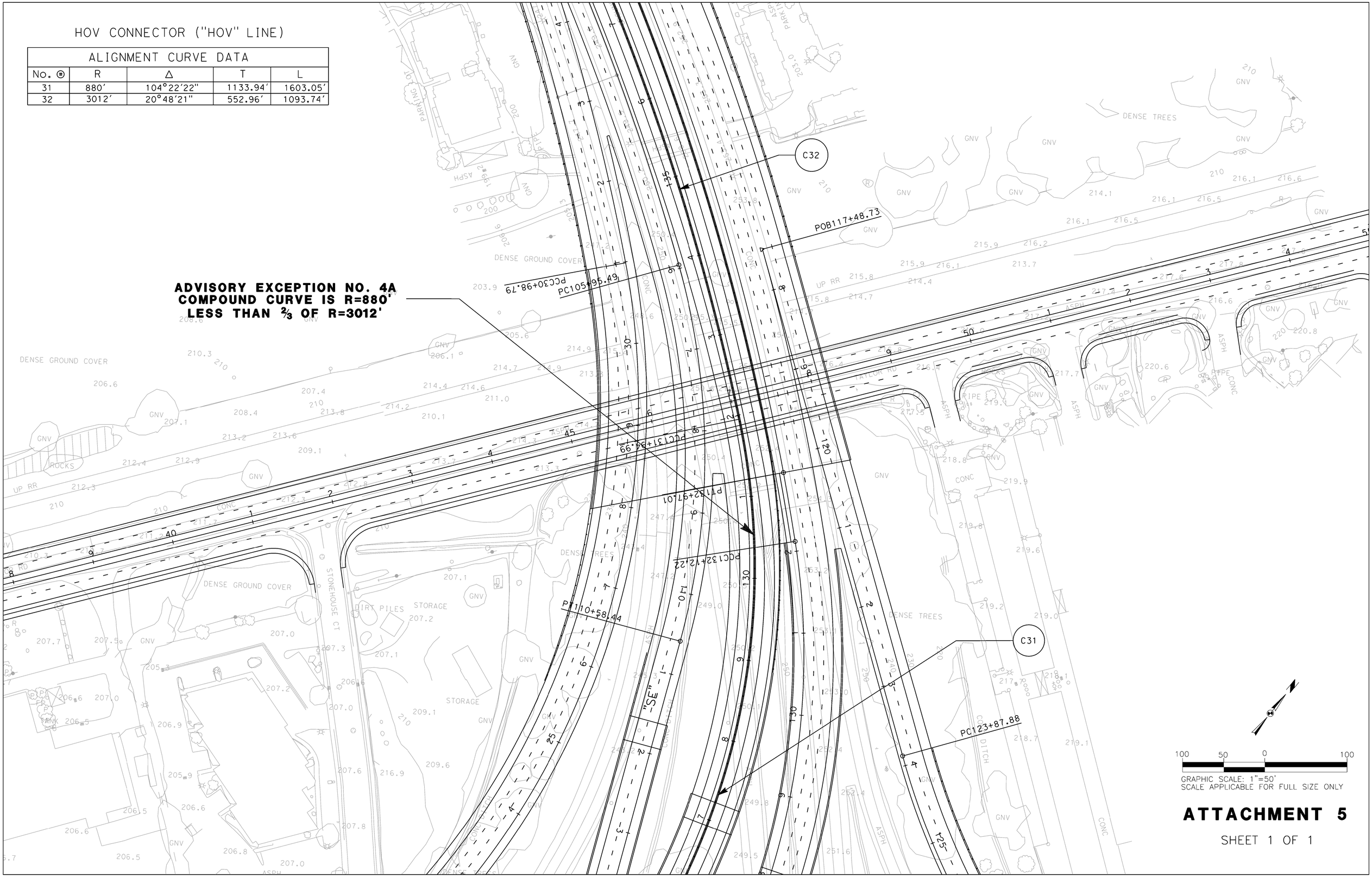
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 4

SHEET 3 OF 3

HOV CONNECTOR ("HOV" LINE)

ALIGNMENT CURVE DATA				
No. ⊕	R	Δ	T	L
31	880′	104°22′22"	1133.94′	1603.05′
32	3012′	20°48′21"	552.96′	1093.74′

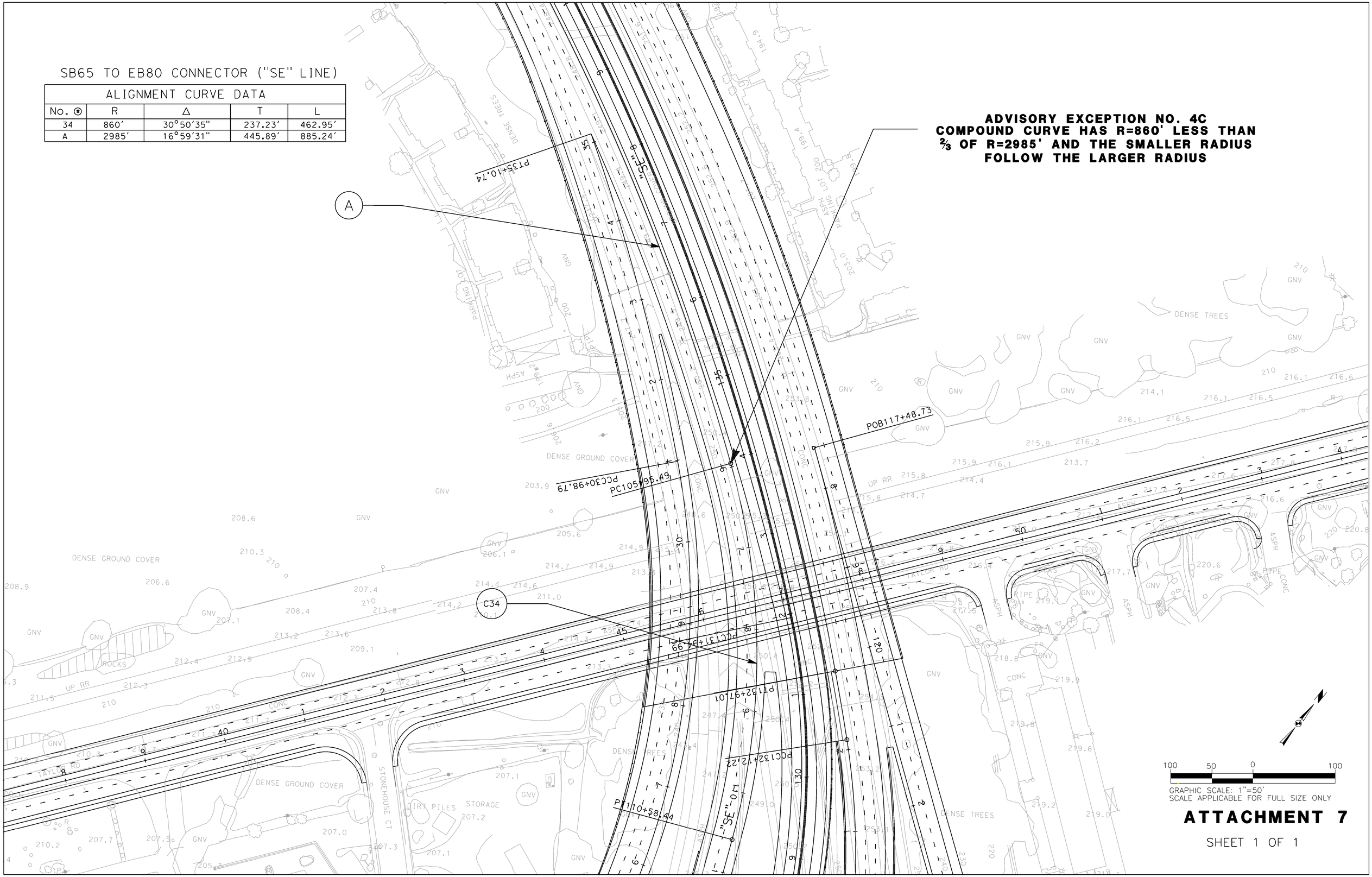


ATTACHMENT 5

SHEET 1 OF 1

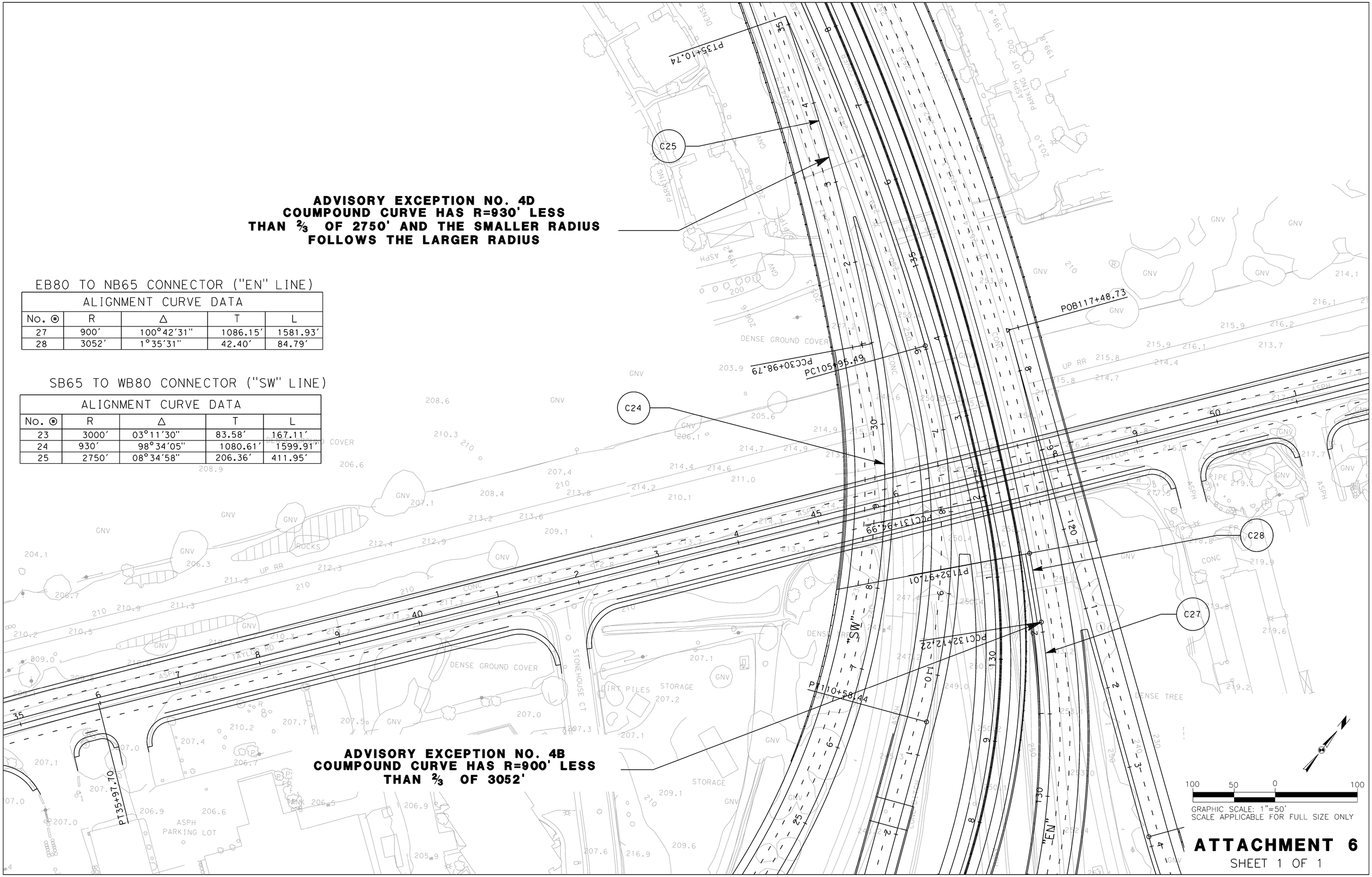
SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. ⊕	R	Δ	T	L
34	860'	30°50'35"	237.23'	462.95'
A	2985'	16°59'31"	445.89'	885.24'



ATTACHMENT 7

SHEET 1 OF 1



EB80 TO NB65 CONNECTOR ("EN" LINE)

ALIGNMENT CURVE DATA				
No. ⊕	R	Δ	T	L
27	900′	100°42′31"	1086.15′	1581.93′
28	3052′	1°35′31"	42.40′	84.79′

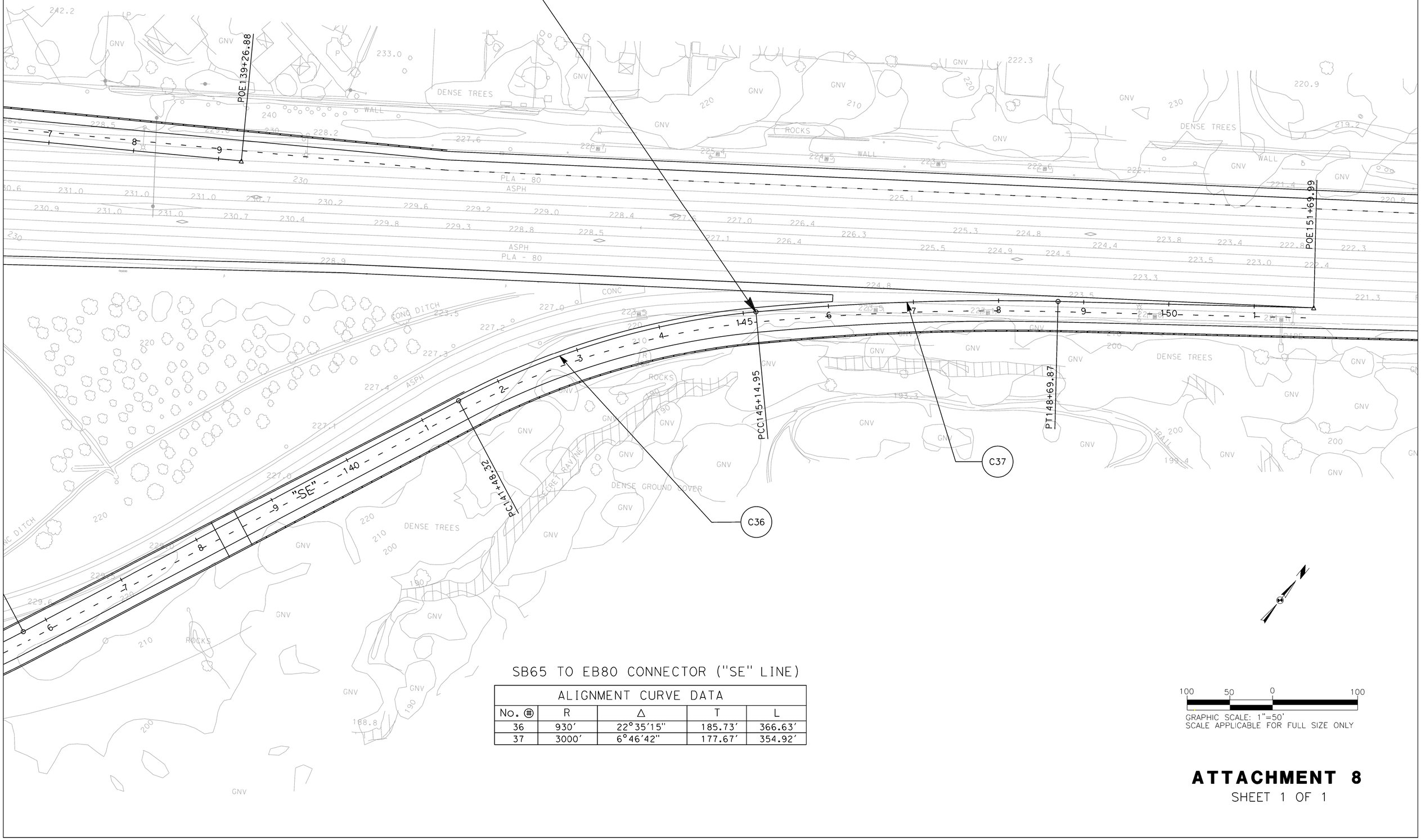
SB65 TO WB80 CONNECTOR ("SW" LINE)

ALIGNMENT CURVE DATA				
No. ⊕	R	Δ	T	L
23	3000′	03°11′30"	83.58′	167.11′
24	930′	98°34′05"	1080.61′	1599.91′
25	2750′	08°34′58"	206.36′	411.95′

ATTACHMENT 6

SHEET 1 OF 1

ADVISORY EXCEPTION NO. 4E
COMPOUND CURVE IS R=930' LESS THAN
⅔ OF R=3000'



SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. ⑯	R	Δ	T	L
36	930′	22°35′15"	185.73′	366.63′
37	3000′	6°46′42"	177.67′	354.92′

100 50 0 100
GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

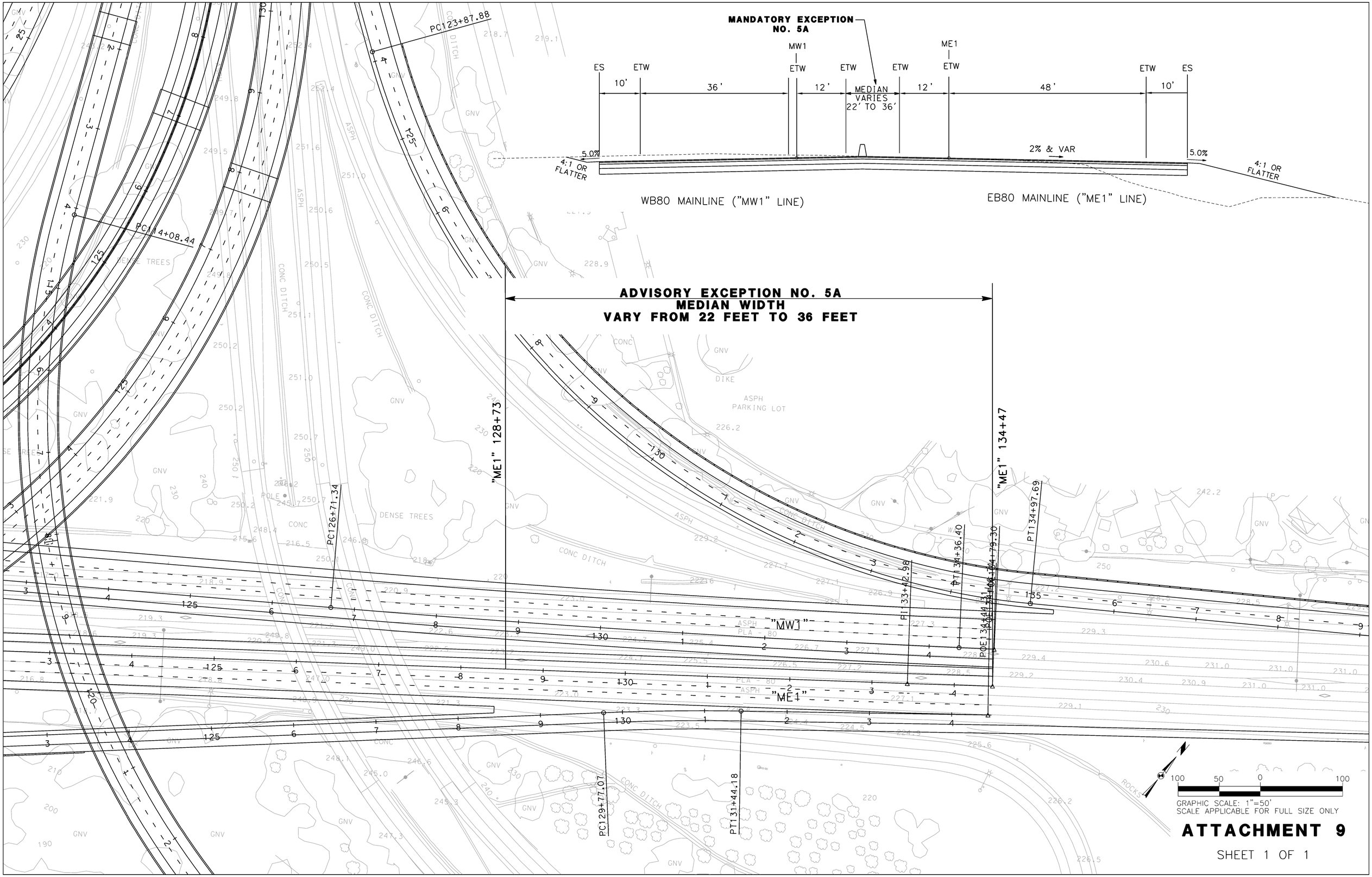
ATTACHMENT 8
SHEET 1 OF 1

MANDATORY EXCEPTION NO. 5A

WB80 MAINLINE ("MW1" LINE)

EB80 MAINLINE ("ME1" LINE)

ADVISORY EXCEPTION NO. 5A
MEDIAN WIDTH
VARY FROM 22 FEET TO 36 FEET



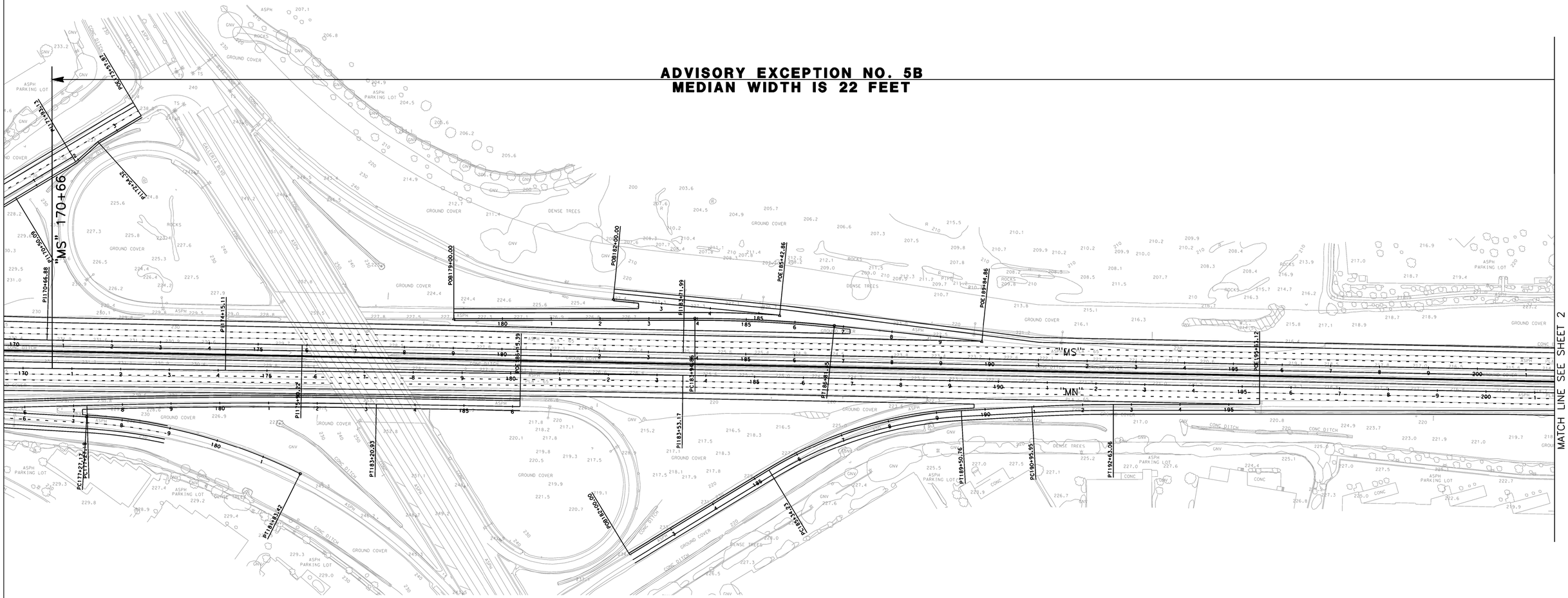
100 50 0 100

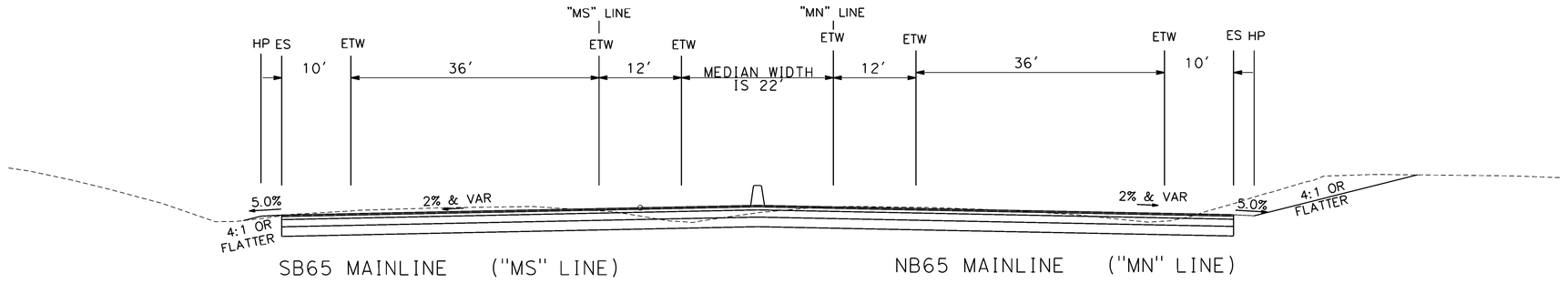
GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 9

SHEET 1 OF 1

ADVISORY EXCEPTION NO. 5B
MEDIAN WIDTH IS 22 FEET





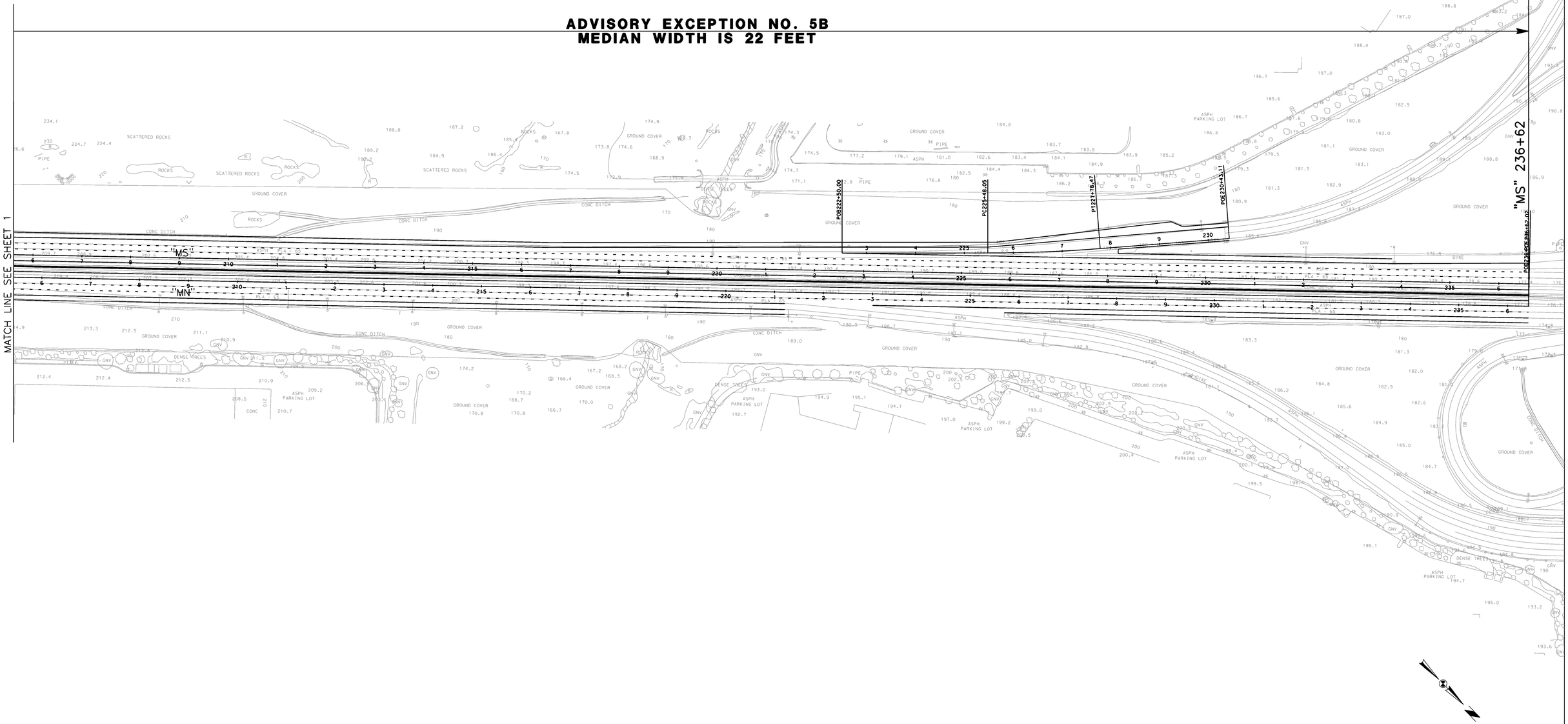
200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 10

SHEET 1 OF 2

ADVISORY EXCEPTION NO. 5B
MEDIAN WIDTH IS 22 FEET



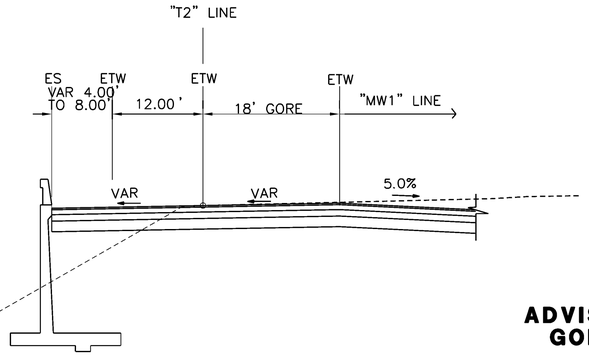
200 100 0 200

GRAPHIC SCALE: 1"=50'

SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 10

SHEET 2 OF 2



EB80 TAYLOR ON-RAMP ("T2" LINE)

ADVISORY EXCEPTION NO. 6
GORE WIDTH IS 18 FEET

PC8+91.53
PT11+81.10
PC13+81.10
PCC23+72.05
POB5+14.87
"MW1"
"ME1"
PC5+72.34
PT6+91.53
PC89+10.73
PC89+04.73
PC89+10.08
PT102+19.95
POB 03+40.33
PC102+76.50
PT100+42.84
PT110+16.91
PS97+90.76
PC107+53.01.84
PCC109+53.12
PC108+02.10
PT100+60.93
PC100+80.93
PT106+18.66
PT102+99.88
PC113+82.42

GNV
DENSE GROUND COVER
DENSE BRUSH
DENSE TREES
ROCKS
ASPH
CONC
CONC DITCH
SHADOWS
UP RR
PLA - 80
B/B
FP

100 50 0 100
GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 11
SHEET 1 OF 1

ADVISORY EXCEPTION NO. 7A
DIVERGED ANGLE IS 2 DEGREE

POB57+04.68

POB59+22.97

PC62+72.02

POB61+78.17

POB65+64.05

PT59+78.45

PC62+47.51

PT62+47.51

POB65+85.43

PT65+08.88

PC62+47.18

PC59+55.81

PT61+01.82

POB77+25.03

ADVISORY EXCEPTION NO. 7B
DIVERGED ANGLE IS 2 DEGREE

ADVISORY EXCEPTION NO. 8
DECELERATION LENGTH IS 65 FEET

100 50 0 100

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 12

SHEET 1 OF 1

ADVISORY EXCEPTION NO. 9B
OFF RAMP IS 1,650 FEET SINGLE LANE

ADVISORY EXCEPTION NO. 9A
OFF RAMP IS 1,660 FEET SINGLE LANE

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 13

SHEET 1 OF 1

ADVISORY EXCEPTION NO. 10A
SIDE SLOPE IS 2:1

"MS" 217+00

"MS" 222+00

POB222+50.00

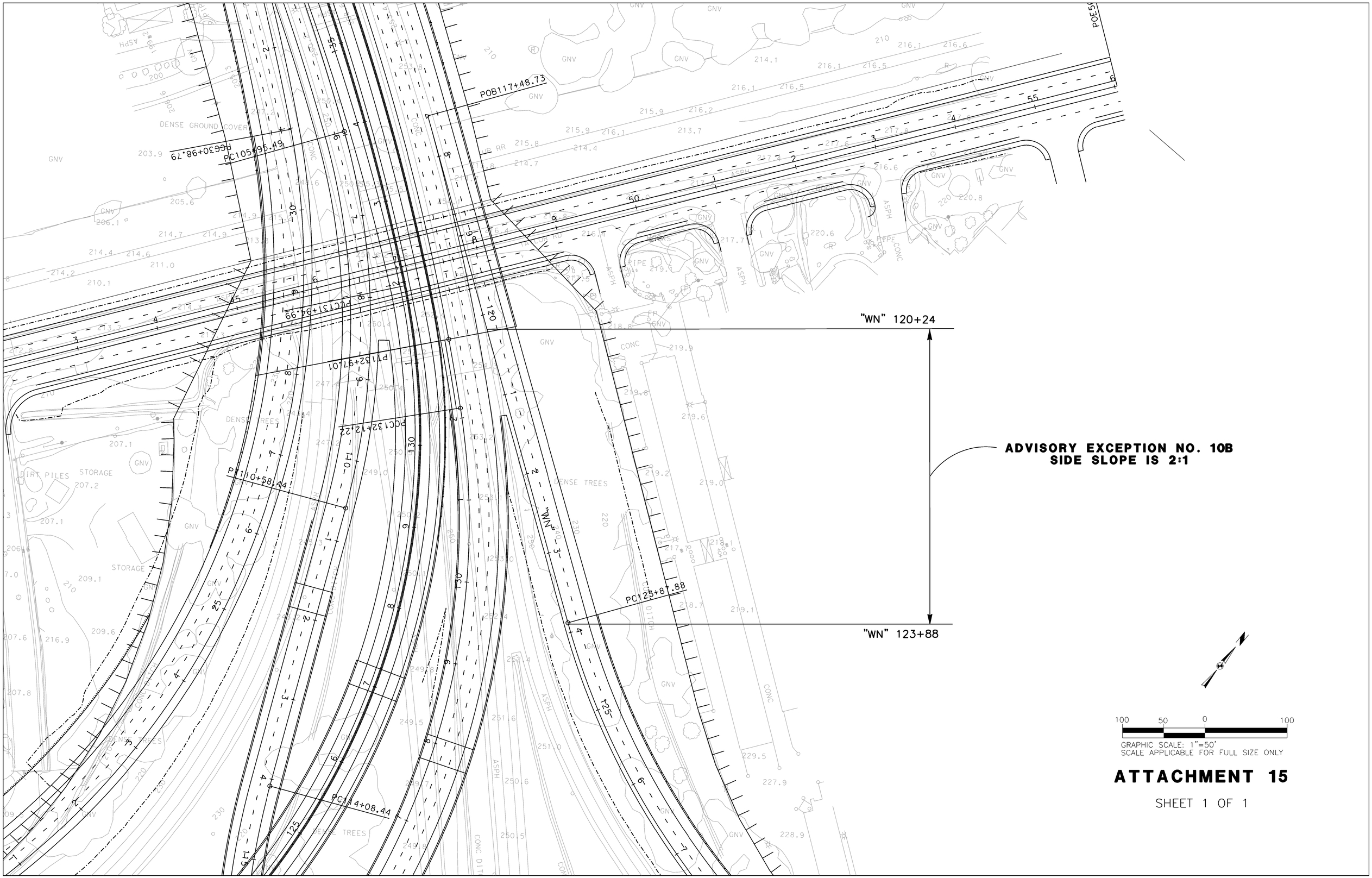
PC225+48.05

PT227+78.47

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

100 50 0 100

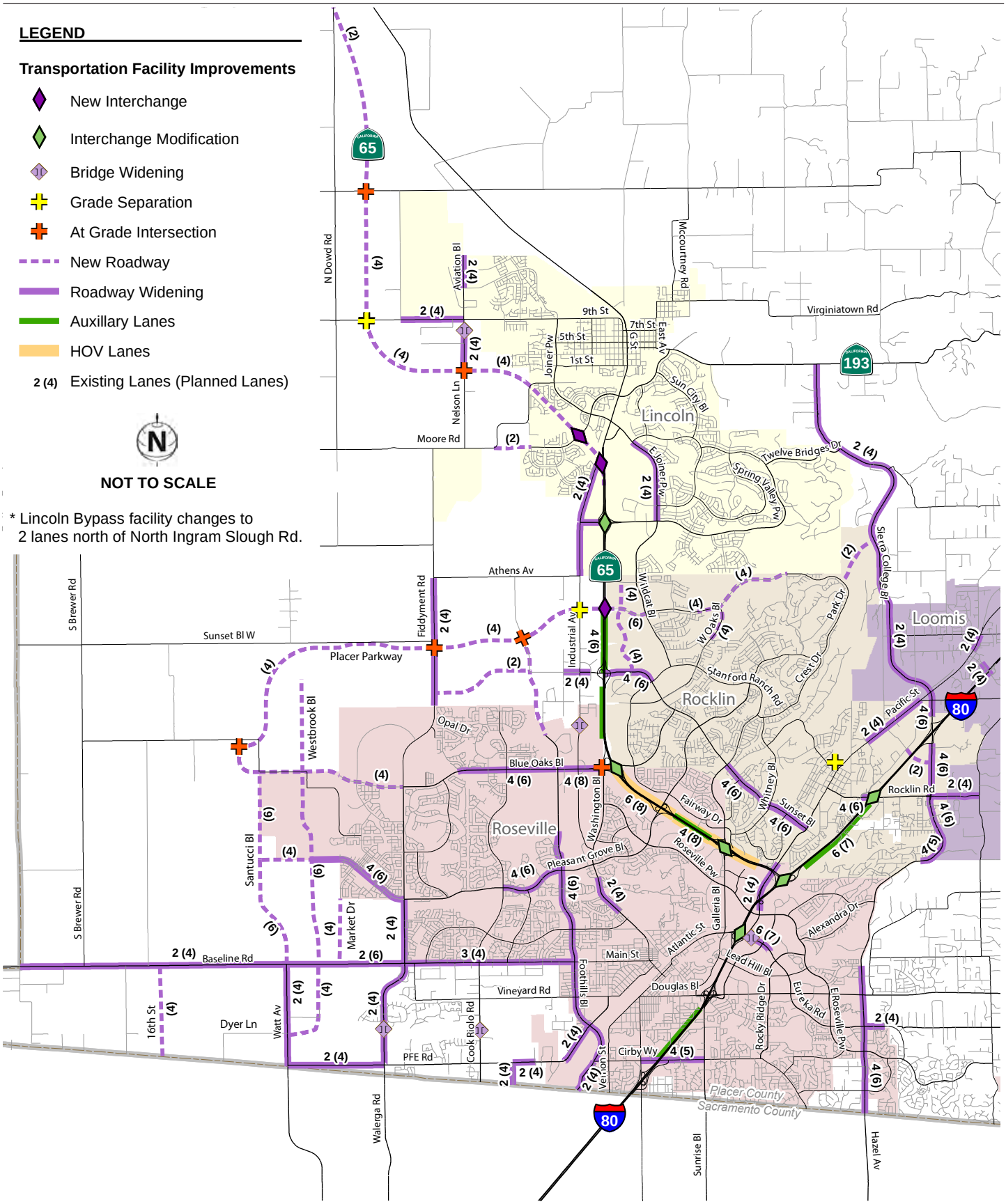
ATTACHMENT 14
SHEET 1 OF 1



ATTACHMENT 15

SHEET 1 OF 1

Attachment H
2040 Planned Projects



ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2040

Attachment I
Initial Site Assessment

INITIAL SITE ASSESSMENT (ISA) UPDATE
Interstate 80/State Route 65 Interchange
(80/65 IC) Improvement Project
EA 03-4E3200; 03-PLA-80/65-PM 1.9-6.1/R4.8-R7.3
Placer County, California

Prepared for
CH2M Hill

September 2014

Prepared by
Blackburn Consulting
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BCI File No. 1980.4.2
September 30, 2014

Mr. Christopher Benson
CH2M Hill
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833-2937

Subject: **INITIAL SITE ASSESSMENT (ISA) UPDATE**
Interstate 80/State Route 65 Interchange (80/65 IC) Improvement Project
EA 03-4E3200; 03-PLA-80/65-PM 1.9-6.1/R4.8-R7.3
Placer County, California

Dear Mr. Benson,

Blackburn Consulting (BCI) prepared this Initial Site Assessment (ISA) Update to refresh and expand a previous hazardous waste evaluation completed by Caltrans. The previous evaluation *"Hazardous Waste Revised Evaluation for a Preliminary Environmental Analyses Report"* is dated March 24, 2009. Both this ISA Update and 2009 Caltrans hazardous waste evaluation were prepared for the Interstate 80/State Route 65 Interchange (80/65 IC) Improvement project in Placer County, California. The purpose of these reports is to identify recognized soil and groundwater contamination and hazardous material conditions that may significantly impact project planning and construction. This report was prepared in accordance with our proposal dated May 14, 2014.

As always, BCI appreciates the opportunity to be part of your team. Please call if you have questions or require additional information.

Sincerely,

BLACKBURN CONSULTING

Laura Long
Environmental Engineer

Patrick Fischer, PE, PG
Engineering Geologist, Principal

PROFESSIONAL GEOLOGIST
PATRICK F. FISCHER
No. 1739
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Initial Site Assessment (ISA) Update

Interstate 80/State Route 65 Interchange (80/65 IC) Improvement Project
EA 03-4E3200; 03-PLA-80/65-PM 1.9-6.1/R4.8-R7.3
Placer County, California

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Interstate 80/State Route 65 Interchange (80/65 IC) Improvement Project
EA 03-4E3200; 03-PLA-80/65-PM 1.9-6.1/R4.8-R7.3
Placer County, California

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APPENDIX F – BCI Initial Site Assessment Eureka Road/I-80 Improvement Project

APPENDIX G – Caltrans Hazardous Waste Revised Evaluation

EXECUTIVE SUMMARY

CH2M Hill retained Blackburn Consulting (BCI) to complete this Initial Site Assessment (ISA) Update for the proposed improvements at the Interstate 80/State Route 65 Interchange (80/65 IC) Improvement project in Placer County, California. The purpose of this assessment is to refresh and expand the previous hazardous waste evaluation completed by Caltrans in order to identify recognized environmental conditions[1] (RECs) and potential RECs that may significantly impact project planning and construction. The previous evaluation *"Hazardous Waste Revised Evaluation for a Preliminary Environmental Analyses (PEAR) Report"* dated March 24, 2009 was prepared for the project limits at that time. After 2009, the project limits were expanded. This ISA Update focuses on the 80/65 Interchange (IC) within the overall project limits addressing the expanded project footprint which includes three Build Alternatives and thirteen potential partial and/or complete acquisition parcels. We prepared this report in general conformance with the American Society of Testing and Materials (ASTM) Standard E1527-13, *"Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."*

This ISA concludes there is a potential for hazardous materials conditions within or adjacent to the project boundaries which may potentially impact the project. The conditions are summarized below and further discussed in the body of this report.

APN 015-162-007 (Full acquisition): Stonehouse Court (unknown address)
A residence, circa 1928, is present at this parcel. Common issues associated with homes of this era include asbestos containing materials, lead based paints, leach fields, septic tanks, and heating oil tanks. Acquisition of this parcel is included in all three Build alternatives. Consequently, further assessment is recommended. This assessment should include a site inspection, owner interview and county file review.

APN 015-162-005 (adjacent parcel) Alta Sierra Body Shop/Venture Out Recreational Vehicles:
Records indicate six registered Underground Fuel Storage Tanks (USTs) exist at the site. A gasoline release from a leaking underground storage tank (LUST) was discovered in 1990. The release was listed as "soil only" and the case was closed in 1992. This parcel is adjacent to acquisition parcels in all three Build alternatives. Consequently, to reduce the potential of encountering unexpected contamination we recommend obtaining additional information about the contamination history of this parcel. Further assessment should include a site inspection, owner interview and county file review.

[1] BCI uses the term Recognized Environmental Condition (REC) in general compliance with ASTM E1527-13, which defines the meaning as *"The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property (1) due to any release to the environment, (2) under conditions indicative of a release to the environment or (3) under conditions that pose a material threat of a future release to the environment. The term is not intended to include de minimus conditions that generally do not present a threat to human health or the environment and generally would not be the subject of an enforcement action if brought to the attention of the appropriate regulatory agencies. Conditions determined to be de minimus are not recognized environmental conditions.*"

APN 015-450-079 (partial acquisition): Roseville Golfland Sunsplash
A 1,000 gallon above ground fuel storage tank (AST) is located between the parking structure and the racetrack. The fence line inspection revealed the AST is stored within a spill containment area. No reports of unauthorized releases have been reported. Acquisition of this parcel is included in Build Alternatives 2 and 3; however, due to the distance of the AST from the acquisition area and its location within a spill containment area, the risk of hazardous material impacts to the proposed acquisition area is low. If the project limits change and additional areas of acquisition are to occur at this parcel, further assessment is recommended. This assessment should include a site inspection, county file review and owner interview.

Interstate 80 (I-80) Aerially Deposited Lead (ADL)
Sampling results (Geocon) indicate the average levels of lead found along I-80 within the project limits are below the levels requiring regulatory action. Soils excavated from the surface to any depth up to 3 ft can be reused or disposed as non-hazardous soil with respect to lead content. An appropriate Lead Compliance Plan and Lead Awareness Training Plan must be prepared by the contractor to prevent or minimize worker exposure to lead.

State Route 65 (SR65) Aerially Deposited Lead (ADL)
Typically, Caltrans requires an ADL investigation for improvements along State owned roads constructed prior to 1987, which is the date of effective removal of lead from automobile fuels. SR65 and the 80/65 IC were not constructed until 1992, therefore the likelihood of encountering significant ADL concentrations in the improvement area is low.

Taylor Road Aerially Deposited Lead (ADL)
The presence of ADL is not uncommon adjacent to heavily traveled roadways in service prior to 1987. Based on review of aerial photos and topographic maps, the existing Taylor Road has been in service as a primary route in the region since at least 1941. Project plans include disturbing soil along Taylor Road; therefore the ADL assessment needs to be expanded to include this area.

Yellow and White Traffic Stripe
Due to potentially hazardous levels of lead and chromium in yellow and white color traffic paint and/or thermoplastic stripes, if removal is included in the project scope, it shall be removed and disposed of in accordance with Caltrans Standard Special provisions for Hazardous Waste.

Asbestos Containing Materials (ACM) and Lead Based Paint (LBP)
The as-built plans for the bridges impacted by the project indicate no ACM or LBP on the structures. However, utilities running through utility openings in the structure may contain ACM. We recommend a properly certified inspector survey the bridges for ACM and LBP.

Metal Beam Guardrail (MBGR) Wood Post

If MBGR is removed, the contractor shall prepare and submit a safety and health work practices plan for handling treated wood waste approved by an ABIH Certified Industrial Hygienist. Treated wood waste must be disposed of in an approved treated wood waste facility.

Transformers/Utilities

Our scope of services did not include a formal utility survey or an inventory of past and present transformers; however, two PG&E/SMUD power towers are located within the proposed acquisition area at Golfland. Future removal and/or relocation activities should comply with current regulations. If the relocation of power facilities or high voltage power lines is required, any existing transformers should be checked for the presence of polychlorinatedbiphenyls (PCBs) or other hazardous materials by the utility owner, and if present, should be properly remediated and disposed. Identification and remediation of old transformers is the responsibility of the utility owner.

1 INTRODUCTION

Blackburn Consulting (BCI) prepared this Initial Site Assessment (ISA) Update for proposed improvements at the Interstate 80/State Route 65 Interchange (80/65 IC) Improvement project in Placer County, CA. The purpose of this assessment is to refresh and expand the *"Hazardous Waste Revised Evaluation for a Preliminary Environmental Analyses (PEAR) Report"* issued by Caltrans on March 24, 2009, in order to identify recognized environmental conditions[2] (RECs) and potential RECs that may significantly impact project planning and construction. We prepared this report in general conformance with the American Society of Testing and Materials (ASTM) Standard E1527-13, *"Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."*

The scope of this ISA Update reassesses the 2009 project footprint and is expanded to address the current project footprint including thirteen partial or complete acquisition parcels within three revised Build alternatives. Partial or complete acquisition parcels are:

APN 015-450-022 (Partial acquisition) COR Conservation Easement
APN 456-010-028 (Partial acquisition) COR Conservation Easement
APN 455-010-032 (Partial acquisition) COR Conservation Easement
APN 046-020-069 (Partial acquisition) COR Conservation Easement
APN 046-020-070 (Partial acquisition) COR Conservation Easement
APN 015-162-001 (Full acquisition) Undeveloped area south of Cattlemens Restaurant
APN 015-162-002 (Partial acquisition) Cattlemens Restaurant – Parking Lot
APN 015-162-004 (Partial acquisition) Flooring Liquidators – Parking Lot
APN 015-162-006 (Partial acquisition) Northern California Conference of Seventh Day Adventist Church
APN 015-162-007 (Full acquisition) Stonehouse Court
APN 015-450-059 (Partial acquisition) Hilton Garden Inn - Landscaping
APN 015-450-058 (Partial acquisition) Larkspur Landing Hotel - Landscaping
APN 015-450-079 (Partial acquisition) Roseville Golfland Sunsplash – Parking Lot

To conduct this ISA, BCI:

- Conducted a site visit to observe current land use and potential indications of hazardous waste/contamination within both the existing and potentially expanded Caltrans right-of-

[2] BCI uses the term Recognized Environmental Condition (REC) in general compliance with ASTM E1527-13, which defines the meaning as *"The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property (1) due to any release to the environment, (2) under conditions indicative of a release to the environment or (3) under conditions that pose a material threat of a future release to the environment. The term is not intended to include de minimus conditions that generally do not present a threat to human health or the environment and generally would not be the subject of an enforcement action if brought to the attention of the appropriate regulatory agencies. Conditions determined to be de minimus are not recognized environmental conditions*."

way. Observation of acquisition parcels was limited to those areas visible from publicly accessible areas;

- Reviewed updated historical aerial photographic and topographic maps coverage of the site and surrounding properties to identify past and present land use for indications of potential sources of contamination;
- Performed updated federal, state, and county records review for indications of the use, misuse, or storage of hazardous materials at or adjacent to the acquisition parcels. This commercial records review was provided by Environmental Data Resources, Inc. (EDR) of Southport, Connecticut;
- Reviewed the general site geology, ground water, and soil conditions through published maps and literature; and
- Reviewed previous reports that include the project area.

2 PROJECT DESCRIPTION AND LOCATION

This ISA Update focuses on the 80/65 IC within the overall project limits which consist of Interstate 80 (I-80) from the Douglas Boulevard Interchange to the Rocklin Road Interchange (post miles 1.9-6.1 – Placer County) and State Route (SR 65) from the I-80 junction to the Pleasant Grove Boulevard Interchange (post miles R4.8-R7.3 - Placer County). The total length of the project on SR 65 is 2.5 miles and on I-80 is 4.2 miles. The project area also includes various local roads, specifically portions of:

- Galleria Boulevard/Stanford Ranch Road
- Pleasant Grove Boulevard
- Eureka Road/Atlantic Street
- East Roseville Parkway
- Rocklin Road
- Taylor Road

The 80/65 IC improvements project has three Build alternatives:

- Alternative 1 – Taylor Road Full Access Interchange
- Alternative 2 – Collector-Distributor System Ramps
- Alternative 3 - Taylor Road Interchange Eliminated

The project includes potential full or partial acquisition of thirteen parcels. Figure 1 is a Vicinity Map and Figure 2 is a Site Plan of the proposed acquisition properties including Assessor Parcel Numbers (APNs).

2.1 Current Land Use

The project footprint addressed in this ISA Update includes the current interchange at I-80 and SR65 and portions of Taylor Road. The project footprint includes and is bordered by undeveloped land and commercial and retail businesses. Businesses along Taylor Road are primarily automotive related (Meineke, Yamaha, Enterprise Rent-a-Car, Cooks Collision, Auto Center, Golden State Auto). Other businesses include Cattlemens Restaurant, Flooring Liquidators, Hilton Garden Inn, Larkspur Landing Hotel and Roseville Golfland Sunsplash. The area located southeast of I-80 is within the City of Roseville (COR) Conservation easement and is bordered by Secret Ravine creek and is mostly covered by dense shrubs and trees.

Current land use of the proposed acquisition parcels is:

APN 015-162-001 (Full acquisition): This is a small triangular undeveloped parcel located immediately south of Cattlemen's Restaurant.

APN 015-162-002 (Partial acquisition): Cattlemens Restaurant and associated parking lot are located at this parcel. The parcel is primarily paved and surrounded by landscaping. Partial acquisition is proposed along the southeast edge.

APN 015-162-004 (Partial acquisition): Flooring Liquidators and associated parking are located at this parcel. The parcel is primarily paved. Partial acquisition is proposed along the southeast edge.

APN 015-162-006 (Partial acquisition): Northern California Conference of Seventh Day Adventist Church building and associated parking are located at this parcel. Partial acquisition is proposed along the north edge.

APN 015-162-007 (Full acquisition): A small office building, power station/transformer, large garage, vehicles and cargo containers are visible. The site curves to the southeast but a locked chain link fence prohibited visual inspection past the fence. A stone house is located at the southwest edge of the parcel. At the locked gate, Stonehouse Court becomes a dirt and gravel road with dry grasses and shrubs.

APN 015-450-022, **APN 456-010-028, APN 455-010-032, APN 046-020-069 and APN 456-020-070** (Partial acquisitions): These parcels are within the City of Roseville (COR) Conservation Easement and are covered primarily with dense shrubs, trees and dry grasses. These parcels border Secret Ravine. Partial acquisition is proposed along the north edge.

APN 015-450-059 (Partial acquisition): Hilton Garden Inn and associated parking is located at this parcel. Partial acquisition is proposed along the west edge.

APN 015-450-058 (Partial acquisition): Larkspur Landing Hotel and associated parking is located at this parcel. Partial acquisition is proposed along the west edge.

APN 015-450-079 (Partial acquisition): Roseville Golfland Sunsplash and associated parking are located at this parcel. Partial acquisition for Alternative 2 is proposed along the western fence line and partial acquisition for Alternative 3 extends into the parking lot. PG&E/SMUD power towers are located within the proposed acquisition area. Partial acquisition is proposed along the west edge.

2.2 Topography and Drainage

The topography within and surrounding the project area is generally flat. The site elevation is around 220 feet above mean sea level (msl) based on the USGS Target Property Map, Roseville, California, 1992 (EDR Report, Appendix C). Drainage for the area is generally southwest towards the Secret Ravine/Dry Creek/Miners Ravine drainage.

2.3 General Geologic Conditions

The site lies on the eastern margin of the Great Valley Geomorphic Province (Sacramento Valley portion). The Great Valley is bordered by the Cascade and Klamath Ranges to the north, the Coast Ranges to the west, and the Sierra Nevada to the east. The valley was formed by tilting of the Sierran Block with the western side dropping to form the valley and the eastern side uplifted to form the Sierra Nevada. The valley deposits are characterized by a thick sequence of alluvial, lacustrine, and marine sediments. The thickness of the sediments varies from a thin veneer at the edges of the valley, to thousands of feet in the central portion. In the project area, granitic rock and volcanic deposits occur along the valley margin where the western slope of the Sierra Nevada is encountered.

Based on review of published geologic maps (Livingston, 1974, Wagner et al, 1981; Loyd, 1995, Mulder, 2007), our site review, and available subsurface information, the project area is underlain by the following:

Granitic Rock

The granitic rock in the project area is known as the Rocklin Pluton; it is comprised of quartz diorite and is deeply weathered (decomposed) in many areas. Within the project area, granitic rock is limited to the area immediately west of the Rocklin Road Interchange. The rock in this area is typically decomposed to intensely weathered within approximately 5 to 10 feet of the surface with isolated “boulders” (or bodies) of moderately to slightly weathered, hard rock.

Mehrten Formation

Deposits of the Mehrten Formation in the project area consist primarily of andesitic, volcanic mudflow breccia, and cobble conglomerate. Breccia consists of a gray mixture of gravel to boulder size, angular, andesitic fragments. These fragments are well cemented in a matrix of volcanic lapilli and ash (tuff). The conglomerate consists primarily of cobbles in a well-cemented matrix of andesitic sand and silt, and often contains interbedded layers of sandstone, siltstone, and lenses of mudflow breccia. In the project area, the lowest portions of the Mehrten Formation are often underlain by claystones likely associated with the Valley Springs or Ione Formations.

Riverbank and Turlock Lake Formations

Sediments of the Riverbank and Turlock Lake Formation occur in the project area. These are alluvial deposits that are typically composed of interbedded medium dense to dense sands (often cemented) and gravels, and stiff to hard silts and clays. Bedding is typically horizontal, lenticular, and discontinuous. These sediments are Late to Middle Pleistocene age (deposited over 150,000 years ago).

Other Geologic Units

In addition to the geologic units discussed above, several shallow waterways cross the project area (including Secret Ravine, Miners Ravine, and Antelope Creek) and we expect these waterways will contain a certain thickness of alluvium (or stream terrace deposits) at and near the stream banks and active channel alluvium along the base. Alluvium likely consists of several feet of loose sand and gravel with some cobbles and boulders.

Highway embankment fill is also present at a number of locations along the project corridor. We expect embankment fill to be engineered fill, placed in accordance with Caltrans specifications, that consists of locally derived clay, silt, sand, and gravel.

2.4 Surface Water, Groundwater and Wells

The depth to groundwater beneath the project area is variable due to:

- Significant changes in ground surface elevation
- The presence of alluvial sediments that extend through the central portion of the area
- Relatively hard, well consolidated sediments and hard rock on the project perimeter
- Presence of several creek beds

Regionally, MWH (2007) shows groundwater elevation ranging from approximately 45 feet above mean sea level (msl) at the west end of the project to approximately 65 feet at the east end. Based on this map, regional groundwater levels are generally greater than 100 feet below the ground surface and the gradient is to the west-southwest.

While the groundwater mapping provides the approximate elevation of the deeper/regional groundwater conditions, groundwater that can impact project design and construction may occur much shallower. In general, groundwater should be expected near the elevation of water in the adjacent creek beds such as Secret Ravine, Miners Ravine, and Antelope Creek. Existing subsurface data that we reviewed indicates shallow groundwater occurrence at the locations and elevations shown in Table 1.

TABLE 1: Summary of Shallow Groundwater Occurrence

General Location	Approximate Depth to Groundwater (ft)	Approximate Groundwater Elevation (ft)	Reference Used	Notes
West end (Miners Ravine)	2 to 5 feet	151	Topographic map and Miners Ravine Bridge LOTB (1989)	At Miner's Ravine
West end (Atlantic St)	15	165	Atlantic St. OC LOTB (1988)	
West End (Roseville Pkwy)	17 to 20	154 - 185	Roseville Pkwy OC LOTB (1998)	Groundwater elevation increases to the southeast
West Central (Taylor Road)	29	171	Taylor Road OC, Foundation Investigation (1986)	
Central (65/80 Separation)	<0.5 - 25	193 to 207	Route 65/80 Separation LOTB (1984)	Shallow water appears to be a localized condition
East Central	10 – 25	200	Topographic map	Adjacent to Secret Ravine
Northwest (East Roseville Viaduct)	12 – 14	199 - 202	East Roseville Viaduct LOTB (1984)	Near Taylor Road
Northwest (East Roseville Viaduct)	<0.5 - 9	169 -175	East Roseville Viaduct LOTB (1984)	Near Antelope Creek

There is one Federal USGS well located within a one mile radius of the project area.

2.5 Historic Land Use

2.5.1 Aerial Photograph Review

We reviewed the following aerial photos:

1947 Photo by USGS, Scale 1"=500'
1952 Photo by Southwestern, Scale 1'=500'
1961 Photo by Cartwright, Scale 1"=500'
1966 Photo by USGS, Scale 1"=500'
1981 Photo by Cartwright, Scale 1"=500'
1993 Photo by USGS, Scale 1"=500'
1988/99 Composite Photo by EDR, Scale 1"=500'
2005 Photo by EDR, Scale 1"=500'
2009 Photo by EDR, Scale 1"=500'
2010 Photo by EDR, Scale 1"=500'
2012 Photo by EDR, Scale 1"=500'

Historical aerial photography is reviewed to identify past conditions that may indicate potential hazardous materials issues within or adjacent to the 80/65 IC Improvements project area. Aerial photographs are in Appendix A. The following summary highlights our findings.

1947: The project area is generally open land which includes the Secret Ravine floodplain. Taylor Road and the Southern Pacific Railroad are present. Several parcels along Taylor Road appear to be cleared but do not appear to be developed for agriculture. A home/structure is present on the precursor to Stonehouse Court.

1952: No significant changes.

1961: Interstate 80 is constructed and includes an overcrossing at Taylor Road. The individual parcels between Taylor Road and I-80 are visible and undeveloped.

1966: No significant changes.

1981: Structures are present on APN 015-162-002, 015-162-004 and APN 015-162-005 (adjacent parcel). The precursor to Stonehouse Court curves to the south and a second road is present parallel to it.

1993: SR 65 connector to I-80 is present and includes an undercrossing at Taylor Road. The SR 65 south bound ramp to west bound I-80 altered parcel APN 015-162-007. The structures are no longer visible on that parcel. Stonehouse Court is visible in its current alignment.

1998/1999: A large building is located north of the 80/65 IC connector. Residential development is increasing northwest of the railroad tracks south of SR 65.

2005: No significant changes.

2009: All parcels between Taylor Road and I-80 are developed in the current configuration.

2010, 2012: No significant changes.

2.5.2 Topographic Map Review

Topographic maps reviewed include a 30-minute quad map from 1893, 7 ½ -minute quad maps from 1910, 1953, 1954, 1967, 1975, and 1992; and 15 minute quad maps from 1941, 1947, 1953 and 1954. The following summary includes noted changes within and adjacent to the project area.

1893: The project area is generally open land including the Secret Ravine floodplain. Land would typically be used for cattle grazing in this area. The Central Pacific Railroad is present.

1910: No significant changes.

1941, 1947: Taylor Road/US-40 is located adjacent to the railroad.

1953: Taylor Road is identified as North Sacramento Freeway (US-40).

1954: No significant changes.

1967: I-80 is present. The interchange between Taylor Road and I-80 is present.
1975 and 1981: No significant changes.

1992: SR 65 is present.

Copies of topographic maps are in Appendix B.

2.5.3 Historical Sanborn® Map Review

Sanborn Maps do not exist for the subject parcels or the surrounding area.

3 RECORDS REVIEW

3.1 County, State and Federal Records Review

Environmental Data Resources, Inc. (EDR) provided a "Radius Map with GeoCheck" on July 18, 2014 for the target property. A copy of the EDR Report's Executive Summary is in Appendix C. The remainder of the report is included on a CD, also in Appendix C. The search includes a review of county, state, and federal databases for sites located within a 1-mile radius from the approximate outline of the target area. The EDR report includes a complete listing of the databases searched. Sites with adequate address information are plotted on EDR's site plan "EDR Radius Map with Geocheck". EDR lists sites with inadequate address information as "orphan sites" and does not provide mapped locations. BCI reviewed the complete list of 20 "orphan sites" identified by EDR and determined that none of these sites appear to be located within or adjacent to the project corridor. BCI also reviewed the web-based Geotracker and EnviroStor databases. Geotracker is the California State Water Resources Control Board (SWRCB) data management system for managing sites that impact groundwater, especially those that require treatment, such as underground storage tanks. EnviroStor is the California Department of Toxic Substance Control (DTSC) online database for identifying sites that have known contamination or sites for which there may be reason to investigate further.

3.2 Summary of Records Search

To generate this summary, we reviewed the databases for all sites listed within the searched area. The records review identified the following sites with potential hazardous material conditions at or immediately adjacent to the project area.

APN 015-450-079 (partial acquisition parcel), 1893 Taylor Road:
Roseville Golfland Sunsplash LTD – This site is listed in the AST database. One 1,000 gallon Above Ground Fuel Storage Tank (AST) is registered at this site.

APN 015-162-005 (adjacent parcel), 2020 Taylor Road:
Alta Sierra Body Shop - This site is listed in the HIST UST database. Six registered Underground Fuel Storage Tanks (USTs) are listed for this site. The listing includes two 1,000 gallon unleaded gasoline tanks and four 1,000 gallon regular gasoline tanks all installed in 1971. No violations are noted in the searched records.

Venture Out Recreational Vehicles - This business is also listed at 2020 Taylor Road. Venture Out Recreational Vehicles is listed in the following databases:

- HIST UST
- HIST CORTESE
- LUST

A gasoline release from a leaking underground storage tank (LUST) was discovered in 1990. No information on the quantity of release or corrective action was noted in the file. The release was listed as "soil only" and the case was closed in 1992.

3.3 Historical City Directory Review

The City Directory review did not identify any conditions that are not already identified in other sections of this report.

3.4 Title Documents Review

BCI was not provided title documents for this assessment.

3.5 Prior Environmental Reports Reviewed

BCI reviewed the following reports that were previously prepared for the area that includes the subject project.

- **Geocon Consultant's, "Aerially Deposited Lead and Traffic Stripe Paint Site Investigation Report" dated July 2008 (Contract 03A1368, Project EA 367831)**

  Based on our review of the Caltrans hazardous waste evaluation (2009), this study is applicable to this project area.

- **BCI's "Initial Site Assessment for Eureka Rd/I-80 Improvements Project" dated November 2008**

  Our review concludes that no notable changes have occurred to modify the conclusions of that report in regard to the project area.

- **Caltrans "Hazardous Waste Revised Evaluation for a PEAR Report" dated March 2009**

  Our review concludes that no notable changes have occurred that would modify the conclusions of that report in regard to the project area.

4 RECONNAISSANCE INFORMATION

BCI conducted an updated site reconnaissance on July 30, 2014. The previous site reconnaissance was conducted on May 9, 2013. We made observations from within and adjacent to the subject parcels. Photos from the site visit are in Appendix D. Our observations generally support the land use descriptions and background data above with the following addition:

APN 015-162-007: Unknown address at Stonehouse Court. The southeast portion of the parcel was not accessible or visually observable due to a locked gate at the end of Stonehouse Court. A stone house was visible from the adjacent parking lot. A power station, small office building, large garage, several vehicles and large cargo containers were present on site.

APN 015-450-079: Roseville Golfland Sunsplash. An above ground fuel storage tank (AST) was visible between the parking structure and the racetrack. The AST is located within a spill containment area.

5 FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This ISA Update is to:

- Determine whether there may be hazardous materials at or near the proposed project area at concentrations likely to warrant mitigation pursuant to regulations.
- Identify hazardous materials conditions at the proposed acquisition and adjacent parcels which could affect project design and construction.
- Identify potential site contamination issues.

5.1 Previously Identified Hazardous Materials Issues based on 2009 Project Footprint

BCI reviewed three previously prepared reports to identify hazardous waste/contamination issues for the project area. The findings of these reports remain valid and are discussed below.

Report 1: Geocon Consultants, *"Aerially Deposited Lead and Traffic Stripe Paint Site Investigation Report"* dated July 2008 (Contract 03A1368, Project EA 367831). This report identified:

Aerially Deposited Lead (ADL)
Sampling results indicate the average levels of lead found within the project limits studied are below the levels requiring regulatory action, and the report concluded "Soils excavated from the surface to any depth up to 3 ft can be reused or disposed as non-hazardous soil with respect to lead content". In addition, an appropriate Lead Compliance Plan and Lead

Awareness Training Plan must be prepared by the contractor to prevent or minimize worker exposure to lead.

Yellow and White Traffic Stripe
Due to potentially hazardous levels of lead and chromium in yellow and white color traffic paint and/or thermoplastic stripes, if removal is included in the project scope, it shall be removed and disposed of in accordance with the Caltrans Special Provision.

Report 2: BCI's "*Initial Site Assessment Eureka Road/I-80 Improvement Project"* dated November 3, 2008. This report identified:

Aerially Deposited Lead
If improvement work is proposed within existing Caltrans right-of-way at Interstate 80, the potential for ADL should be evaluated. An appropriate soil management plan will need to be developed for soil containing significant concentrations of ADL. This was included in the BCI report, but it appears to be sufficiently addressed in Geocon Consultants, "*Aerially Deposited Lead and Traffic Stripe Paint Site Investigation Report*" referenced in Report 1.

Yellow and White Traffic Stripes
Due to potentially hazardous levels of lead and chromium in yellow and white color traffic paint and/or thermoplastic stripes, if removal is included in the project scope, it shall be removed and disposed of in accordance with current regulatory guidance.

Contaminated Shallow Groundwater/Surface Water/Soil at Miners Ravine
Miners Ravine is identified as being potentially impacted by historic gold mining operations. For the Eureka Road project, BCI identified mine tailings (spoils from historic mining) in that projects footprint. Consequently BCI provided a suggested approach to address contaminated mine spoils. For this project BCI did not find evidence of mine tailings in the interchange area, consequently no recommendation for further assessment is included.

Report 3: Caltrans "*Hazardous Waste Revised Evaluation for a Preliminary Environmental Analysis (PEAR) Report"* dated March 24, 2009. This report identified and concluded:

Yellow and White Traffic Stripe
Due to potentially hazardous levels of lead and chromium in yellow and white color traffic paint and/or thermoplastic stripes, if removal is included in the project scope, it shall be removed and disposed of in accordance with the Caltrans Special Provision.

Interstate 80 Aerially Deposited Lead (ADL)
ADL has been found to occur in soils adjacent to highways. ADL has been adequately characterized for this segment of I-80 based on Geocon Consultants "*Aerially Deposited Lead and Traffic Stripe Paint Site Investigation Report*" dated July 2008 (Contract 03A1368, Project EA 367831) referenced in Report 1. Sampling results indicate the average levels of lead found within the project limits are below the levels requiring

regulatory action, and the report concluded "Soils excavated from the surface to any depth up to 3 ft can be reused or disposed as non-hazardous soil with respect to lead content". In addition, an appropriate Lead Compliance Plan and Lead Awareness Training Plan must be prepared by the contractor to prevent or minimize worker exposure to lead.

Asbestos Containing Materials (ACM) and Lead Based Paint (LBP)
The as-built plans for the bridges impacted by the project indicate no asbestos containing materials (ACMs) or Lead Based Paint (LBP) on the structures. However, utilities running through the utility openings in the structure may contain ACMs. The report recommends a properly certified inspector survey the bridges for ACM and LBP.

Metal Beam Guardrail (MBGR) Wood Post
If MBGR is removed, the contractor shall prepare and submit a safety and health work practices plan for handling treated wood waste approved by an ABIH Certified Industrial Hygienist. Treated wood waste must be disposed of in an approved treated wood waste facility.

5.2 Hazardous Materials Issues Based on This Update

This ISA Update identified the following environmental conditions that should be considered for present and future planning for the proposed project.

APN 015-162-007 (Full acquisition): Stonehouse Court (unknown address)
Review of historical aerial photography and fence line reconnaissance shows a residence at the end of Stonehouse Court. Real estate records indicate the home was built in 1928. Common issues associated with homes of this era include asbestos containing materials, lead based paints, leach fields, septic tanks, and heating oil tanks. Acquisition of this parcel is included in all three Build alternatives. Consequently, further assessment is recommended. This assessment should include a site inspection, owner interview and county file review.

APN 015-162-005 (adjacent parcel): Alta Sierra Body Shop/Venture Out Recreational Vehicles
This parcel is immediately adjacent to the project footprint. Records indicate six registered Underground Fuel Storage Tanks (USTs) exist at the site. The tanks were installed in 1971 and are listed as two 1,000 gallon unleaded gasoline tanks and four 1,000 gallon regular gasoline tanks. A gasoline release from a leaking underground storage tank (LUST) was discovered in 1990. No information on the quantity of release or corrective action was noted in the file. The release was listed as "soil only" and the case was closed in 1992. This parcel is adjacent to all three Build alternatives. Consequently, to reduce the potential of encountering unexpected contamination we recommend obtaining additional information about the contamination history of this parcel. Further assessment should include a site inspection, owner interview and county file review.

APN 015-450-079 (partial acquisition): Roseville Golfland Sunsplash
This parcel is developed as Roseville Golfland Sunsplash. A 1,000 gallon above ground fuel storage tank (AST) is located between the parking structure and the racetrack. The fence line inspection revealed the AST is stored within a spill containment area. No reports of

unauthorized releases have been reported. Acquisition of this parcel is included in Build Alternatives 2 and 3; however, due to the distance of the AST from acquisition area and its location within a spill containment area, the risk of hazardous material impacts to the proposed acquisition area is low. If the project limits change and additional acquisition areas of the parcel are to occur, further assessment is recommended. This assessment should include a site inspection, county file review and owner interview.

Taylor Road Aerially Deposited Lead (ADL)
The presence of ADL is not uncommon adjacent to heavily traveled roadways in service prior to 1987. Based on review of aerial photos and topographic maps, the existing Taylor Road has been in service as a primary route in the region since at least 1941. Project plans include disturbing soil along Taylor Road; therefore the ADL assessment needs to be expanded to include this area.

Transformers/Utilities
Our scope of services did not include a formal utility survey or an inventory of past and present transformers; however, two PG&E/SMUD power towers are located within the proposed acquisition area at Golfland. Future removal and/or relocation activities should comply with current regulations. If the relocation of power facilities or high voltage power lines is required, any existing transformers should be checked for the presence of polychlorinatedbiphenyls (PCBs) or other hazardous materials by the utility owner, and if present, should be properly remediated and disposed. Identification and remediation of old transformers is the responsibility of the utility owner.

6 RECOMMENDATIONS SUMMARY

Utilizing the previous and current hazardous materials assessments, BCI concludes that in the expanded project area (including three design-build alternatives and thirteen partial or complete acquisition parcels), the following potential hazardous material/contamination issues are identified:

- ADL along Taylor Road
- Potential ACM, LBP, septic system, heating oil tank, etc. associated with the existing structure (Stonehouse) on APN 015-162-007
- Historic leaking underground fuel storage tanks located at APN 015-162-005 directly adjacent to acquisition parcels APN 015-162-006 (Northern California Conference of Seventh Day Adventist Church) and APN 015-162-004 (Flooring Liquidators).
- Above ground fuel storage tank at APN 015-450-079 (Roseville Golfland Sunsplash)

This ISA Update did not identify any new hazardous material/contamination issues within the existing (current) Caltrans ROW; therefore, the hazardous material/contamination issues

identified in the March 24, 2009 Caltrans hazardous waste evaluation remains applicable. Identified issues include:

- ADL within existing ROW
- Traffic striping (lead and chromium)
- Asbestos containing building materials (ACM)
- Treated wood posts at MBGRs

7 LIMITATIONS

The accompanying report summarizes the findings and opinions of BCI, with regard to the potential for hazardous materials to be present on the properties at concentrations likely to warrant mitigation under current statutes and guidelines. Our findings and opinions are based on information obtained on given dates or provided by specified individuals, through records review, site review, and related activities. Our information is only as good as the information provided to us. Conditions can change after we have made our observations. We cannot warrant or guarantee that hazardous materials do not exist at the described site. To further reduce your risk, invasive exploration may be necessary.

This report was prepared for the specific use of our client and applies only to the subject area. We are not responsible for interpretations by others of data presented in this report. This report does not represent a legal opinion. No warranty is expressed or implied. We base our conclusions in this report on judgment and experience. We performed this work in accordance with generally accepted standards of practice existing in northern California at the time of the assessment. The scope of our investigation did not include determining the presence of radon, lead-based paint, or asbestos-containing materials. Identifying endangered species, geologic hazards, or archeological sites are also beyond the scope of this report.

The governmental records portion of this report is derived from public records and is updated on a continual basis. For this reason, we do not advise you to use this information to base a decision after 180 days of the issue date of this report. Also, conditions at the site can and will change over time. Please contact BCI to revise this report to reflect new information.

8 REFERENCES

EnviroStor, California Department of Toxic Substance Control (DTDC)
(http://www.envirostor.dtsc.ca.gov/public)

Geotracker Data Management System, California State Water Resources Control Board(SWRCB)
(http://geotracker.waterboards.ca.gov)
Livingston, J.G., 1974, Engineering Geologic Map of the Rocklin and Roseville Quadrangles, Placer County, California; maps prepared for the Placer County Planning Department.

Loyd, Ralph, 1995, Mineral Land Classification of Placer County, California; California Department of Conservation, Division of Mines and Geology, DMG Open-File Report 95-10.

Mulder, J., 2007, Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley, California Department of Water Resources, modified digital reproduction of the Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California, by Edward J. Helley and David S. Harwood (USGS Publication MF-1790, 1985).

MWH, 2007, Western Placer Groundwater Management Plan

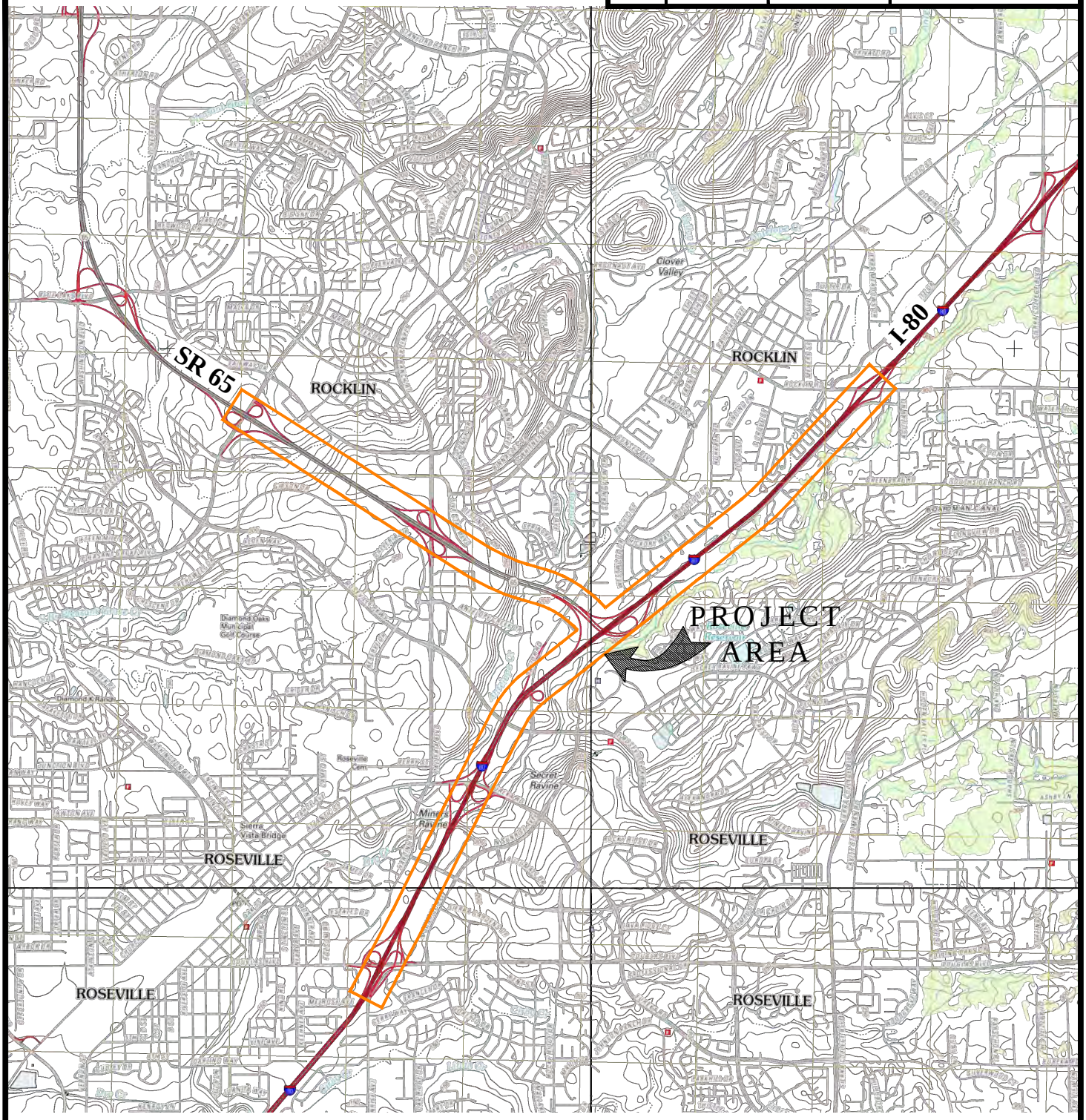
Wagner, D.L. et al, 1981, Geologic Map of the Sacramento Quadrangle, California, California Geological Survey, Map No. 1A, revised 1987

FIGURES

Figure 1 – Vicinity Map

Figure 2 – Site Plan

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	PM 1.9-6.1/R4.8-R7.3



SOURCE: USGS Roseville, Rocklin, Citrus Heights and Folsom Quadrangles, 7.5 Minute Series topographic, 1:24000, dated 2012.

N

SCALE: 1"=4,000'

blackburn consulting

11521 Blocker Drive, Suite 110
Auburn, CA 95603
Phone: (530) 887-1494
Fax: (530) 887-1495
www.blackburnconsulting.com

VICINITY MAP

Initial Site Assessment (ISA) Update
Interstate 80/State Route 65 Interchange
Improvement Project, EA 03-4E3200
Placer County, California

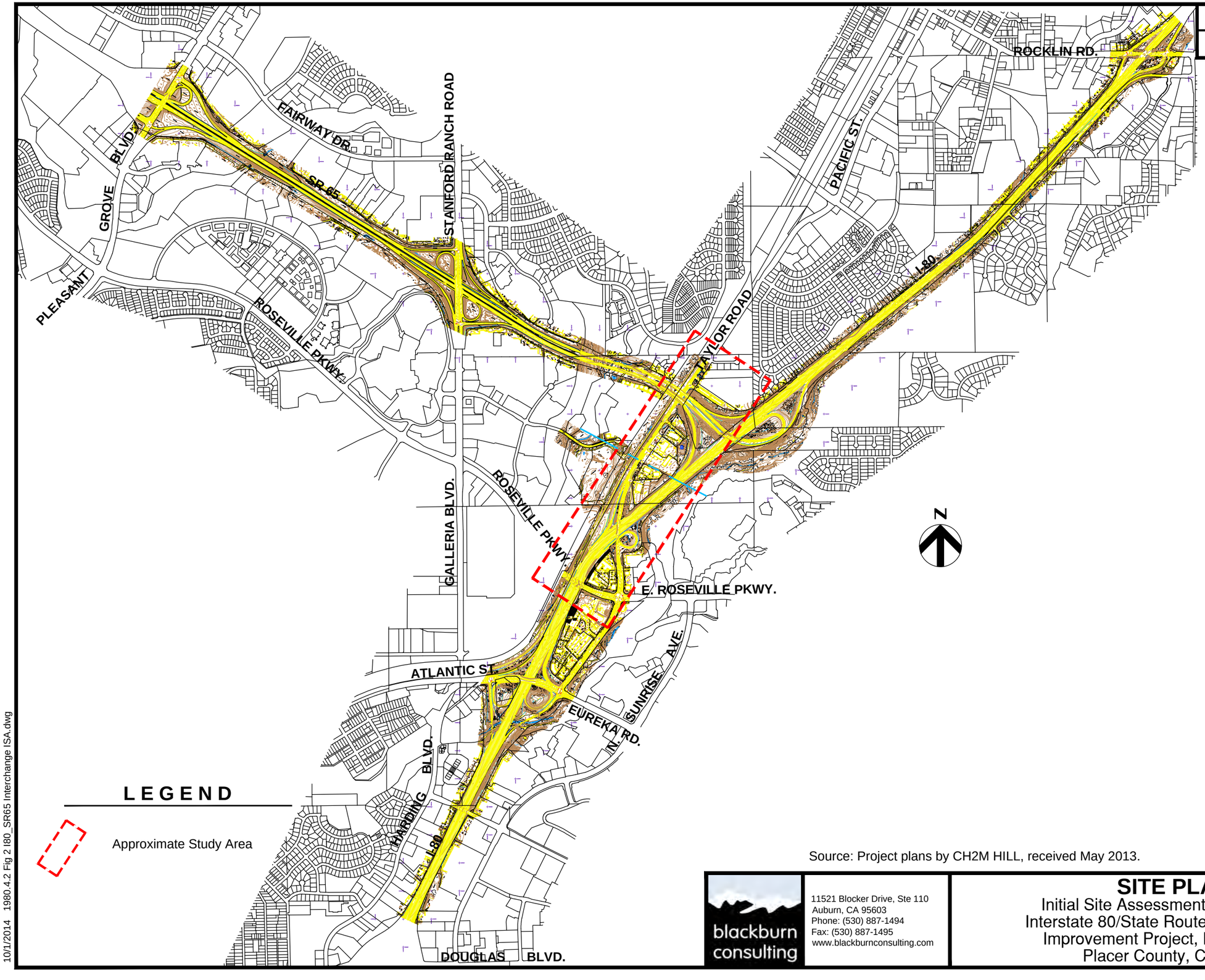
File No. 1980.4.2

September 2014

Figure 1

10/1/2014 1980.4.2 Fig 1 I80_SR65 Interchange ISA.dwg

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	PM 1.9-6.1/R4.8-R7.3



LEGEND

Approximate Study Area

Source: Project plans by CH2M HILL, received May 2013.

SCALE: 1:20,000

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Phone: (530) 887-1494
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SITE PLAN

Initial Site Assessment (ISA) Update
Interstate 80/State Route 65 Interchange
Improvement Project, EA 03-4E3200
Placer County, California

File No. 1980.4.2

September 2014

Figure 2

10/1/2014 1980.4.2 Fig 2 I80_SR65 Interchange ISA.dwg

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
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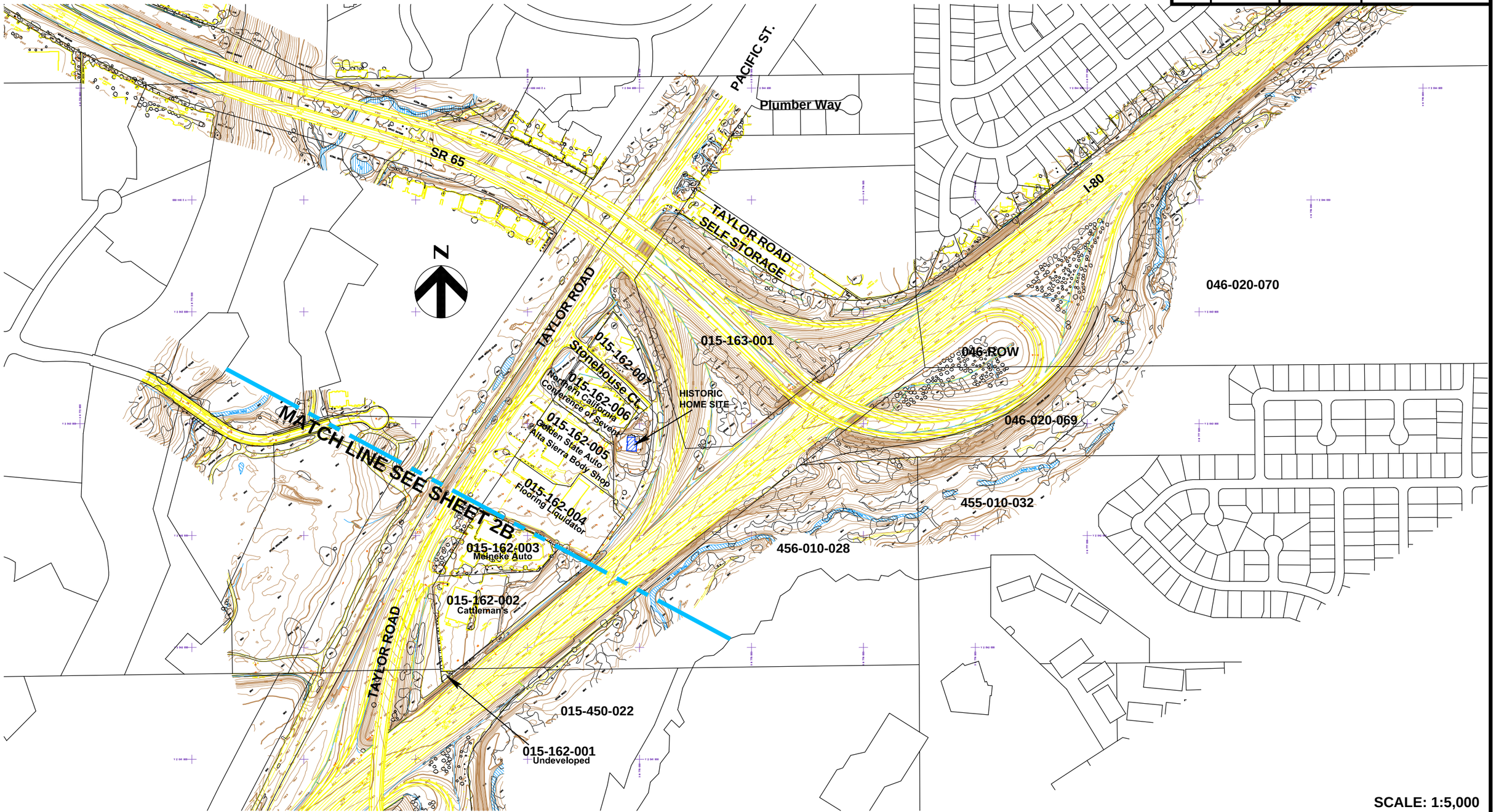

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Source: Project plans by CH2M HILL, received May 2013.

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SITE PLAN

Initial Site Assessment (ISA) Update
Interstate 80/State Route 65 Interchange
Improvement Project, EA 03-4E3200
Placer County, California

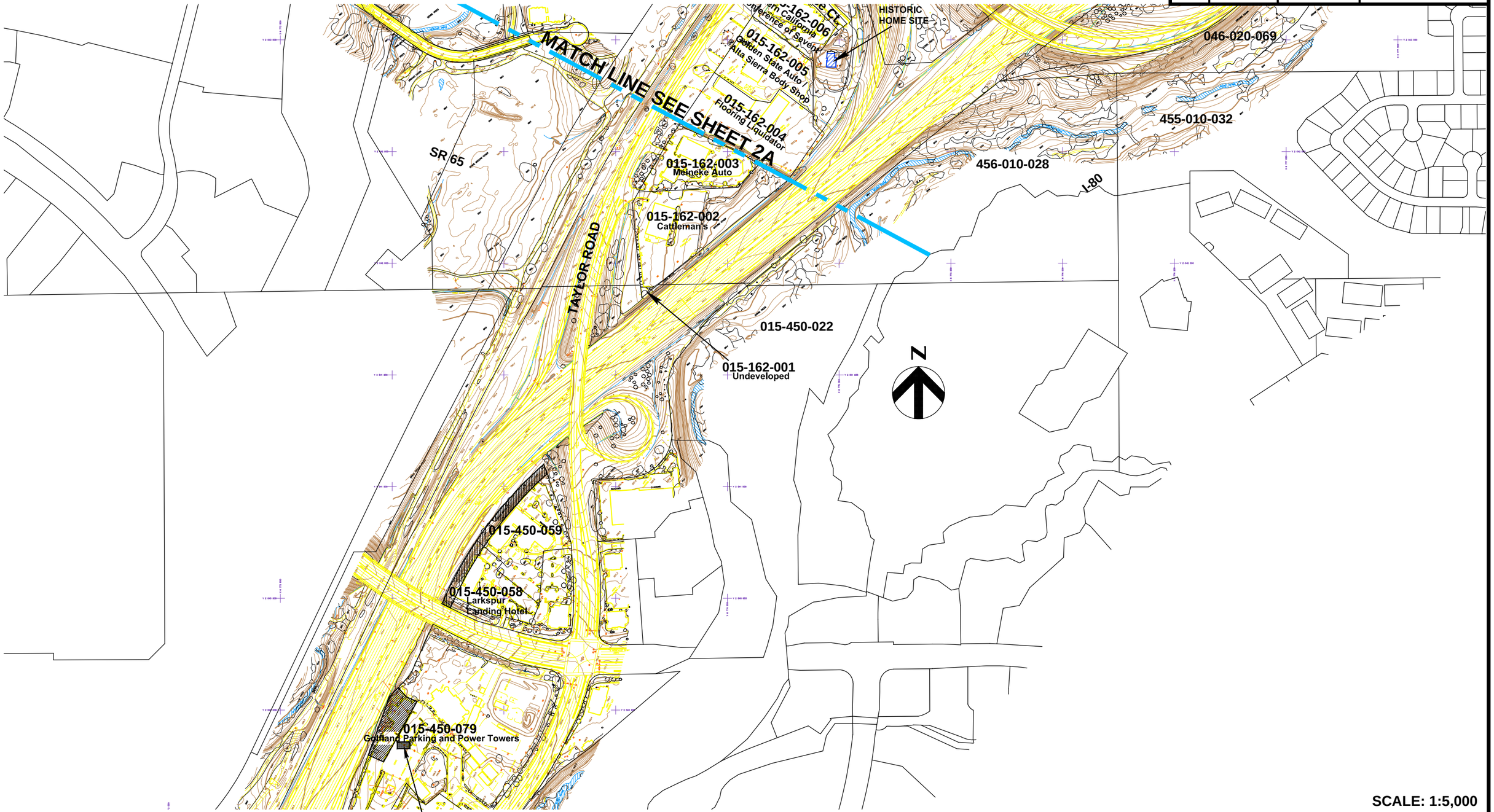
File No. 1980.4.2

September 2014

Figure 2A

10/1/2014 1980.4.2 Fig 2 I80_SR65 Interchange ISA.dwg

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	PM 1.9-6.1/R4.8-R7.3



Source: Project plans by CH2M HILL, received May 2013.

SCALE: 1:5,000

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SITE PLAN

Initial Site Assessment (ISA) Update
Interstate 80/State Route 65 Interchange
Improvement Project, EA 03-4E3200
Placer County, California

File No. 1980.4.2

September 2014

Figure 2B

10/1/2014 1980.4.2 Fig 2 I80_SR65 Interchange ISA.dwg

APPENDIX A

Aerial Photographs

I-80/SR-65 Interchange
Interstate 80/State Route 65
Roseville, CA 95678

Inquiry Number: 3596071.5
May 07, 2013

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography May 07, 2013

Target Property:

Interstate 80/State Route 65

Roseville, CA 95678

Year	*Scale*	*Details*	*Source*
1947	Aerial Photograph. Scale: 1"=500'	Flight Year: 1947	USGS
1952	Aerial Photograph. Scale: 1"=500'	Flight Year: 1952	Southwestern
1961	Aerial Photograph. Scale: 1"=500'	Flight Year: 1961	Cartwright
1966	Aerial Photograph. Scale: 1"=500'	Flight Year: 1966	USGS
1981	Aerial Photograph. Scale: 1"=500'	Flight Year: 1981	Cartwright
1993	Aerial Photograph. Scale: 1"=500'	Flight Year: 1993	USGS
1999,1998	Aerial Photograph. Scale: 1"=500'	/Composite DOQQ - acquisition dates: 1999,1998	EDR
1999,1998	Aerial Photograph. Scale: 1"=500'	/Composite DOQQ - acquisition dates: 1999,1998	EDR
1999,1998	Aerial Photograph. Scale: 1"=500'	/Composite DOQQ - acquisition dates: 1999,1998	EDR
1999,1998	Aerial Photograph. Scale: 1"=500'	/Composite DOQQ - acquisition dates: 1999,1998	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	EDR
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	EDR
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	EDR
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	EDR
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	EDR

Year	*Scale*	*Details*	*Source*
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2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	EDR
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	EDR
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	EDR
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	EDR
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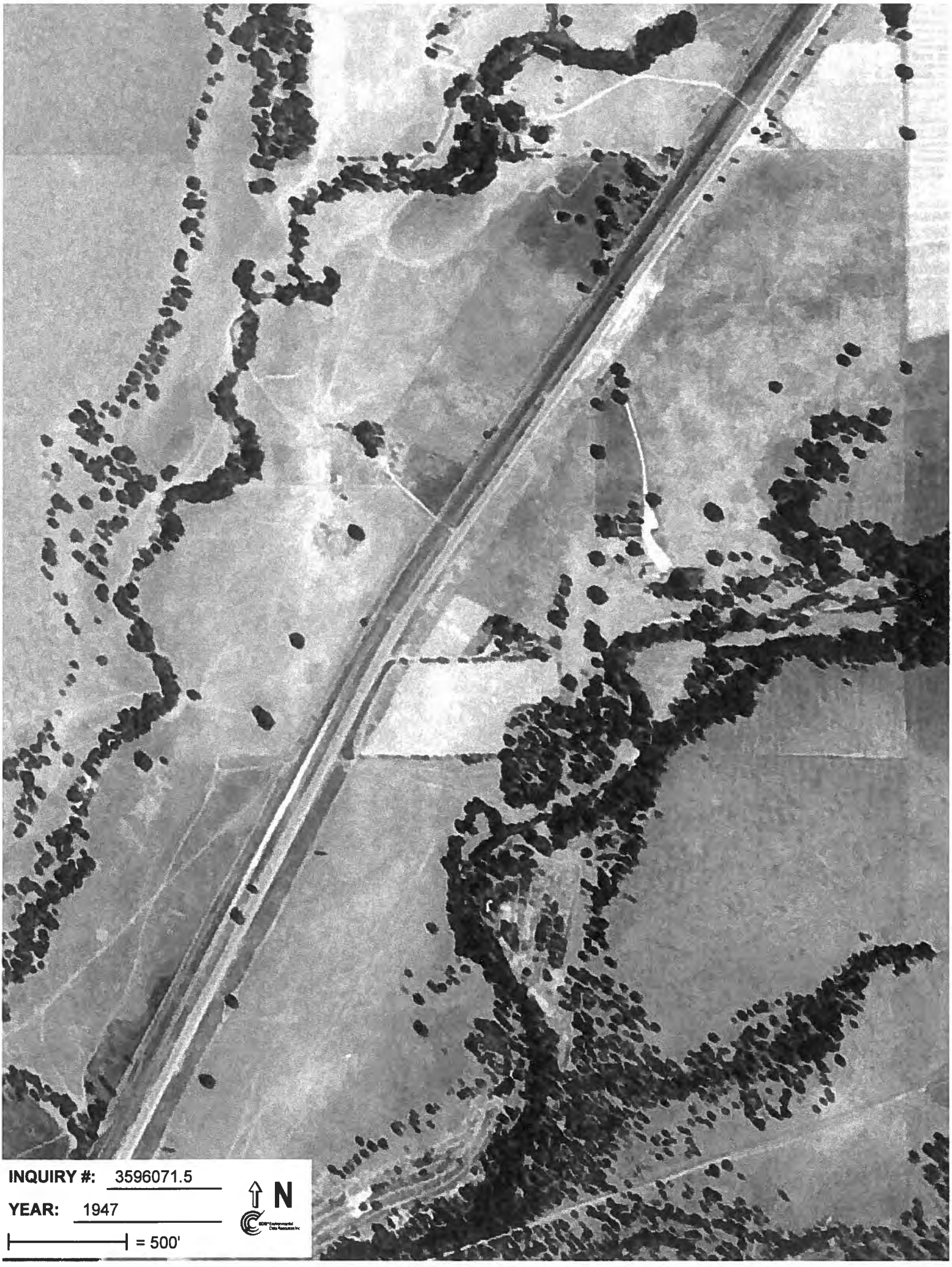
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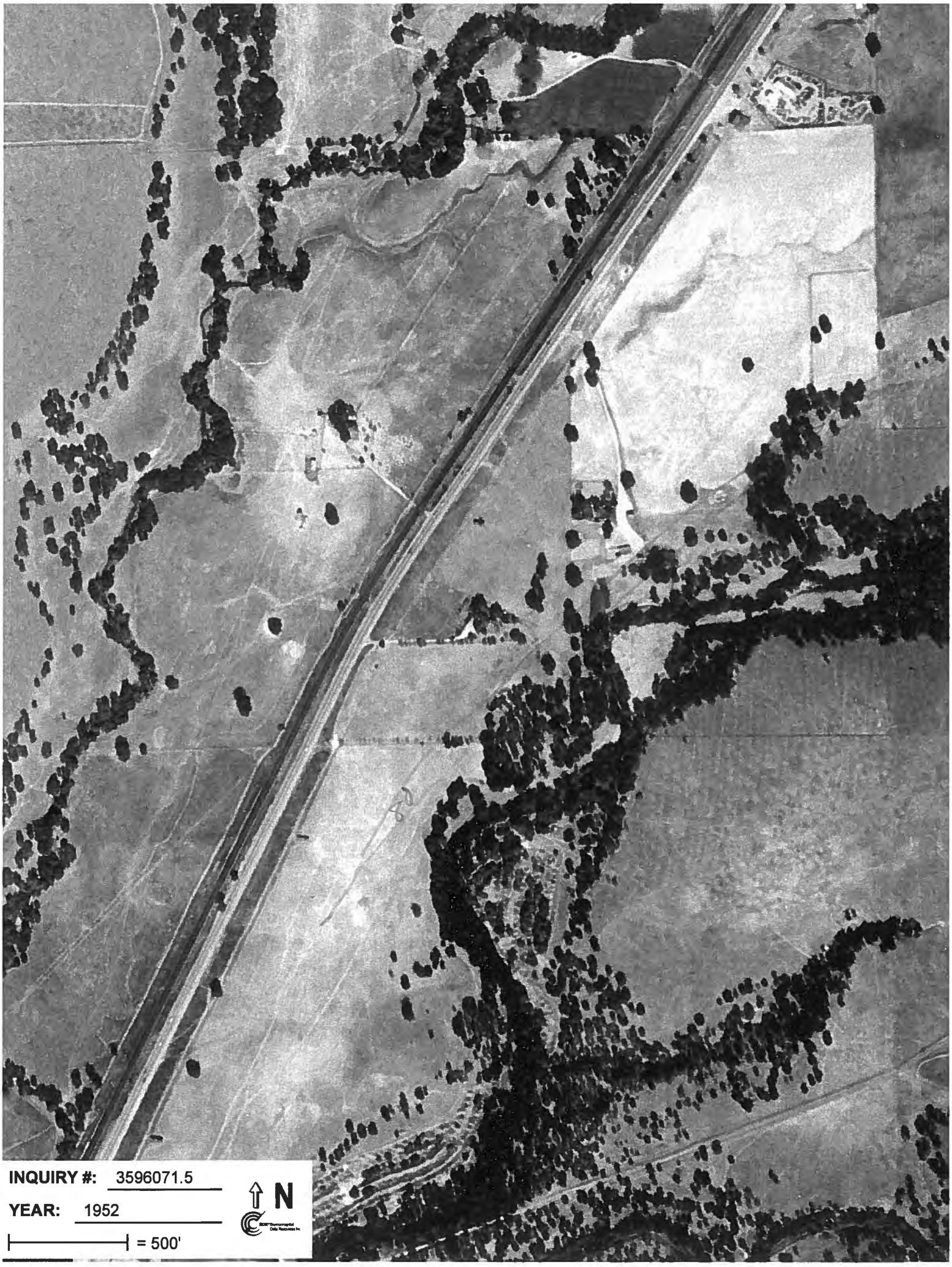
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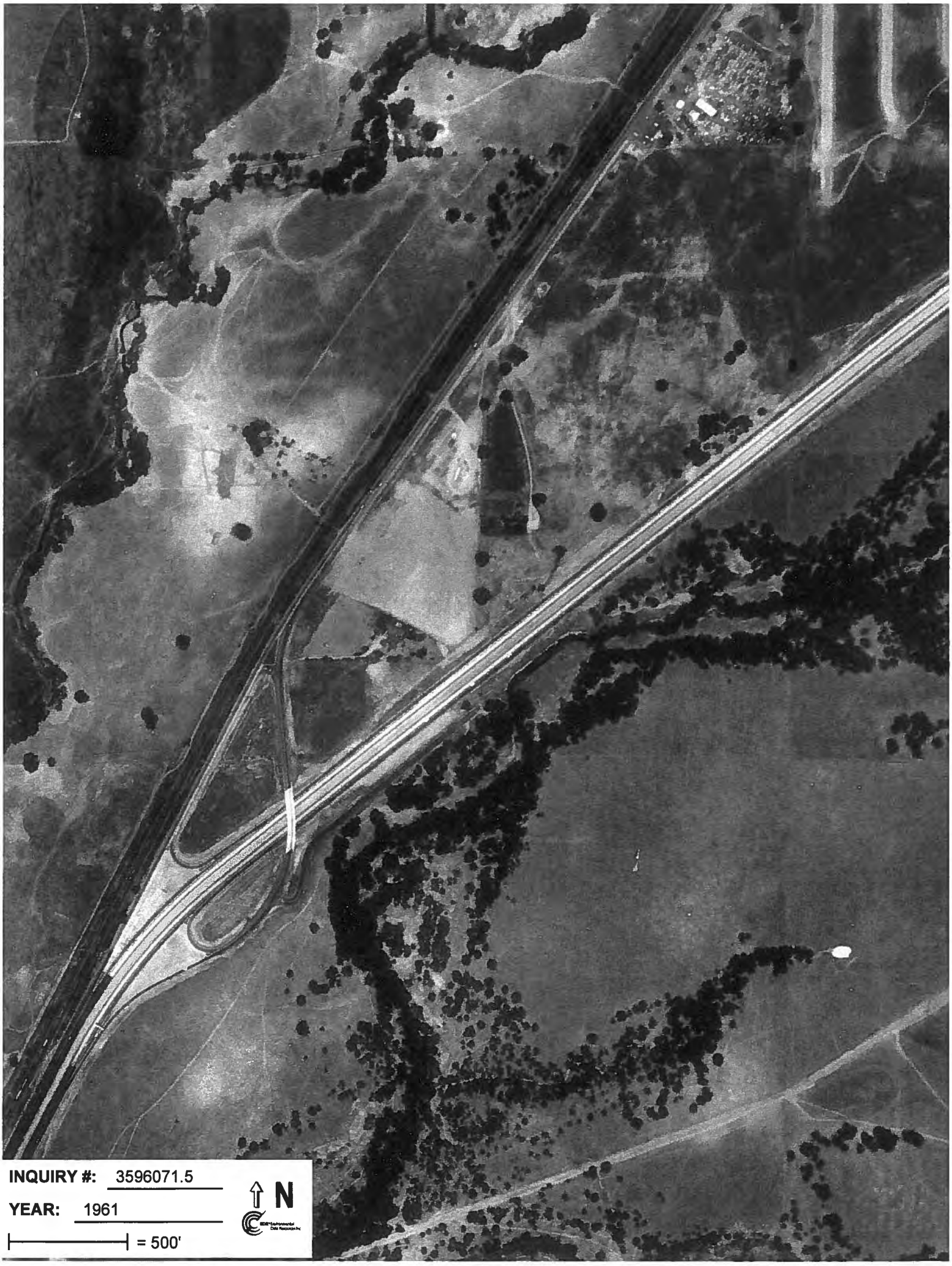
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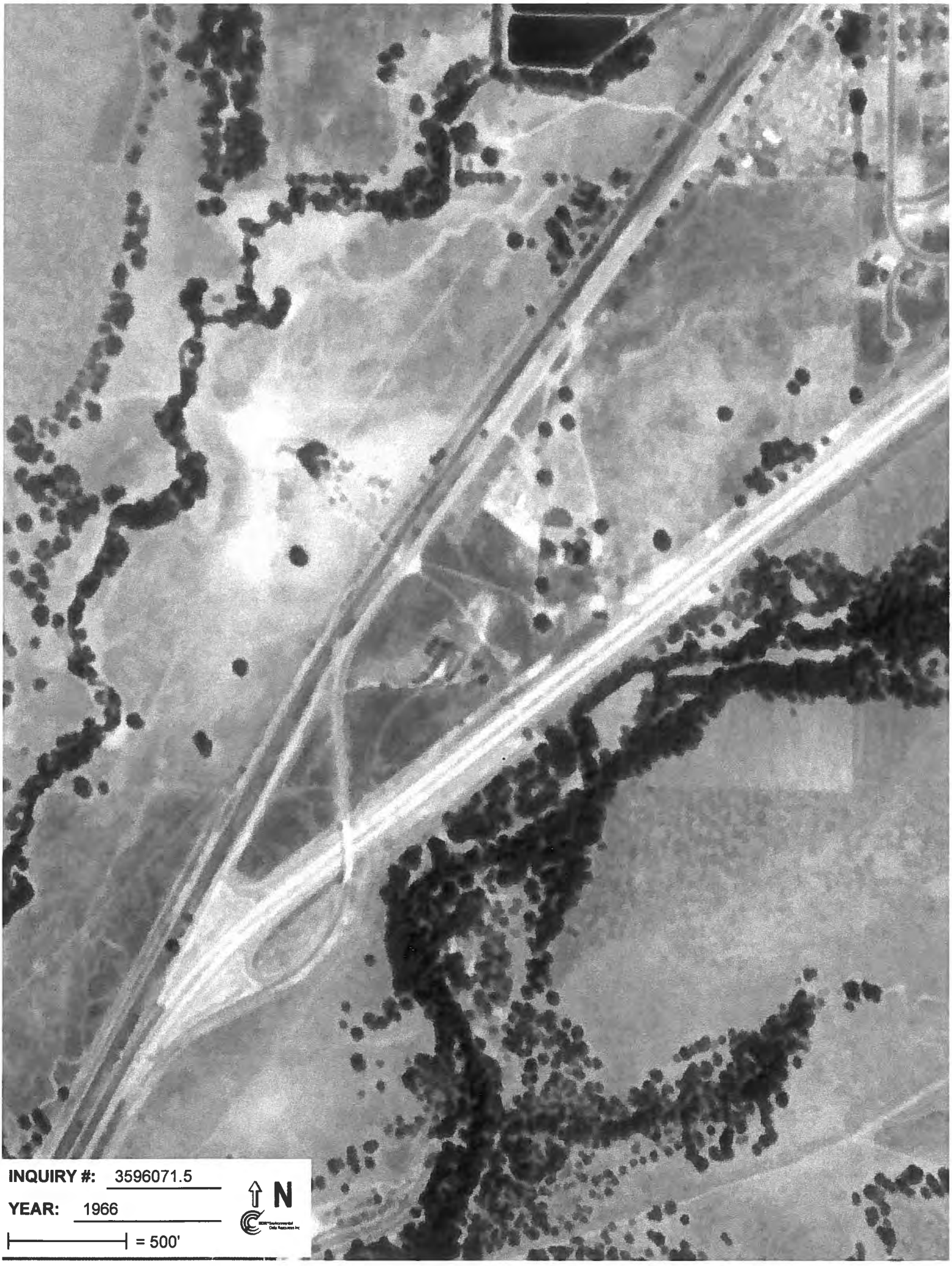
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YEAR: 1999,1998 (DOQQ)
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INQUIRY #: 3596071.5
YEAR: 1999,1998 (DOQQ)
= 500'
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INQUIRY #: 3596071.5
YEAR: 1999,1998 (DOQQ)
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INQUIRY #: 3596071.5
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= 500'
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INQUIRY #: 3596071.5
YEAR: 2005
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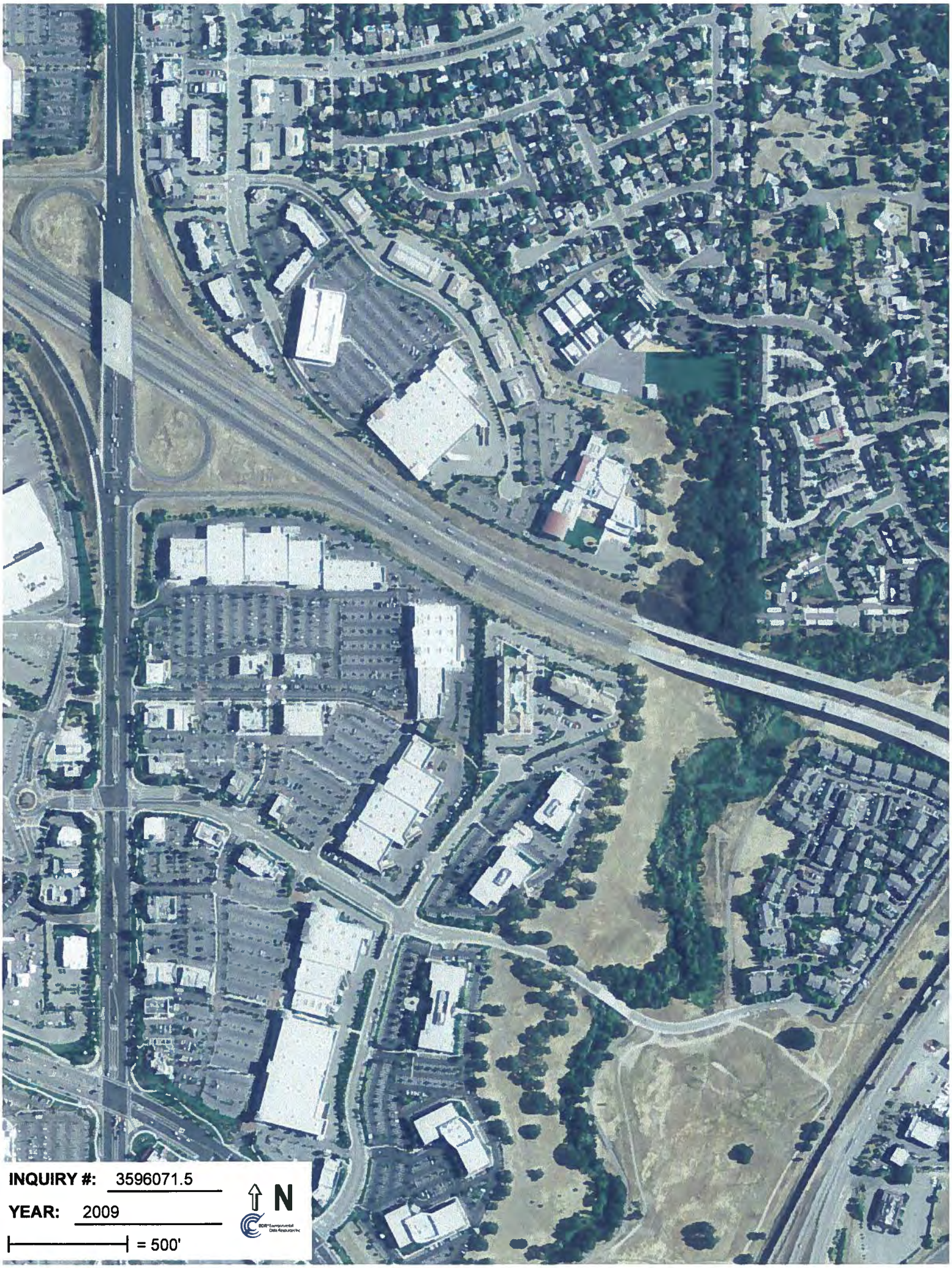
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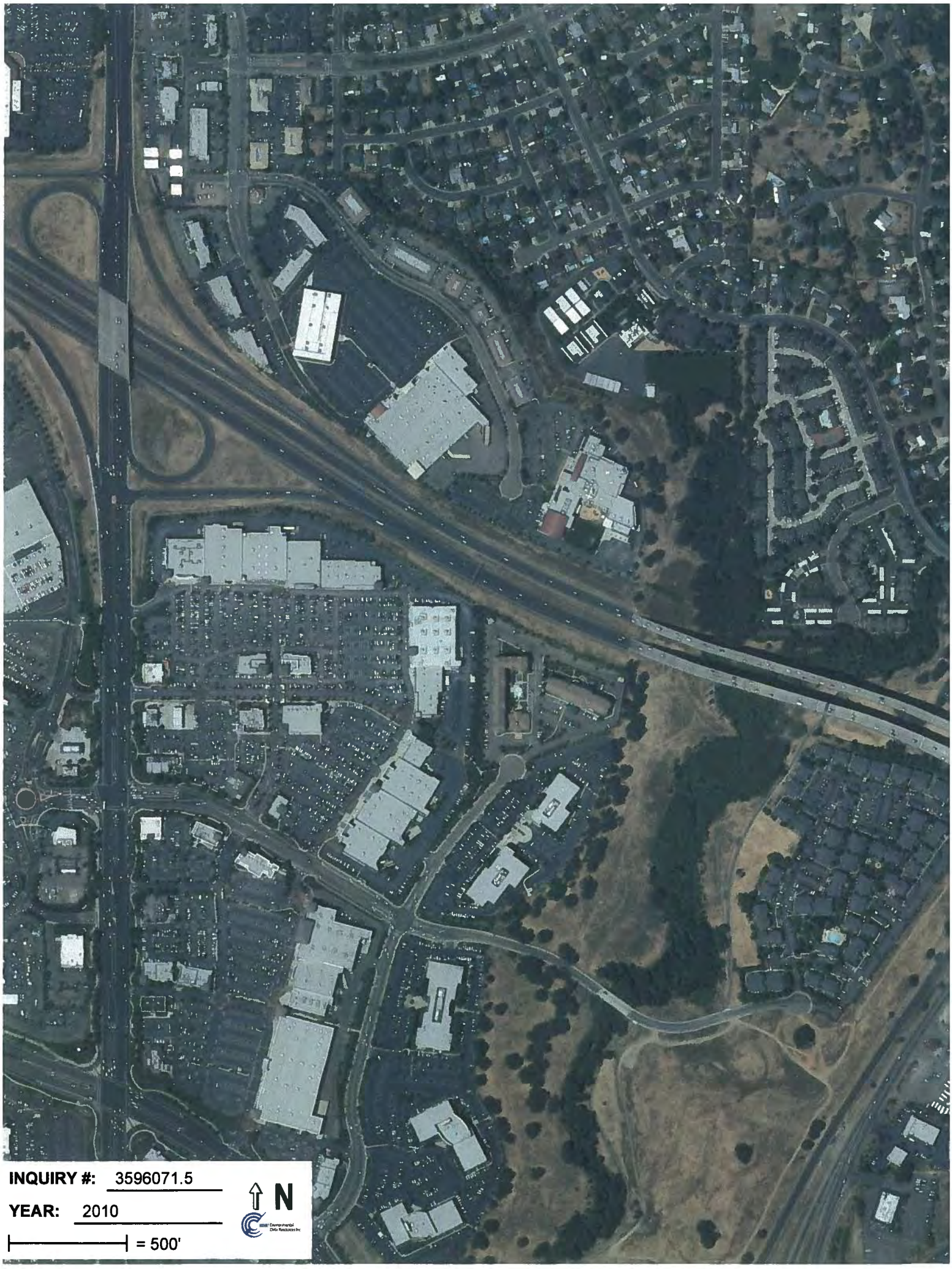
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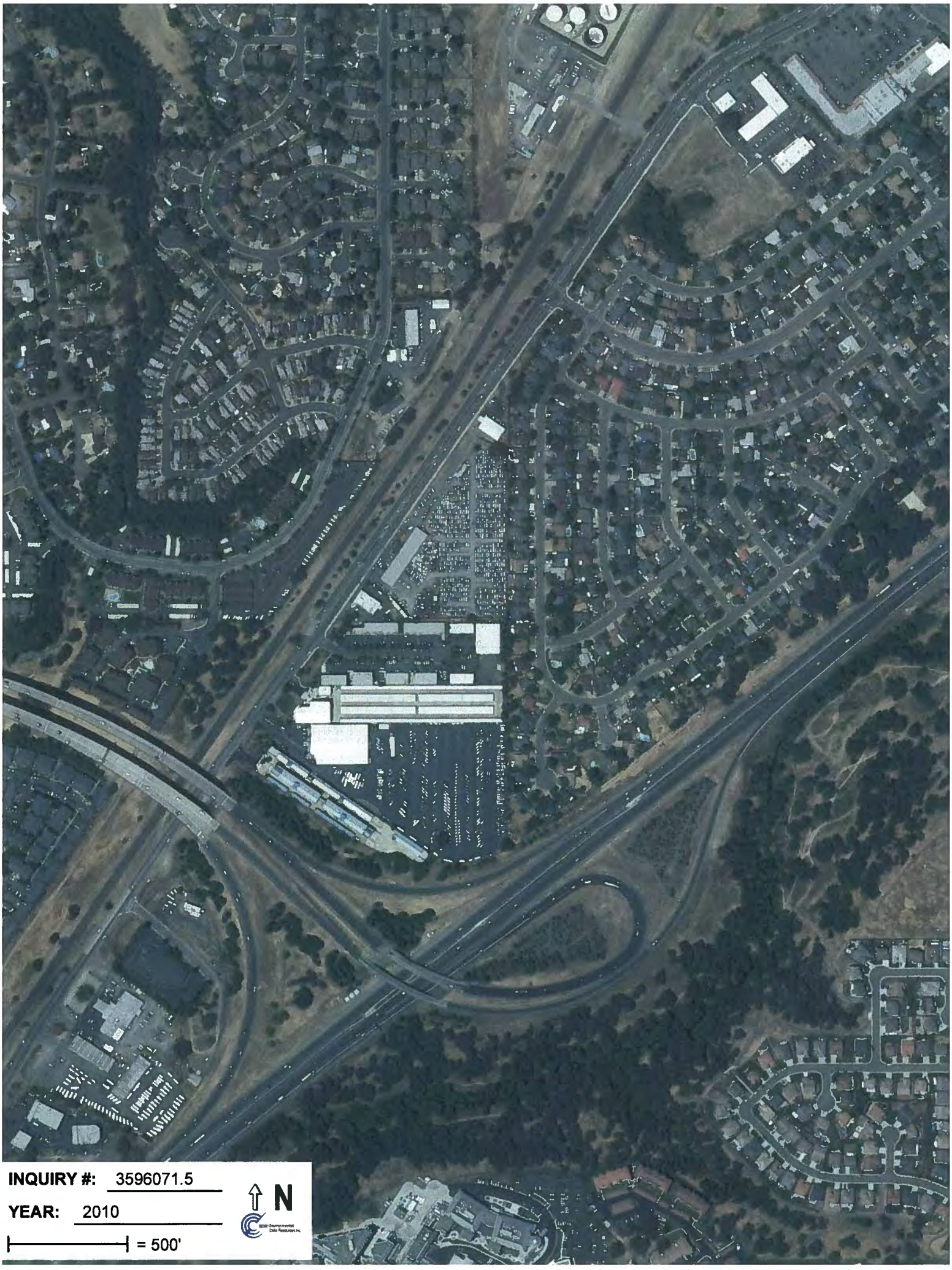
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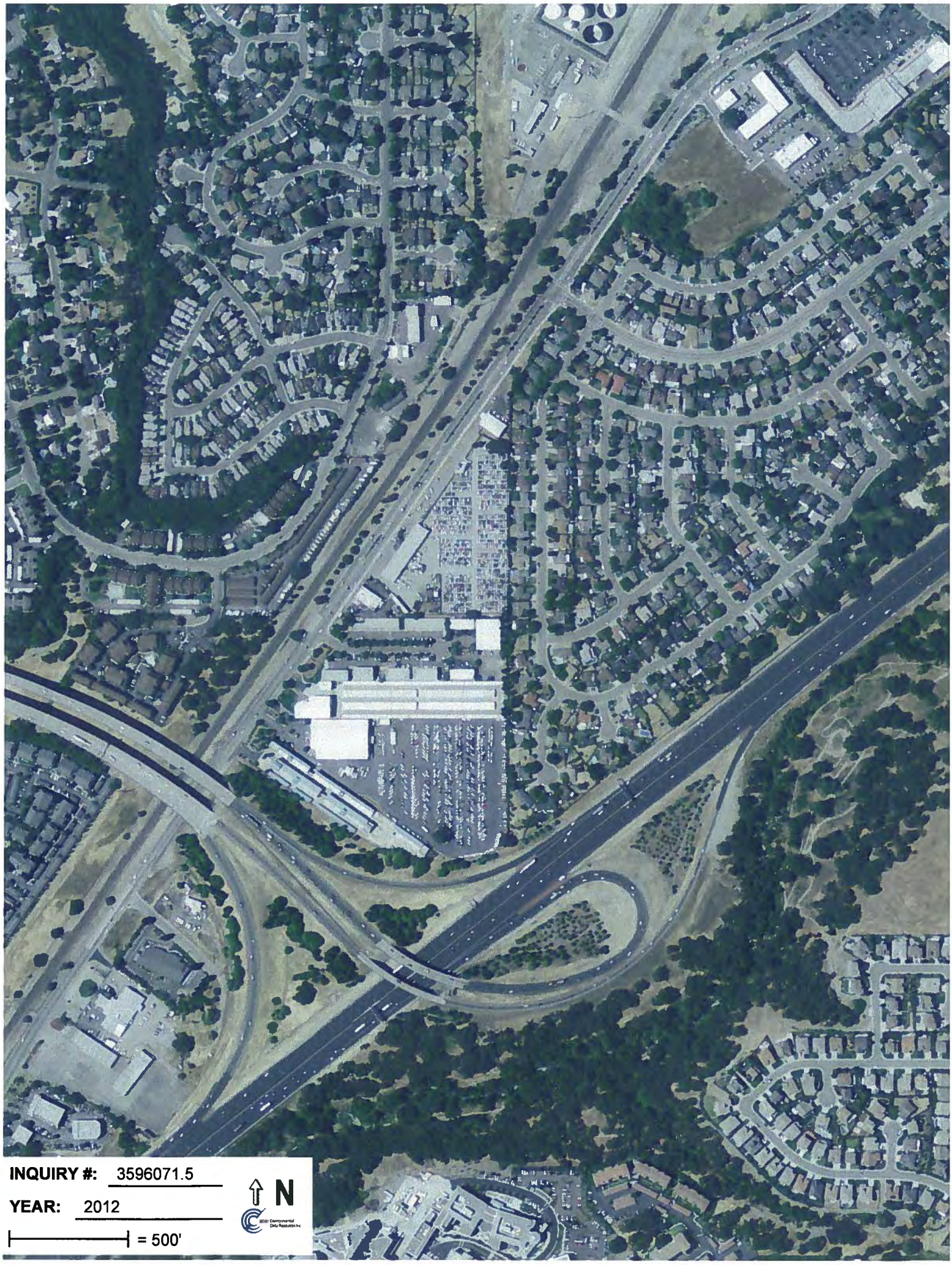
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YEAR: 2012
= 500'
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INQUIRY #: 3596071.5
YEAR: 2012
= 500'
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APPENDIX B

Topographic Maps

I-80/SR-65 Interchange
Interstate 80/State Route 65
Roseville, CA 95678

Inquiry Number: 3596071.4
May 03, 2013

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
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www.edrnet.com

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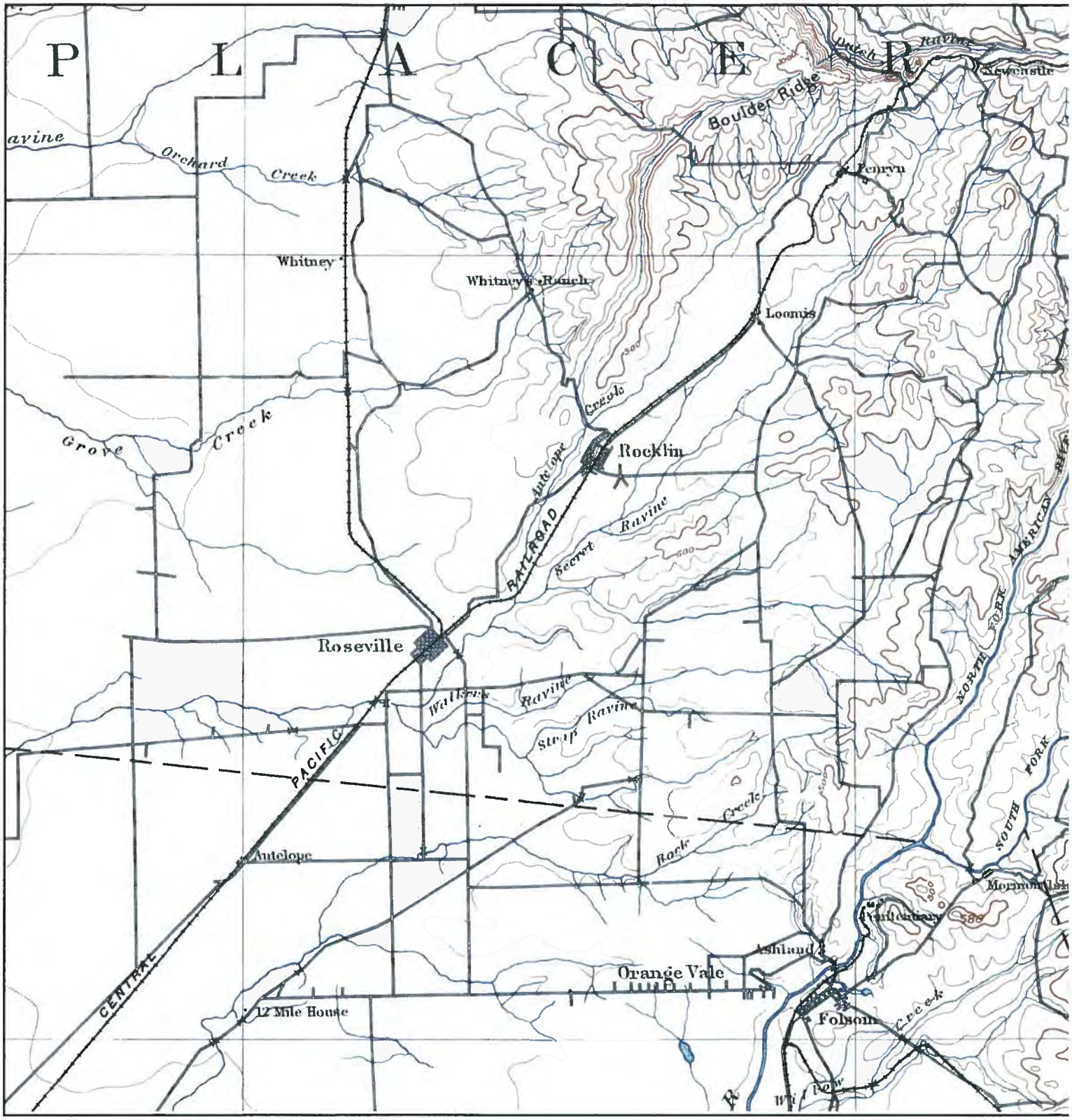

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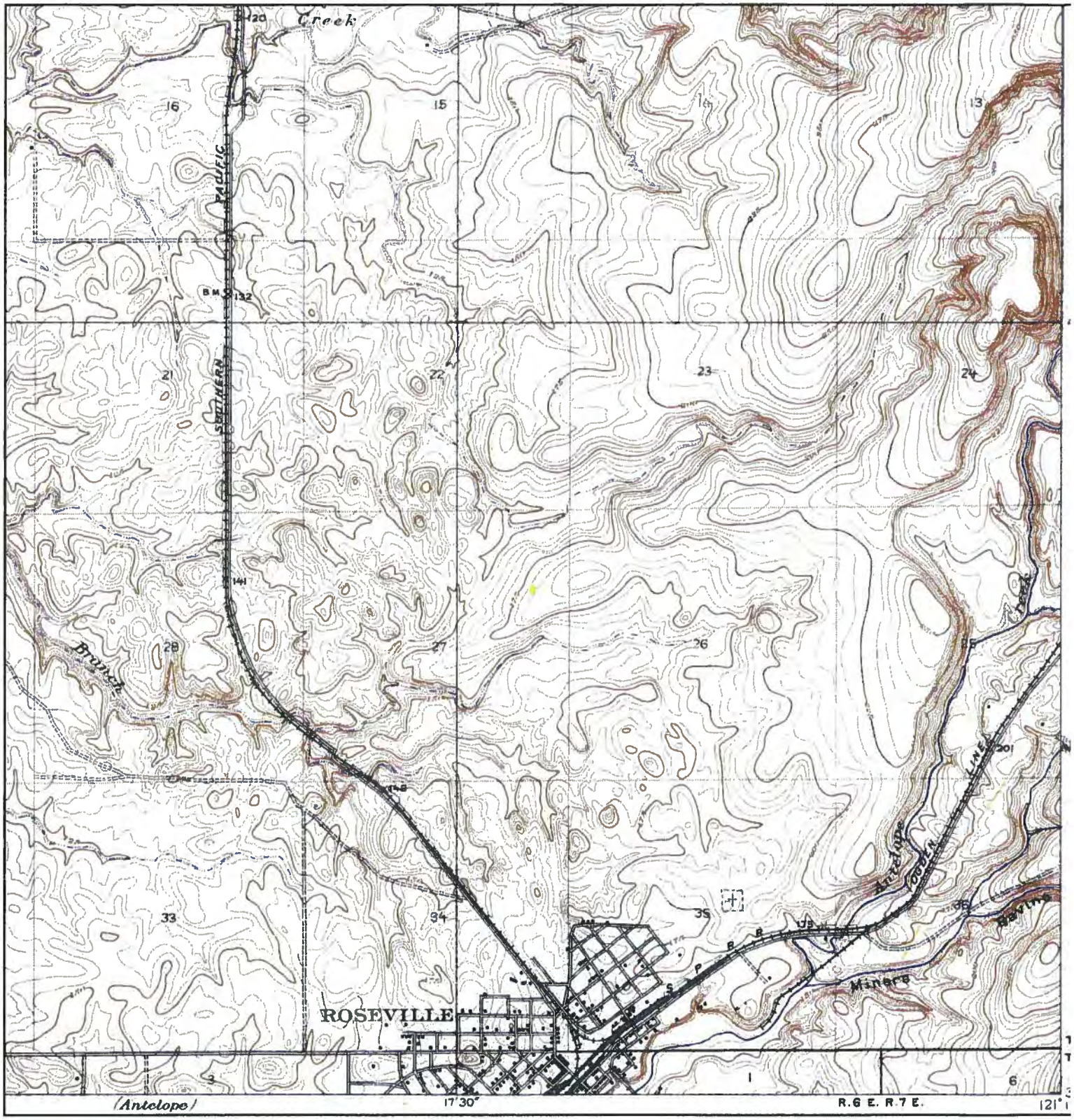
Historical Topographic Map



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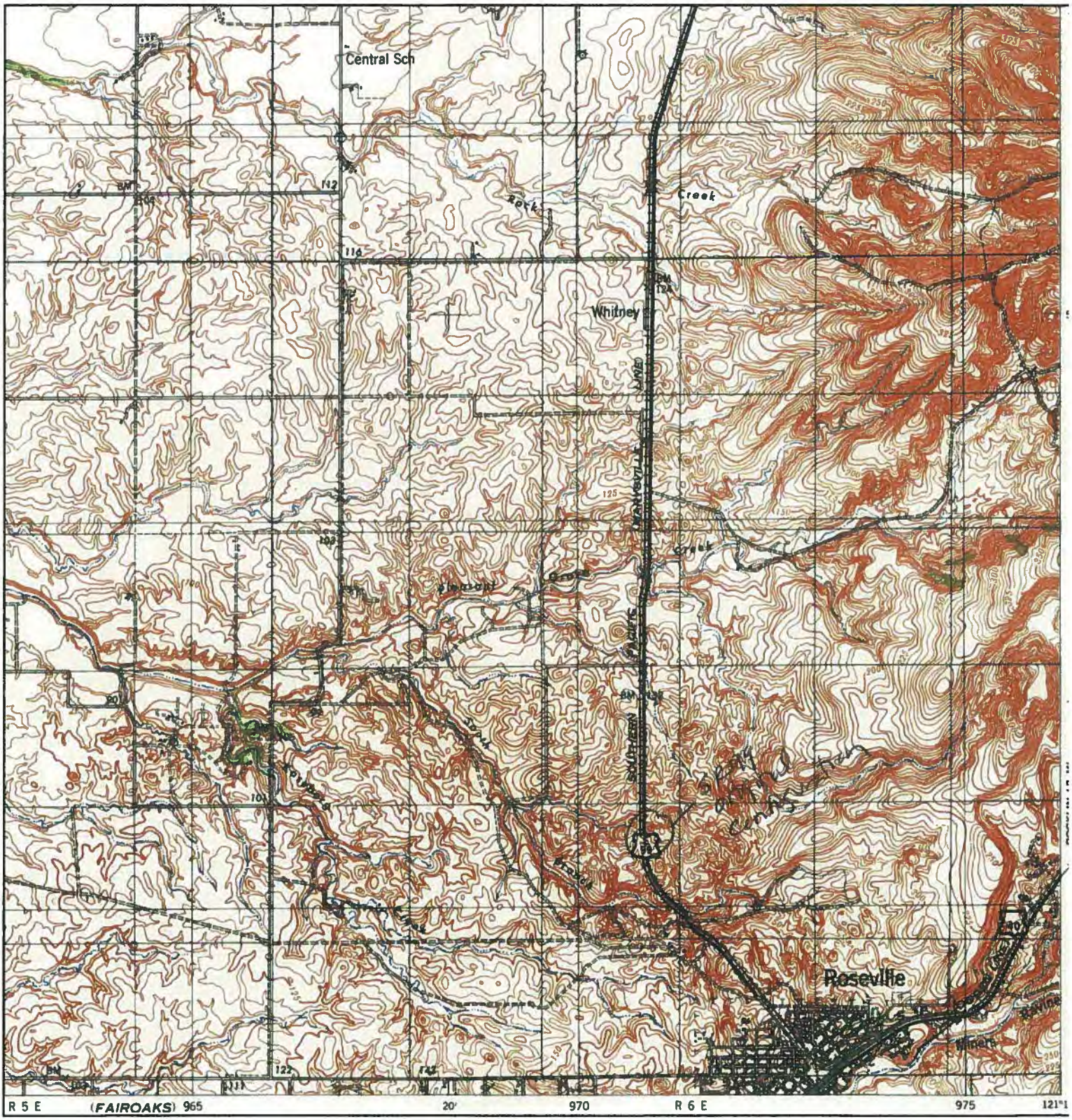

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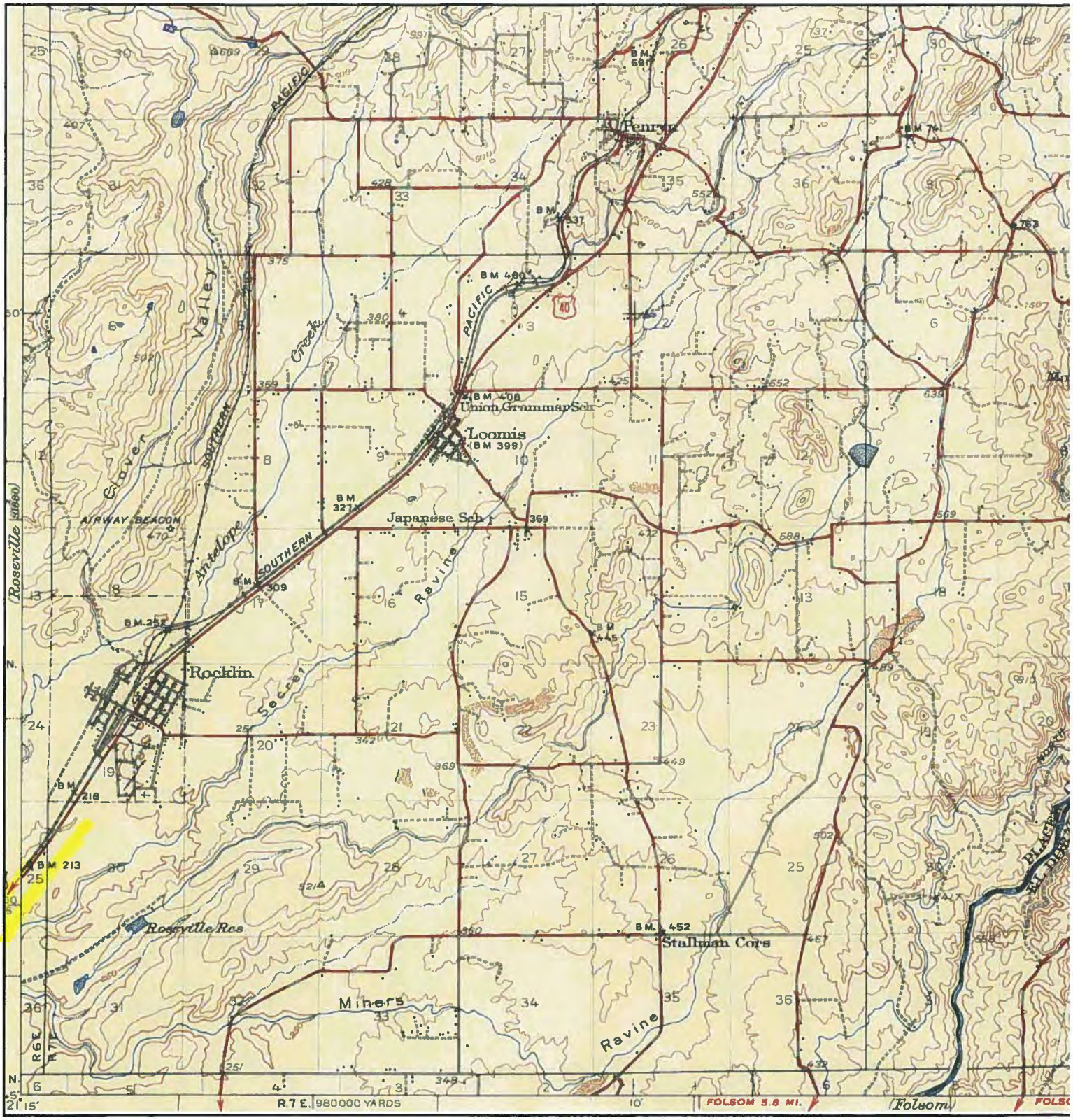

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	MAP YEAR:	1947	ADDRESS:	Interstate 80/State Route 65	CONTACT: Laura Long
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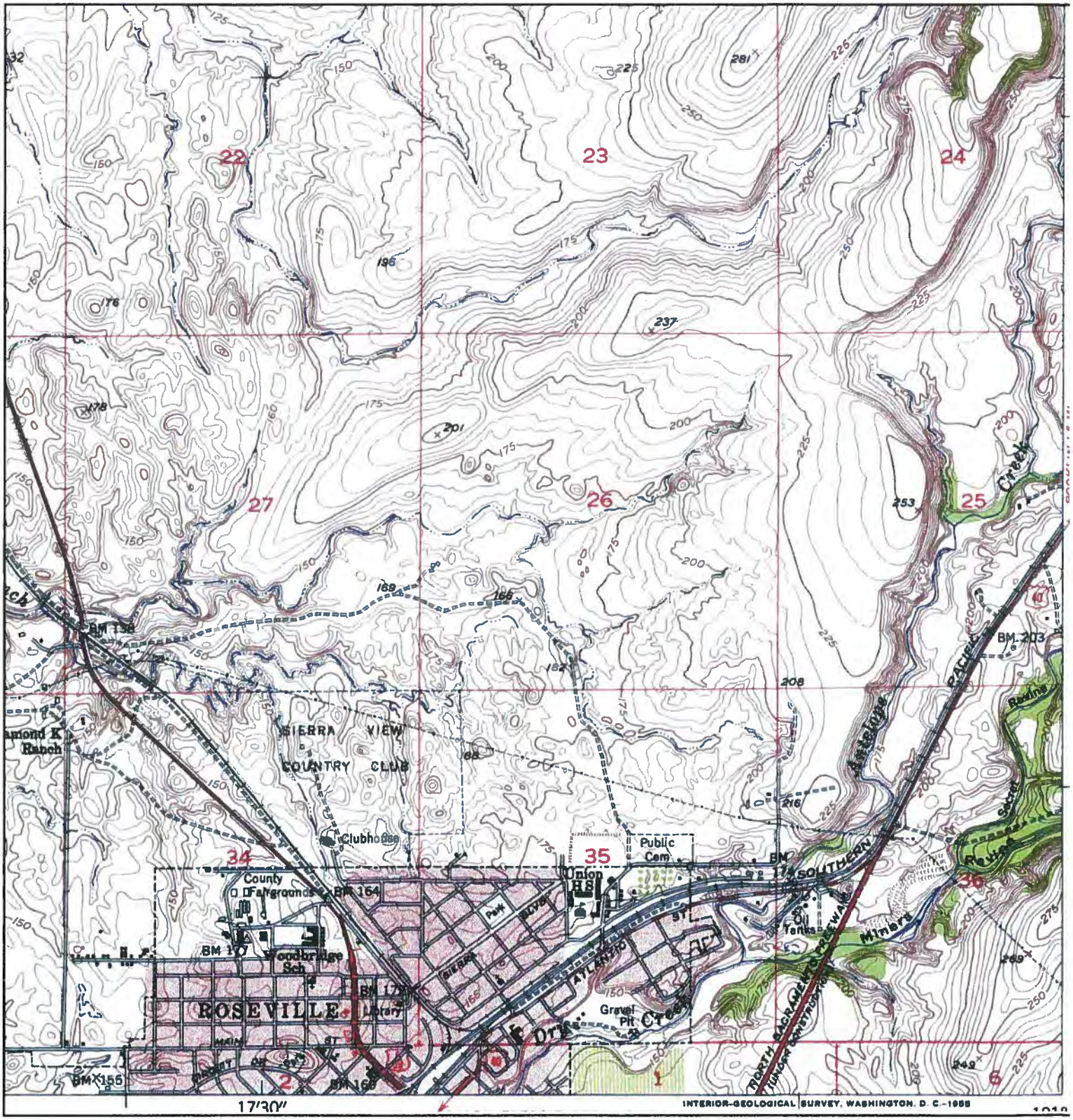
Historical Topographic Map



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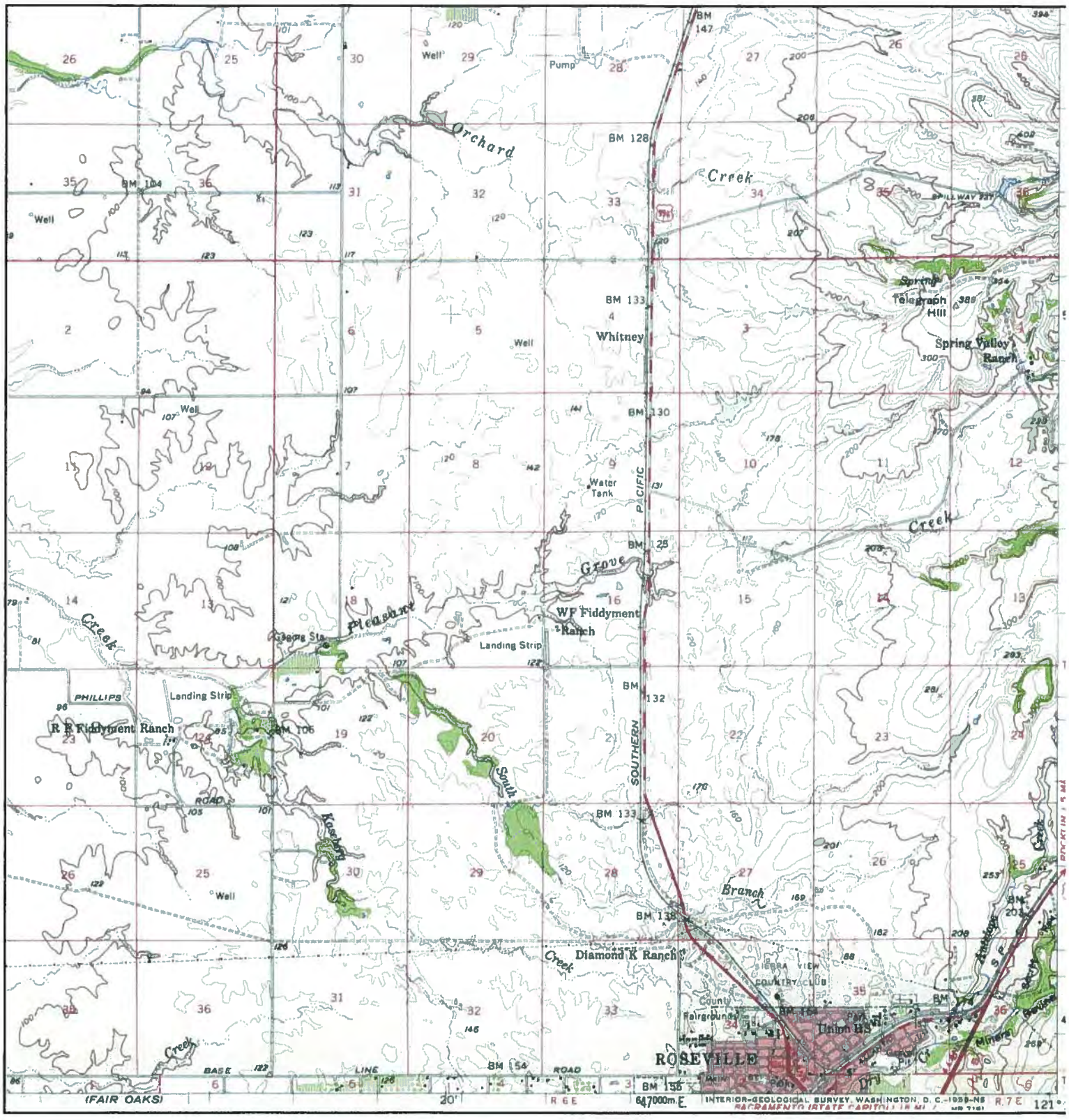
Historical Topographic Map



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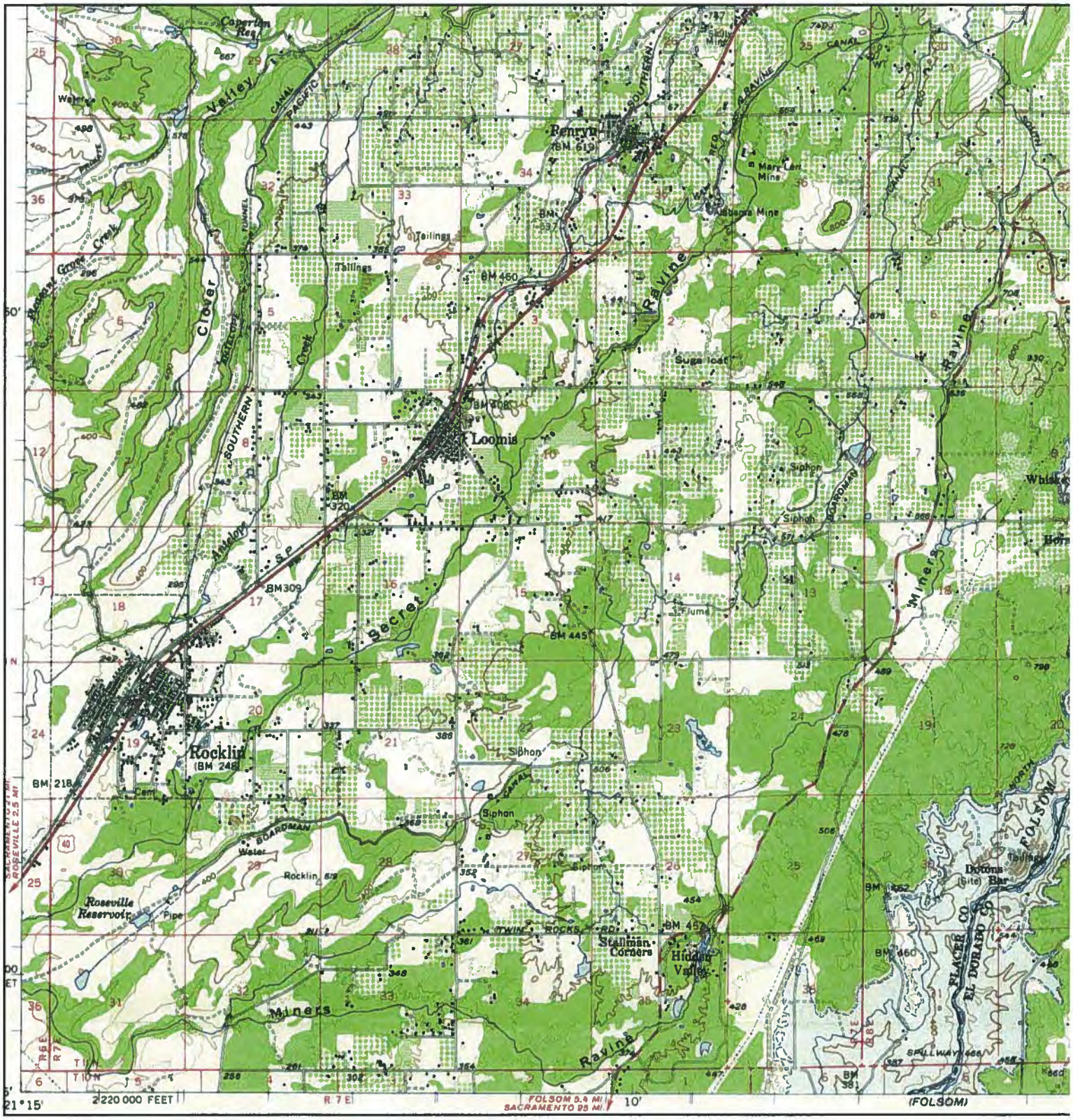

N	ADJOINING QUAD		SITE NAME:	I-80/SR-65 Interchange	CLIENT: Blackburn Consulting
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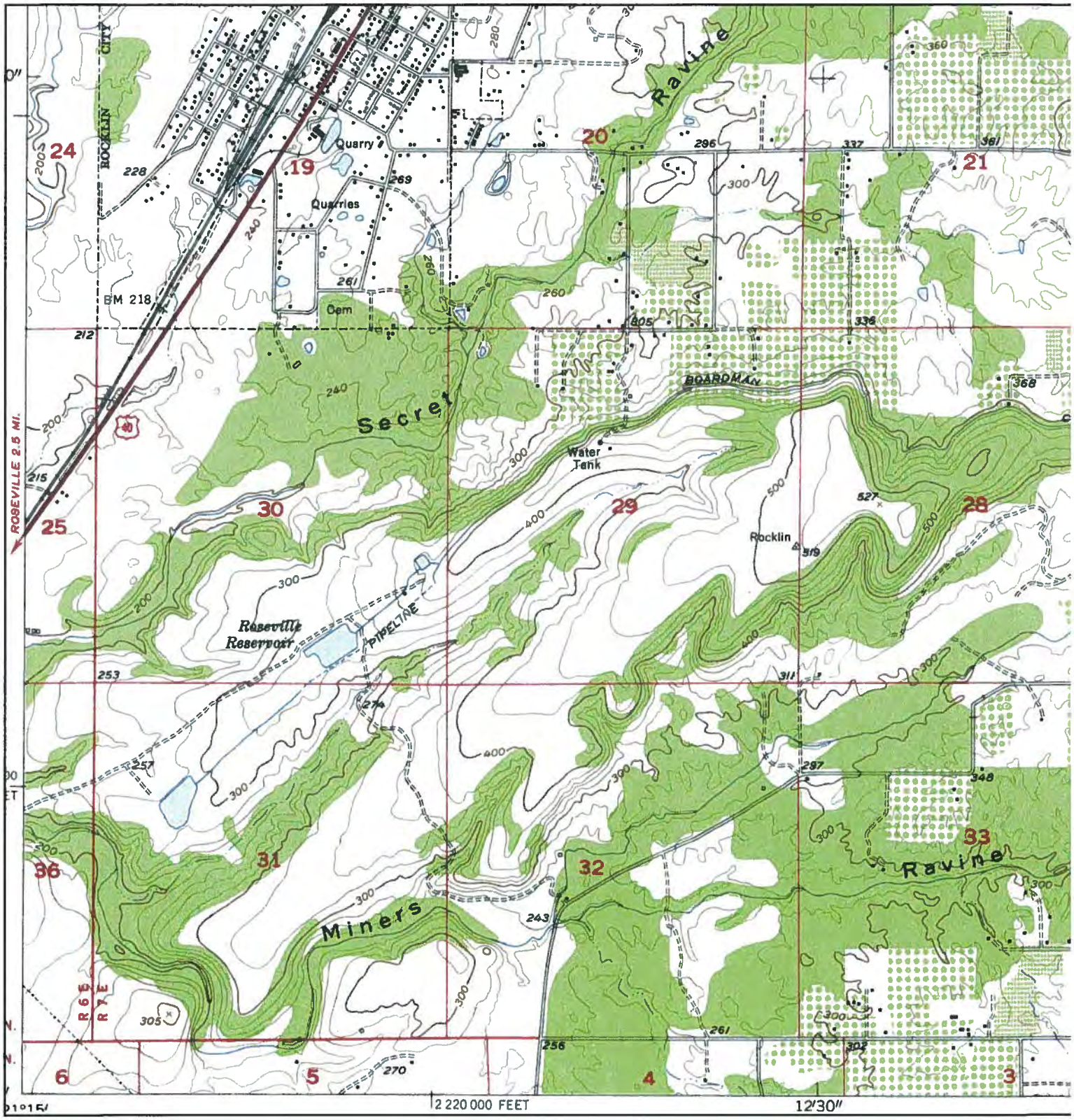
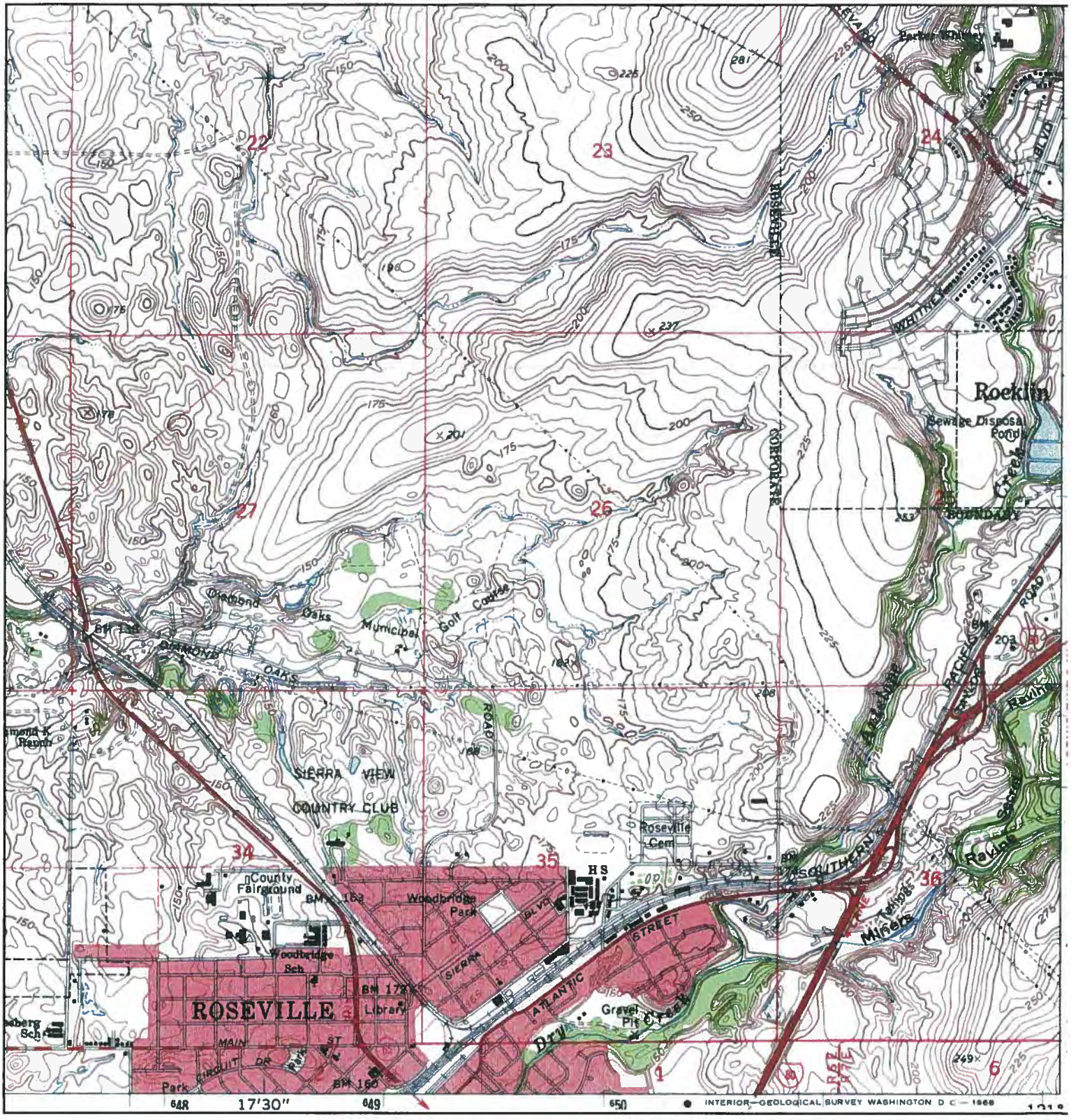
	SERIES:	15	LAT/LONG:	38.7689 / -121.2523	RESEARCH DATE: 05/03/2013
	SCALE:	1:62500			

Historical Topographic Map

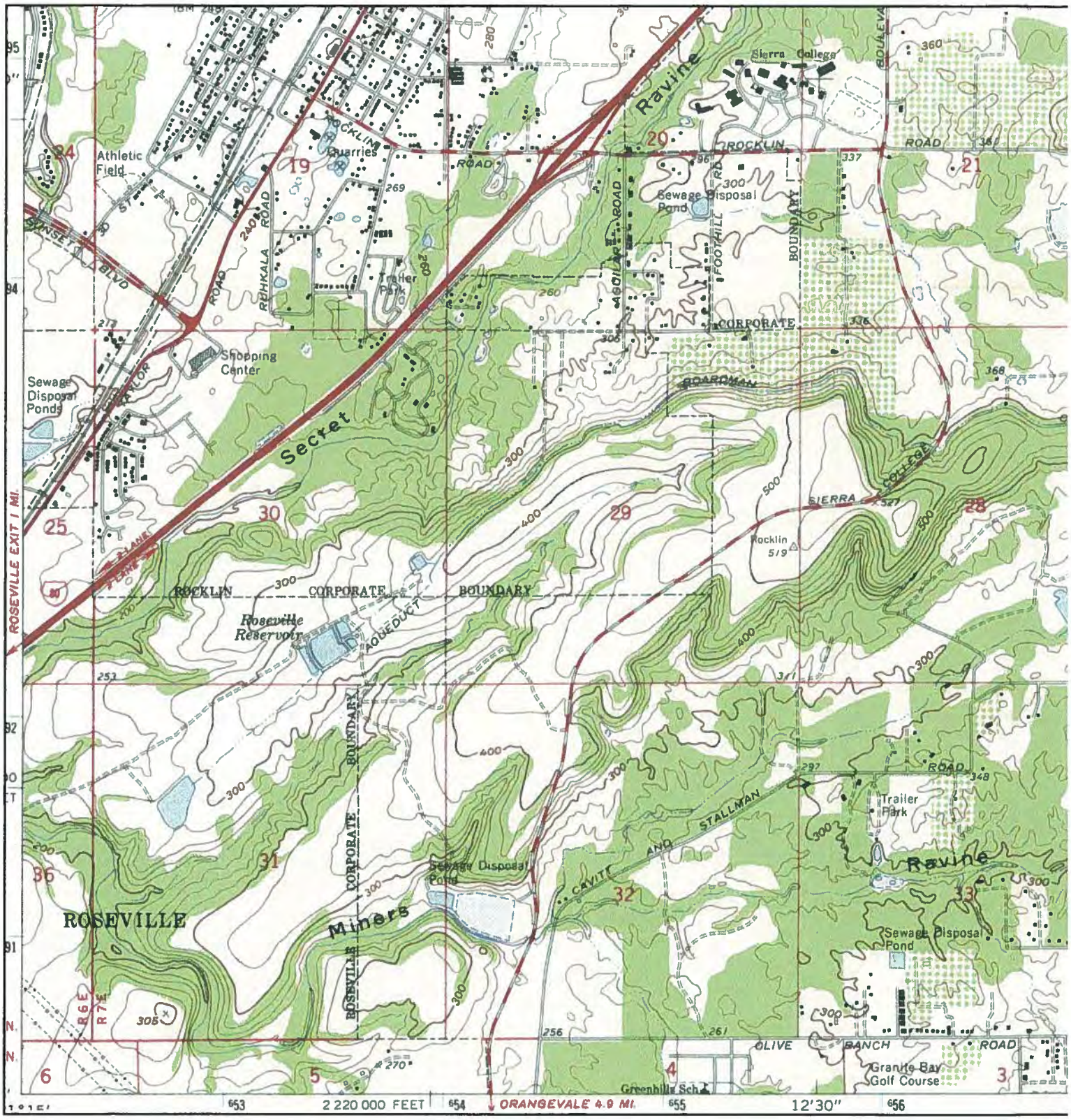


N	ADJOINING QUAD		SITE NAME:	I-80/SR-65 Interchange	CLIENT: Blackburn Consulting
	NAME:	ROCKLIN	ADDRESS:	Interstate 80/State Route 65	CONTACT: Laura Long
	MAP YEAR:	1954		Roseville, CA 95678	INQUIRY#: 3596071.4
	SERIES:	7.5	LAT/LONG:	38.7689 / -121.2523	RESEARCH DATE: 05/03/2013
	SCALE:	1:24000			

Historical Topographic Map


ROSEVILLE
Roseville Cem
Woodbridge Park
Woodbridge Sch
County Fairground
SIERRA VIEW COUNTRY CLUB
Oakmont Oaks Municipal Golf Course
Roseville Sewage Disposal Ponds
Roseville Gravel Pit
Roseville Mines
Roseville Creek
Dry Creek
Antelope Creek
Pleasant Grove Creek
Auburn Folsom South Canal
Pacific Southern Railroad
Atlantic Street
Sierra Blvd
Main St
Circuit Dr
Oakmont Dr
Oak Ridge Dr
Park Blvd
Taylor Rd
Whitney Blvd
Pleasant Grove Blvd
Roseville Rd
Foothills Blvd
Roseville Boundary
Roseville Hs
Roseville Library
Roseville Park
Roseville Sch
Roseville Ranch
Roseville Heights
Roseville Terrace
Roseville Square
Roseville Plaza
Roseville Mall
Roseville Shopping Center
Roseville Industrial Park
Roseville Business Park
Roseville Corporate Center
Roseville Technology Park
Roseville Medical Center
Roseville Hospital
Roseville Police Department
Roseville Fire Department
Roseville City Hall
Roseville Public Library
Roseville Community Center
Roseville Aquatic Center
Roseville Skate Park
Roseville Dog Park
Roseville Golf Course
Roseville Country Club
Roseville Fairgrounds
Roseville Rodeo Grounds
Roseville Cemetery
Roseville Memorial Park
Roseville Mausoleum
Roseville Columbarium
Roseville Crematory
Roseville Funeral Home
Roseville Mortuary
Roseville Chapel
Roseville Church
Roseville Temple
Roseville Synagogue
Roseville Mosque
Roseville Monastery
Roseville Convent
Roseville Rectory
Roseville Parsonage
Roseville Manse
Roseville Vicarage
Roseville Deanery
Roseville Archdeaconry
Roseville Bishopric
Roseville Diocese
Roseville Archdiocese
Roseville Metropolitan
Roseville Patriarchate
Roseville Papacy
Roseville Vatican
Roseville Holy See
Roseville Apostolic Nunciature
Roseville Apostolic Delegation
Roseville Apostolic Internuncio
Roseville Apostolic Pro-Nuncio
Roseville Apostolic Nuncio
Roseville Apostolic Legate
Roseville Apostolic Visitor
Roseville Apostolic Administrator
Roseville Apostolic Vicar
Roseville Apostolic Prefect
Roseville Apostolic Vicariate
Roseville Apostolic Prefecture
Roseville Apostolic Mission
Roseville Apostolic Territory
Roseville Apostolic Jurisdiction
Roseville Apostolic Authority
Roseville Apostolic Power
Roseville Apostolic Faculty
Roseville Apostolic Privilege
Roseville Apostolic Indult
Roseville Apostolic Dispensation
Roseville Apostolic Exemption
Roseville Apostolic Immunity
Roseville Apostolic Inviolability
Roseville Apostolic Sanctity
Roseville Apostolic Holiness
Roseville Apostolic Purity
Roseville Apostolic Virginity
Roseville Apostolic Celibacy
Roseville Apostolic Chastity
Roseville Apostolic Continence
Roseville Apostolic Abstinence
Roseville Apostolic Fasting
Roseville Apostolic Penance
Roseville Apostolic Mortification
Roseville Apostolic Self-Denial
Roseville Apostolic Self-Sacrifice
Roseville Apostolic Self-Immolation
Roseville Apostolic Self-Destruction
Roseville Apostolic Self-Annihilation
Roseville Apostolic Self-Extinction
Roseville Apostolic Self-Obliteration
Roseville Apostolic Self-Effacement
Roseville Apostolic Self-Abnegation
Roseville Apostolic Self-Renunciation
Roseville Apostolic Self-Surrender
Roseville Apostolic Self-Resignation
Roseville Apostolic Self-Submission
Roseville Apostolic Self-Obedience
Roseville Apostolic Self-Conformity
Roseville Apostolic Self-Assimilation
Roseville Apostolic Self-Identification
Roseville Apostolic Self-Unification
Roseville Apostolic Self-Integration
Roseville Apostolic Self-Consolidation
Roseville Apostolic Self-Fusion
Roseville Apostolic Self-Amalgamation
Roseville Apostolic Self-Coalescence
Roseville Apostolic Self-Union
Roseville Apostolic Self-Communion
Roseville Apostolic Self-Fellowship
Roseville Apostolic Self-Partnership
Roseville Apostolic Self-Association
Roseville Apostolic Self-Alliance
Roseville Apostolic Self-Confederation
Roseville Apostolic Self-Federation
Roseville Apostolic Self-League
Roseville Apostolic Self-Compact
Roseville Apostolic Self-Covenant
Roseville Apostolic Self-Agreement
Roseville Apostolic Self-Contract
Roseville Apostolic Self-Bond
Roseville Apostolic Self-Tie
Roseville Apostolic Self-Knot
Roseville Apostolic Self-Link
Roseville Apostolic Self-Chain
Roseville Apostolic Self-Rope
Roseville Apostolic Self-Cable
Roseville Apostolic Self-Wire
Roseville Apostolic Self-Thread
Roseville Apostolic Self-String
Roseville Apostolic Self-Cord
Roseville Apostolic Self-Line

Historical Topographic Map



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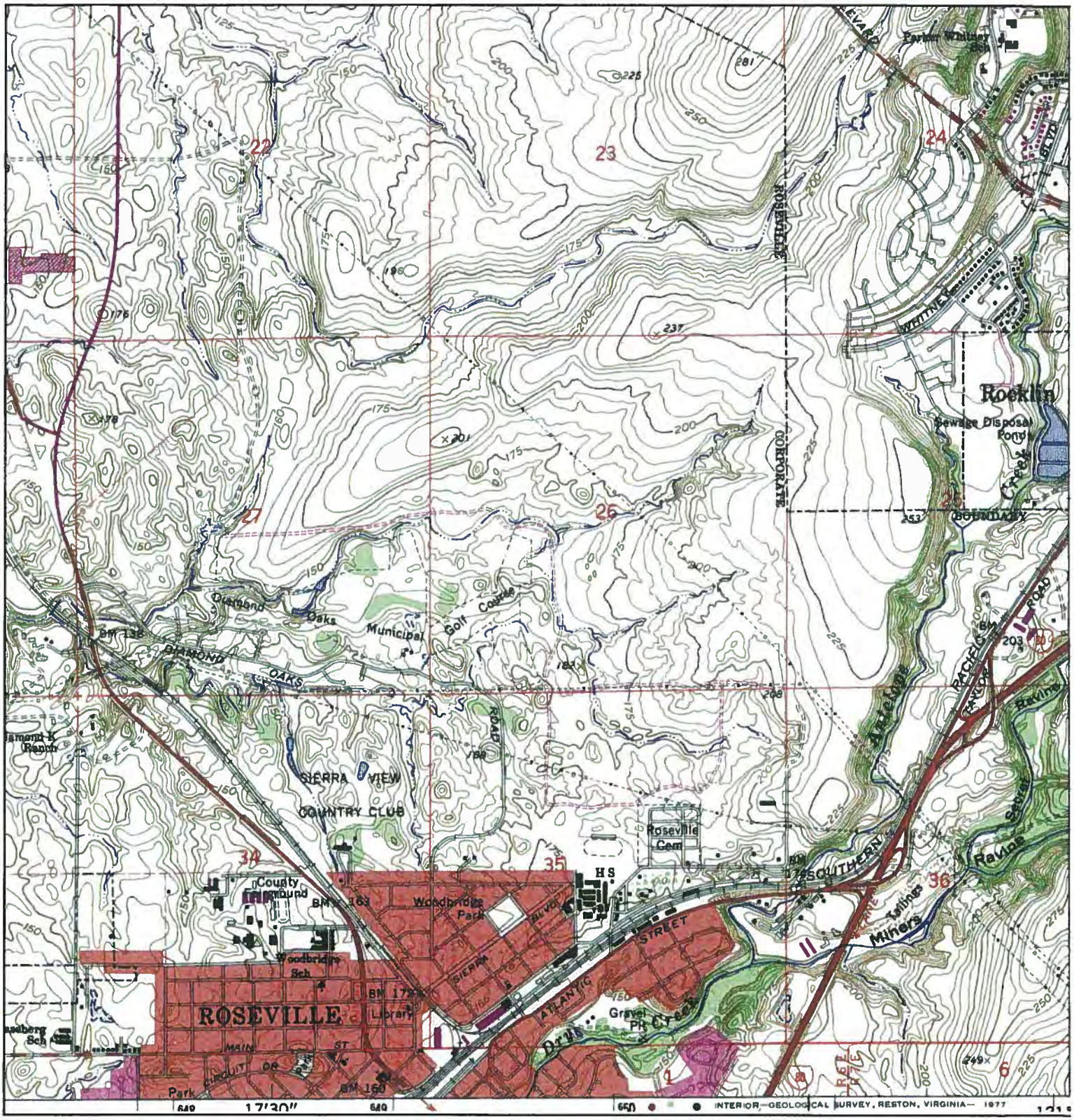
Historical Topographic Map



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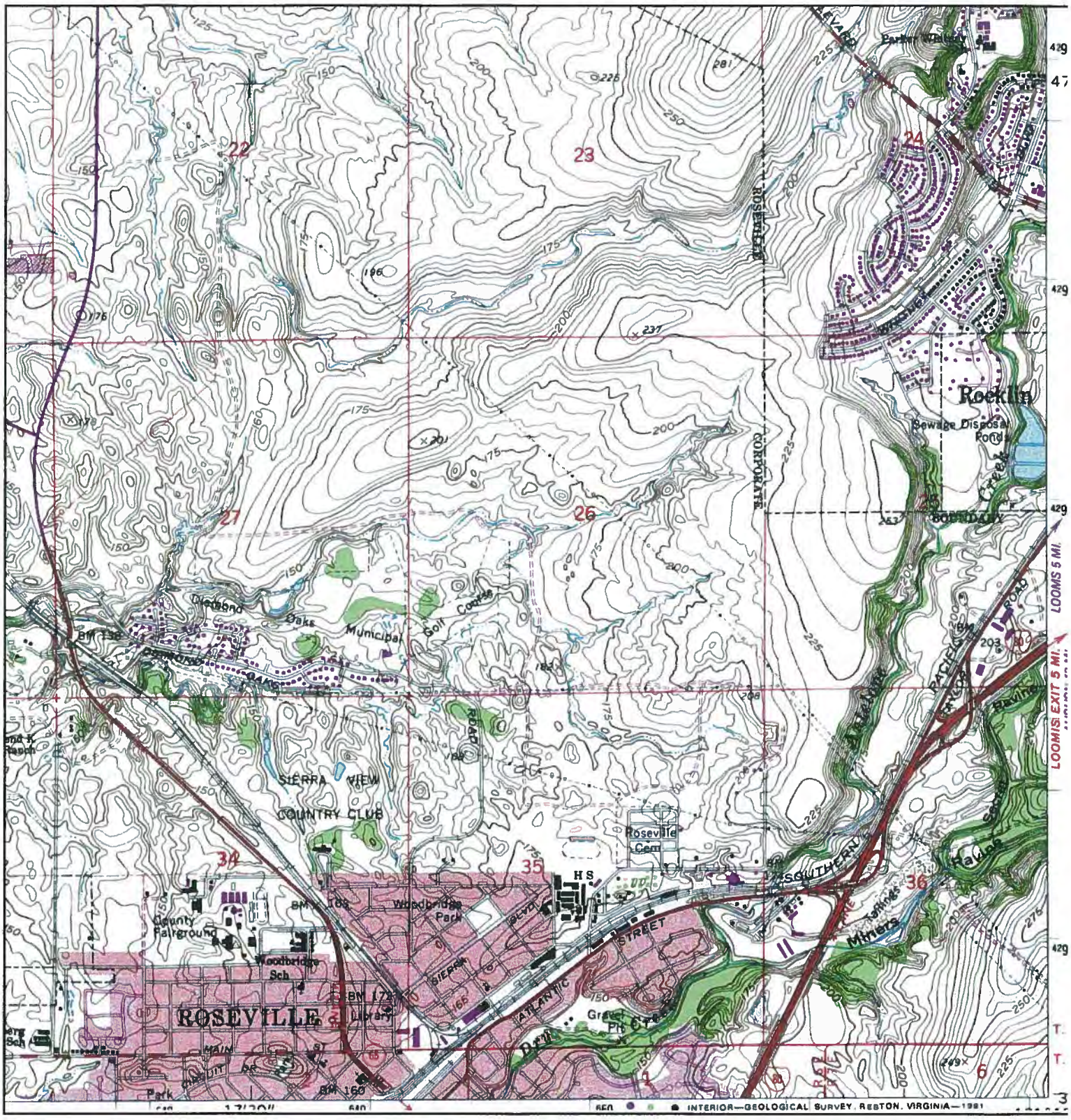
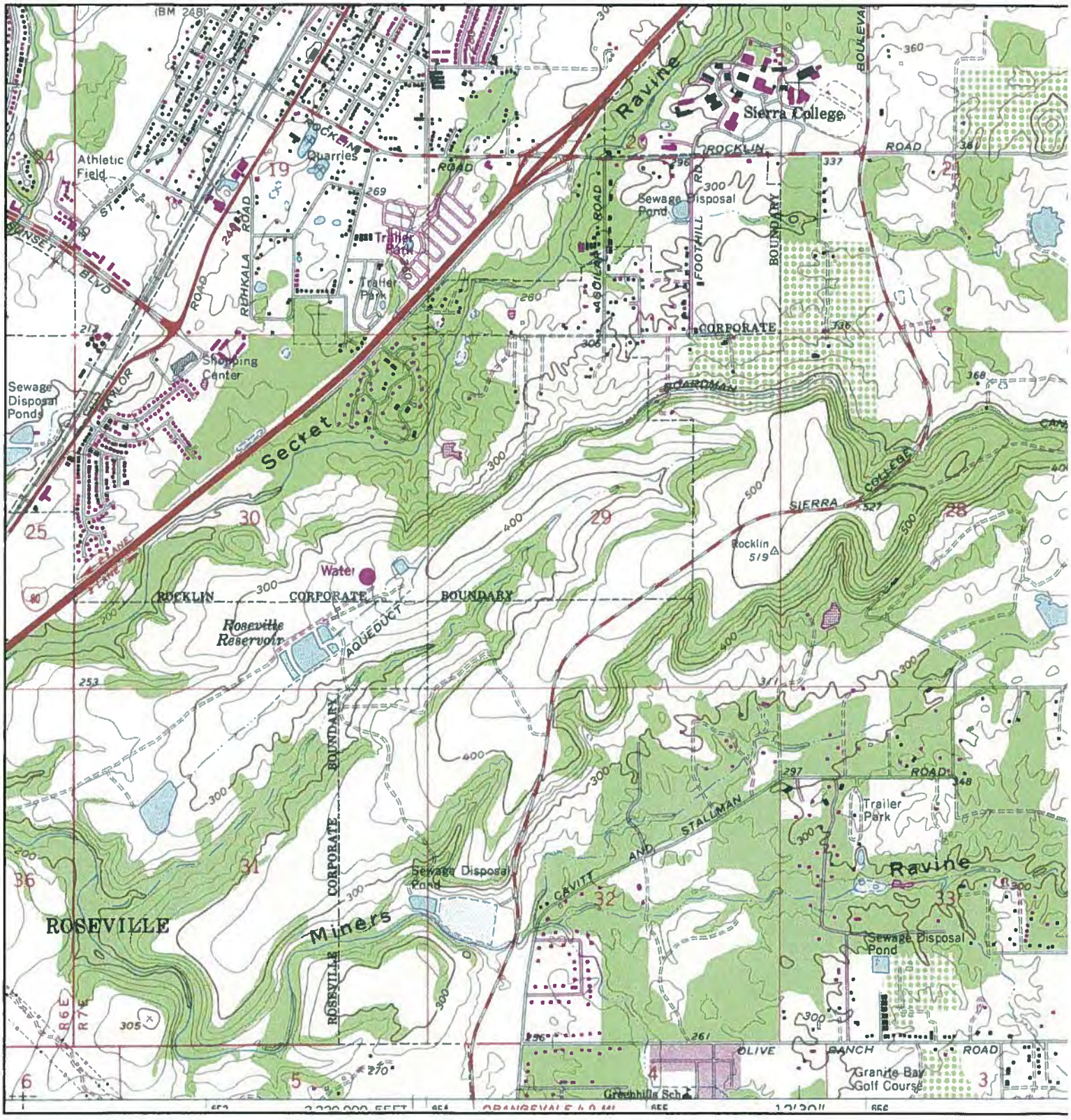
Historical Topographic Map



N	TARGET QUAD NAME: ROSEVILLE MAP YEAR: 1981 PHOTOREVISED FROM :1967 SERIES: 7.5 SCALE: 1:24000	SITE NAME: I-80/SR-65 Interchange ADDRESS: Interstate 80/State Route 65 Roseville, CA 95678 LAT/LONG: 38.7689 / -121.2523	CLIENT: Blackburn Consulting CONTACT: Laura Long INQUIRY#: 3596071.4 RESEARCH DATE: 05/03/2013

Historical Topographic Map



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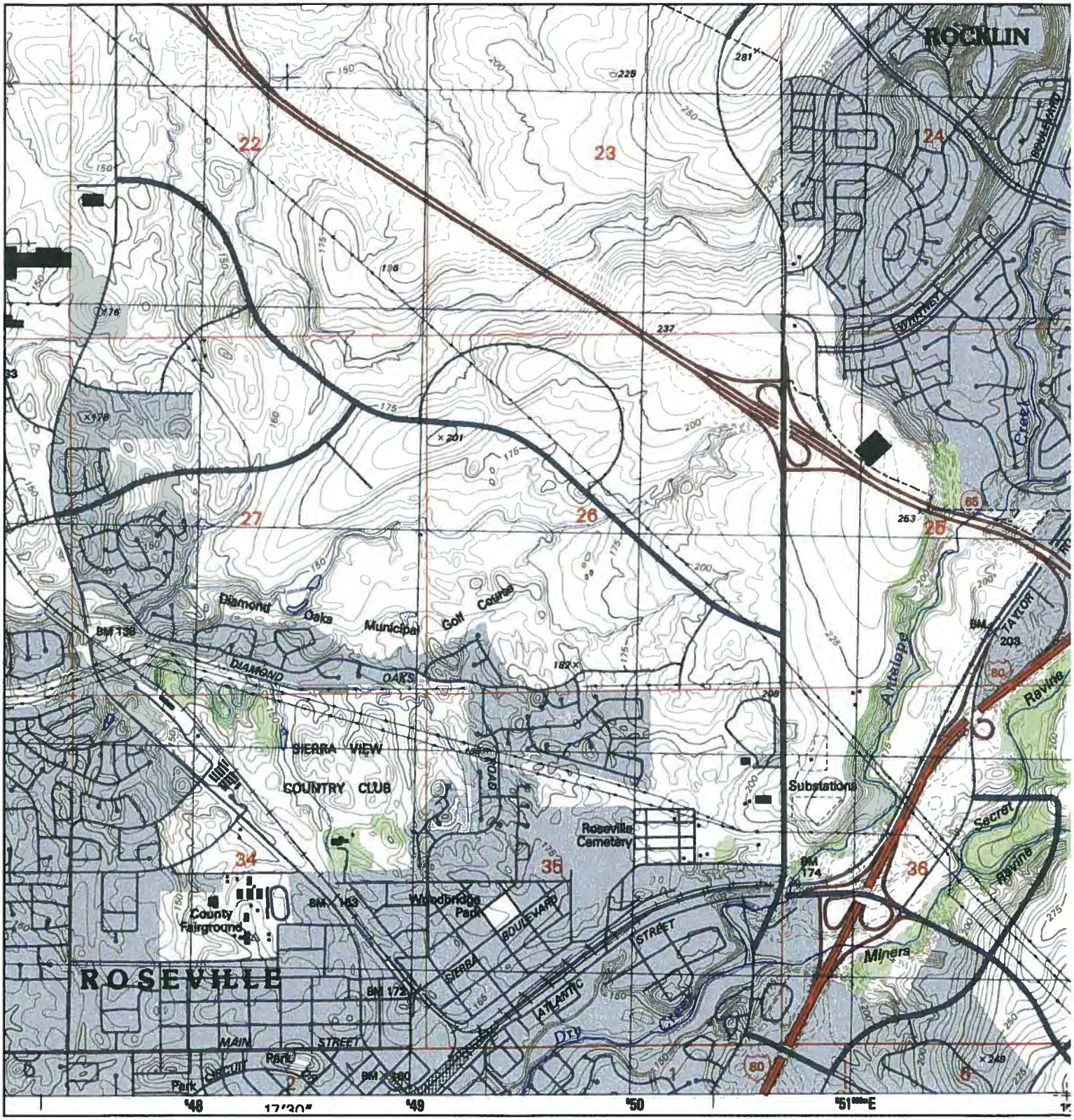
Historical Topographic Map



N	TARGET QUAD NAME: ROSEVILLE MAP YEAR: 1992 SERIES: 7.5 SCALE: 1:24000	SITE NAME: I-80/SR-65 Interchange ADDRESS: Interstate 80/State Route 65 Roseville, CA 95678 LAT/LONG: 38.7689 / -121.2523	CLIENT: Blackburn Consulting CONTACT: Laura Long INQUIRY#: 3596071.4 RESEARCH DATE: 05/03/2013

APPENDIX C

EDR Report

I-80/SR-65 Interchange
Interstate 80 & State Route 65
Roseville, CA 95678

Inquiry Number: 4009326.1s
July 18, 2014

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Detail Map	3
Map Findings Summary	4
Map Findings	8
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Government Records Searched/Data Currency Tracking	GR-1

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

INTERSTATE 80 & STATE ROUTE 65
ROSEVILLE, CA 95678

COORDINATES

Latitude (North):	38.7689000 - 38° 46' 8.04''
Longitude (West):	121.2523000 - 121° 15' 8.28''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	651836.5
UTM Y (Meters):	4292374.5
Elevation:	203 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	38121-G3 ROSEVILLE, CA
Most Recent Revision:	1992
East Map:	38121-G2 ROCKLIN, CA
Most Recent Revision:	1981

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20120628, 20120706, 20120705
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls
LUCIS ---------- Land Use Control Information System

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

INDIAN UST ---------- Underground Storage Tanks on Indian Land
FEMA UST ---------- Underground Storage Tank Listing

State and tribal voluntary cleanup sites

INDIAN VCP ---------- Voluntary Cleanup Priority Listing

VCP ---------- Voluntary Cleanup Program Properties

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
ODI ---------- Open Dump Inventory
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---------- Clandestine Drug Labs
HIST Cal-Sites ---------- Historical Calsites Database
SCH ---------- School Property Evaluation Program
Toxic Pits ---------- Toxic Pits Cleanup Act Sites
CDL ---------- Clandestine Drug Labs
US HIST CDL ---------- National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST ---------- Facility Inventory Database

Local Land Records

LIENS 2 ---------- CERCLA Lien Information
LIENS ---------- Environmental Liens Listing
DEED ---------- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---------- Hazardous Materials Information Reporting System
CHMIRS ---------- California Hazardous Material Incident Report System
LDS ---------- Land Disposal Sites Listing
MCS ---------- Military Cleanup Sites Listing
SPILLS 90 ---------- SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ---------- RCRA - Non Generators / No Longer Regulated
DOT OPS ---------- Incident and Accident Data
DOD ---------- Department of Defense Sites
FUDS ---------- Formerly Used Defense Sites
CONSENT ---------- Superfund (CERCLA) Consent Decrees
ROD ---------- Records Of Decision
UMTRA ---------- Uranium Mill Tailings Sites
US MINES ---------- Mines Master Index File
TRIS ---------- Toxic Chemical Release Inventory System
TSCA ---------- Toxic Substances Control Act

FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
UIC	UIC Listing
NPDES	NPDES Permits Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
HAZNET	Facility and Manifest Data
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US AIRS	Aerometric Information Retrieval System Facility Subsystem
PRP	Potentially Responsible Parties
2020 COR ACTION	2020 Corrective Action Program List
LEAD SMELTERS	Lead Smelter Sites
EPA WATCH LIST	EPA WATCH LIST
PROC	Certified Processors Database
Financial Assurance	Financial Assurance Information Listing
PCB TRANSFORMER	PCB Transformer Registration Database
HWP	EnviroStor Permitted Facilities Listing
US FIN ASSUR	Financial Assurance Information
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
HWT	Registered Hazardous Waste Transporter Database
COAL ASH DOE	Steam-Electric Plant Operation Data
MWMP	Medical Waste Management Program Listing
WDS	Waste Discharge System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST	Recovered Government Archive Leaking Underground Storage Tank
RGA LF	Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/11/2014 has revealed that there are 7 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FUTURE FORD DETAIL SHOP	***3020 TAYLOR RD***	***0 - 1/8 (0.000 mi.)***	***B5***	***12***
KIDDIE KANDIDS NO 00552	1248 GALLERIA BLVD	WNW 1/8 - 1/4 (0.172 mi.)	G28	28
COSTCO WHOLESALE NO 29	***6750 STANFORD RANCH ROA***	***NW 1/8 - 1/4 (0.208 mi.)***	***I33***	***35***
SHELL SERVICE STATION	***1216 GALLERIA BLVD***	***WNW 1/8 - 1/4 (0.220 mi.)***	***G35***	***37***

Lower Elevation	Address	Direction / Distance	Map ID	Page
ERA SUPPLY	***2020 TAYLOR ROAD***	***0 - 1/8 (0.000 mi.)***	***A2***	***9***
SHELL SERVICE STATION	***1813 TAYLOR RD***	***SSW 0 - 1/8 (0.027 mi.)***	***C12***	***17***
DAWSON MEL INC	***1450 ATLANTIC ST***	***SW 0 - 1/8 (0.100 mi.)***	***F25***	***25***

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 06/05/2014 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ROSEVILLE DISTRICT OFFICE	***6050 PACIFIC ST***	***NNE 1/2 - 1 (0.557 mi.)***	***45***	***62***
Status: Refer: Other Agency				

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
QUALL RESIDENCE	***6303 EMERALD DRIVE***	***NNW 1/2 - 1 (0.722 mi.)***	***46***	***75***
Status: No Further Action				

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 05/19/2014 has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BERRY STREET MALL - FINGERS LA	***N OF BERRY STREET W. OF***	***WSW 1/4 - 1/2 (0.498 mi.)***	***44***	***60***

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 06/16/2014 has revealed that there are 7 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ATLANTIC STREET OVERCROSSING	***ATLANTIC AVE***	***N 0 - 1/8 (0.007 mi.)***	***B11***	***17***
EXXON #7-0147	***6700 FIVE STAR BLVD***	***NW 1/4 - 1/2 (0.284 mi.)***	***I39***	***46***
Status: Completed - Case Closed				
CHEVRON STATION NO 201164	***6555 FAIRWAY DR***	***NW 1/4 - 1/2 (0.416 mi.)***	***42***	***52***
Status: Completed - Case Closed				

Lower Elevation	Address	Direction / Distance	Map ID	Page
VENTURE OUT	***2020 TAYLOR RD***	***0 - 1/8 (0.000 mi.)***	***A1***	***8***
Status: Completed - Case Closed				
ROSEVILLE RAEDY MIX PLANT	***721 BERRY STREET***	***SW 1/4 - 1/2 (0.264 mi.)***	***J36***	***41***
ROSEVILLE READY MIX	***721 BERRY ST***	***SW 1/4 - 1/2 (0.264 mi.)***	***J37***	***44***
Status: Completed - Case Closed				
ATLANTIC ST CAR WASH	***909 ATLANTIC AVE***	***SW 1/4 - 1/2 (0.493 mi.)***	***43***	***58***
Status: Completed - Case Closed				

SLIC: SLIC Region comes from the California Regional Water Quality Control Board.

A review of the SLIC list, as provided by EDR, and dated 06/16/2014 has revealed that there are 3 SLIC sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BULJAN GASOLINE SPILL Facility Status: Open - Verification Monitoring	111 WILLS RD	SW 1/8 - 1/4 (0.183 mi.)	H29	29
BULJAN ADJACENT PROPERTIES DIE Facility Status: Open - Remediation	121 WILLS RD	SW 1/8 - 1/4 (0.200 mi.)	H31	31
CAPITAL DRUM FACILITY Facility Status: Open - Inactive	***749 GALLERIA BOULEVARD***	***SW 1/4 - 1/2 (0.276 mi.)***	***J38***	***45***

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, and dated 06/16/2014 has revealed that there are 2 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WAL-MART #1988	6850 FIVE STAR BLVD	NW 0 - 1/8 (0.042 mi.)	D15	21

Lower Elevation	Address	Direction / Distance	Map ID	Page
TAYLOR ROAD SHELL	1813 TAYLOR RD.	SSW 0 - 1/8 (0.027 mi.)	C13	20

AST: A listing of aboveground storage tank petroleum storage tank locations.

A review of the AST list, as provided by EDR, and dated 08/01/2009 has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FUTURE FORD FLEET SERVICE	3020 TAYLOR RD.	0 - 1/8 (0.000 mi.)	B4	12

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 06/16/2014 has revealed that there are 2 SWRCY sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NEXCYCLE	***6750 STANFORD RANCH RD***	***NW 1/8 - 1/4 (0.208 mi.)***	***I32***	***32***

Lower Elevation	Address	Direction / Distance	Map ID	Page
ROSEVILLE RECYCLING	451 BERRY ST	SW 1/4 - 1/2 (0.407 mi.)	41	51

WMUDS/SWAT: The Waste Management Unit Database System is used for program tracking and inventory of waste management units. The source is the State Water Resources Control Board.

A review of the WMUDS/SWAT list, as provided by EDR, and dated 04/01/2000 has revealed that there is 1 WMUDS/SWAT site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ROSEVILLE LANDFILL	***BERRY RD***	***SSW 1/4 - 1/2 (0.400 mi.)***	***40***	***49***

Local Lists of Registered Storage Tanks

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 3 HIST UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ALTA SIERRA SERVICES	2020 TAYLOR RD	0 - 1/8 (0.000 mi.)	A3	11
VENTURE OUT RECREATIONAL VEHIC	2020 TAYLOR RD	0 - 1/8 (0.000 mi.)	A9	16
LATHAM LUMBER SALES	1460 ATLANTIC ST.	SW 1/8 - 1/4 (0.130 mi.)	F27	27

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WALMART #1988	***6850 FIVE STAR BLVD***	***NW 0 - 1/8 (0.042 mi.)***	***D14***	***20***

Other Ascertainable Records

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 5 HIST CORTESE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ATLANTIC STREET OVERCROSSING	***ATLANTIC AVE***	***N 0 - 1/8 (0.007 mi.)***	***B11***	***17***
EXXON #7-0147	***6700 FIVE STAR BLVD***	***NW 1/4 - 1/2 (0.284 mi.)***	***I39***	***46***

Lower Elevation	Address	Direction / Distance	Map ID	Page
VENTURE OUT	***2020 TAYLOR RD***	***0 - 1/8 (0.000 mi.)***	***A1***	***8***
ROSEVILLE READY MIX	***721 BERRY ST***	***SW 1/4 - 1/2 (0.264 mi.)***	***J37***	***44***
ATLANTIC ST CAR WASH	***909 ATLANTIC AVE***	***SW 1/4 - 1/2 (0.493 mi.)***	***43***	***58***

CA PLACER CO. MS: Placer County Master List of Facilities includes Aboveground Hazardous Material tanks, Underground Storage tanks, Site Clean-up sites.

A review of the CA PLACER CO. MS list, as provided by EDR, and dated 06/09/2014 has revealed that there are 3 CA PLACER CO. MS sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WALMART #1988	***6850 FIVE STAR BLVD***	***NW 0 - 1/8 (0.042 mi.)***	***D14***	***20***
FIVE STAR AUTO REPAIR & WASH	6818 FIVE STAR BLVD	NW 0 - 1/8 (0.061 mi.)	D17	22
ROCKLIN AUTOMOTIVE	6800 FIVE STAR BLVD	NW 0 - 1/8 (0.074 mi.)	D19	23

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

A review of the Notify 65 list, as provided by EDR, and dated 10/21/1993 has revealed that there is 1 Notify 65 site within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ARCO SERVICE STATION #1334	1632 DOUGLAS BOULEVARD	SSW 1/2 - 1 (0.924 mi.)	47	79

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 12 EDR US Hist Auto Stat sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	6818 FIVE STAR BLVD	NW 0 - 1/8 (0.061 mi.)	D16	21
Not reported	6814 FIVE STAR BLVD	NW 0 - 1/8 (0.064 mi.)	D18	22
Not reported	6800 FIVE STAR BLVD	NW 0 - 1/8 (0.074 mi.)	D20	23
Not reported	1250 PLUMBER WAY	NNE 0 - 1/8 (0.075 mi.)	E21	24
Not reported	1200 PLUMBER WAY	NNE 0 - 1/8 (0.076 mi.)	E22	24

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	1050 PLUMBER WAY	NNE 0 - 1/8 (0.078 mi.)	E23	24
Not reported	1101 PLUMBER WAY	NNE 0 - 1/8 (0.079 mi.)	E24	25

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	2020 TAYLOR RD	0 - 1/8 (0.000 mi.)	A6	14
Not reported	2010 TAYLOR RD	0 - 1/8 (0.000 mi.)	A7	14
Not reported	1300 E ROSEVILLE PKWY	0 - 1/8 (0.000 mi.)	8	15
Not reported	2018 TAYLOR RD	0 - 1/8 (0.000 mi.)	A10	16
Not reported	118 WILLS RD	SW 1/8 - 1/4 (0.198 mi.)	H30	30

EDR US Hist Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Cleaners list, as provided by EDR, has revealed that there are 2 EDR US Hist Cleaners sites within approximately 0.25 miles of the target property.

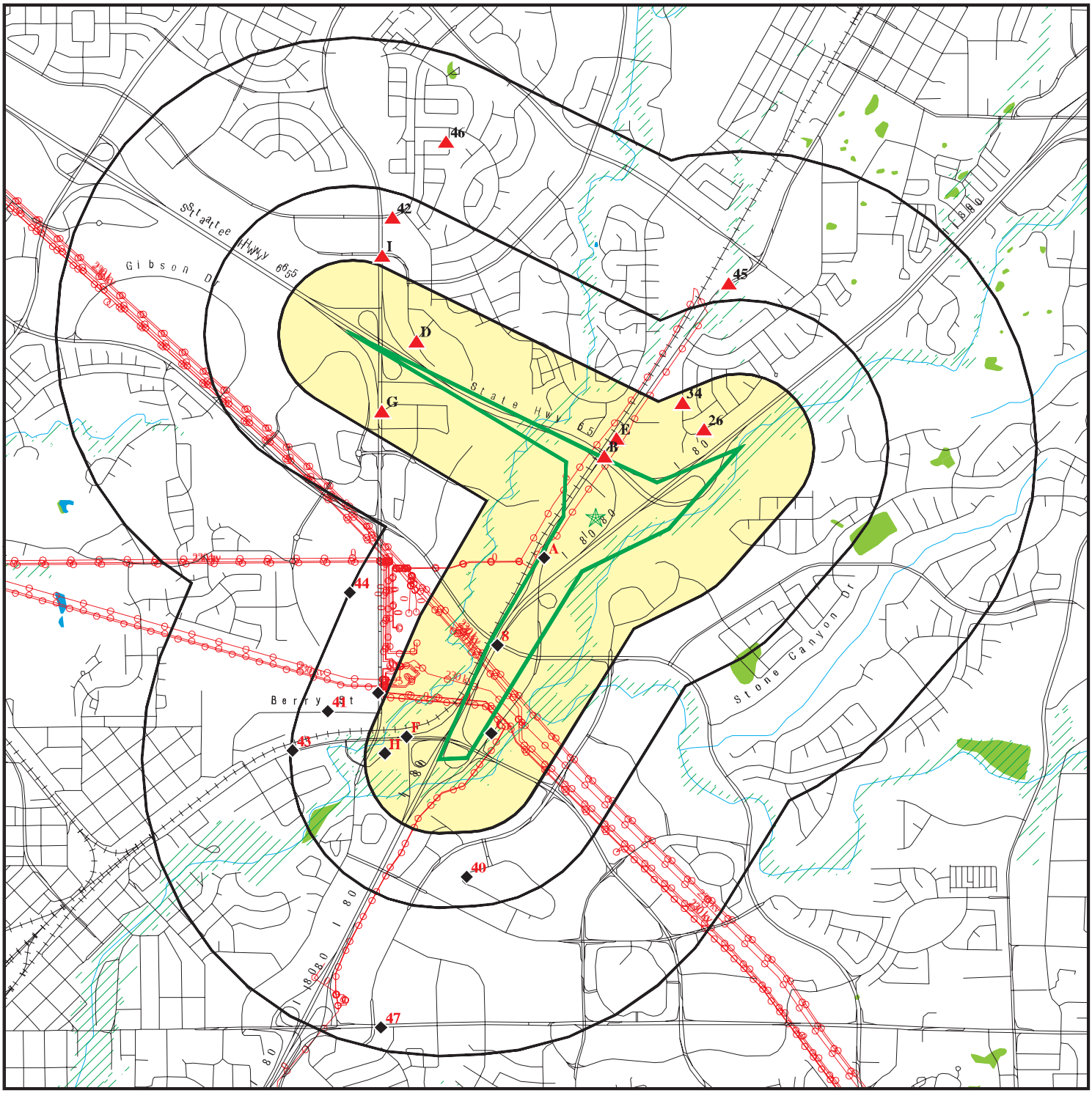
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	3125 WESTWOOD DR	NE 0 - 1/8 (0.105 mi.)	26	27
Not reported	6355 WESTWOOD DR	NE 1/8 - 1/4 (0.215 mi.)	34	36

EXECUTIVE SUMMARY

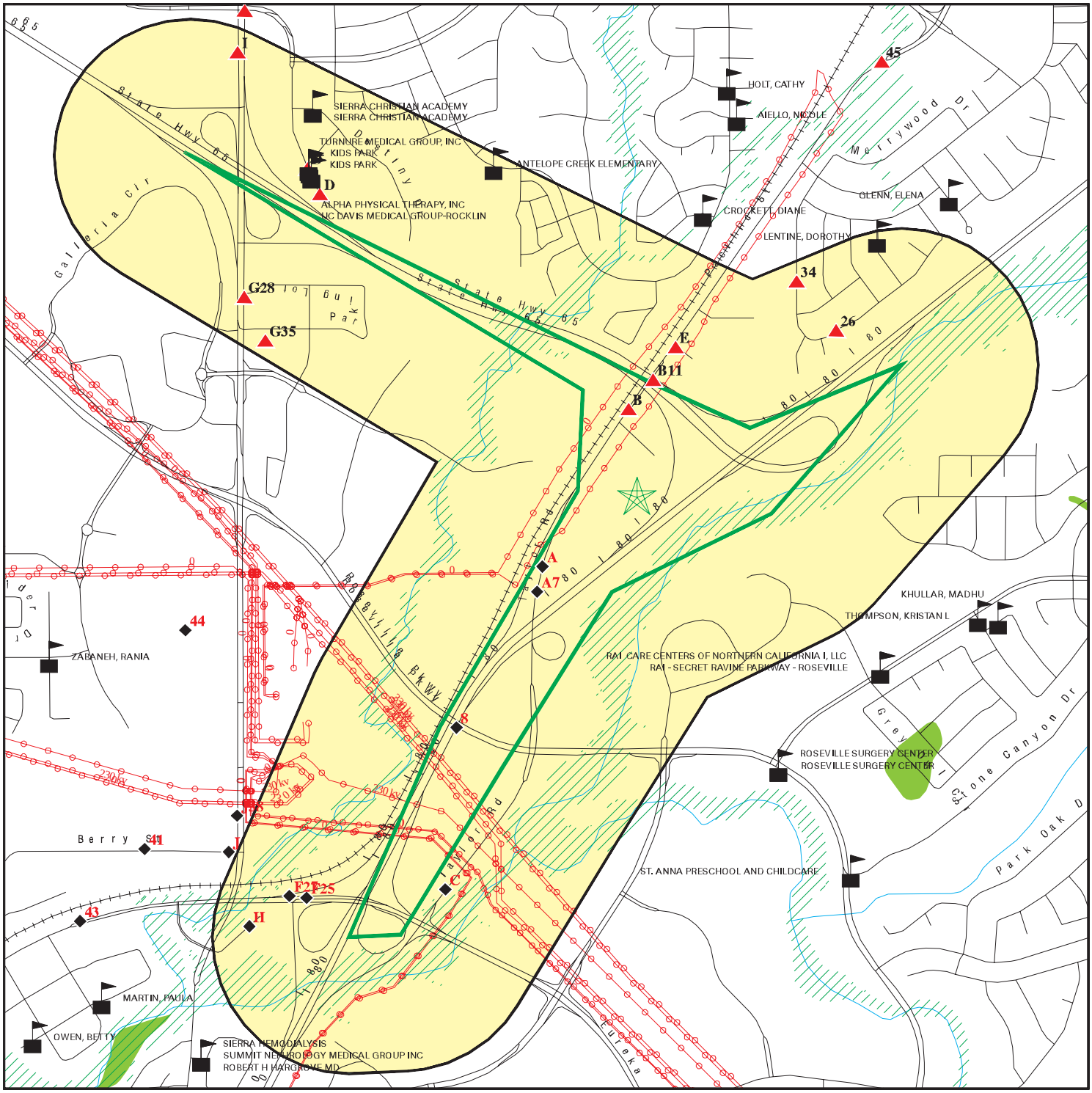
Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

Site Name	Database(s)
CITY6 OF ROCKLIN	FID,SWEEPS UST
EXXON SERVICE STATION/SWC STANDARD	FID,SWEEPS UST
ROSEVILLE CORP. YARD	FID,SWEEPS UST
LIFT STATION SEWER ASSESMENT D	FID,SWEEPS UST
ROSEVILLE DRUMS	CERCLIS-NFRAP
SOUTHERN PACIFIC (ROUNDHOUSE)	CERCLIS-NFRAP
ROCKLIN DUMP	CERCLIS-NFRAP
CAL TRANS WHITMORE	AST
SUNBELT RENTALS	AST
HERTZ EQUIPMENT RENTAL	AST
CHEVRON STATION NO 205777	FINDS,HAZNET,RCRA-SQG
TARGET STORE T2604	RCRA-SQG
WALMART SUPERCENTER NO 3587	RCRA-SQG
7 ELVEN 34671	RCRA-SQG
A TEICHERT AND SON INC	RCRA-SQG
AUTONATION MAZDA SUBARU	MS PLACER
GLADDING MCBEAN & CO	MINES
RMC PACIFIC MATERIALS	MINES
PLACER COUNTY INDUSTRIAL TREATMENT	ENVIROSTOR
SPENCE/VERMILLION TIRE FIRE	ENVIROSTOR

overview MAP - 4009326.1s


Gibson Dr
State Hwy 65
I 80
Stone Canyon Dr
Berry St
I 80
I 80
I 80

detail MAP - 4009326.1s


SIERRA CHRISTIAN ACADEMY
SIERRA CHRISTIAN ACADEMY
TURNURE MEDICAL GROUP, INC
KIDS PARK
KIDS PARK
ALPHA PHYSICAL THERAPY, INC
NC DAVIS MEDICAL GROUP-ROCKLIN
ANTELOPE CREEK ELEMENTARY
HOLT, CATHY
AIELLO, NICOLE
CROCKETT, DIANE
LENTINE, DOROTHY
GLENN, ELENA
KHULLAR, MADHU
THOMPSON, KRISTAN L
RAI CARE CENTERS OF NORTHERN CALIFORNIA I, LLC
RAI - SECRET RAVINE PARKWAY - ROSEVILLE
ROSEVILLE SURGERY CENTER
ROSEVILLE SURGERY CENTER
ST. ANNA PRESCHOOL AND CHILDCARE
ZABANEH, RANIA
MARTIN, PAULA
OWEN, BETTY
SIERRA HEMODIALYSIS
SUMMIT NEUROLOGY MEDICAL GROUP INC
ROBERT H HARGROVE MD
State Hwy 65
Galleria Cir
Destiny
Roseville Pkwy
Taylor Rd
Eureka
Merrywood Dr
Stone Canyon Dr
Park Oak D
Berry
I 80
I 80
I 80

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		4	3	NR	NR	NR	7
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	2	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	1	NR	NR	1
State and tribal leaking storage tank lists								
LUST	0.500		2	0	5	NR	NR	7

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	2	1	NR	NR	3
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		2	0	NR	NR	NR	2
AST	0.250		1	0	NR	NR	NR	1
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	1	1	NR	NR	2
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	1	NR	NR	1
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		2	1	NR	NR	NR	3
SWEEPS UST	0.250		1	0	NR	NR	NR	1
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		2	0	3	NR	NR	5
CA PLACER CO. MS	0.250		3	0	NR	NR	NR	3
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	0	1	NR	1
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		11	1	NR	NR	NR	12
EDR US Hist Cleaners	0.250		1	1	NR	NR	NR	2
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LUST	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **VENTURE OUT** **HIST CORTESE** **S103640227**
2020 TAYLOR RD **LUST** **N/A**
< 1/8 **ROSEVILLE, CA 95673**
1 ft.

Site 1 of 7 in cluster A

Relative:
Lower

Actual:
202 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	31
Reg By:	LTNKA
Reg Id:	310088

LUST:

Region:	STATE
Global Id:	T0606100072
Latitude:	38.7686
Longitude:	-121.253144
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	01/15/1992
Lead Agency:	ROSEVILLE, CITY OF
Case Worker:	Not reported
Local Agency:	ROSEVILLE, CITY OF
RB Case Number:	310088
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606100072
Contact Type:	Local Agency Caseworker
Contact Name:	THOMAS DODARO
Organization Name:	ROSEVILLE, CITY OF
Address:	401 OAK STREET
City:	ROSEVILLE
Email:	tdodaro@roseville.ca.us
Phone Number:	Not reported

Global Id:	T0606100072
Contact Type:	Regional Board Caseworker
Contact Name:	PAUL SANDERS
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	psanders@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0606100072
Status:	Completed - Case Closed
Status Date:	01/15/1992

Global Id:	T0606100072
Status:	Open - Site Assessment
Status Date:	07/23/1990

VENTURE OUT (Continued) **S103640227**

Global Id: T0606100072
Status: Open - Case Begin Date
Status Date: 06/08/1990

Regulatory Activities:
Global Id: T0606100072
Action Type: Other
Date: 01/01/1950
Action: Leak Discovery

Global Id: T0606100072
Action Type: Other
Date: 01/01/1950
Action: Leak Reported

LUST REG 5:
Region: 5
Status: Case Closed
Case Number: 310088
Case Type: Soil only
Substance: GASOLINE
Staff Initials: PRS
Lead Agency: Local
Program: LUST
MTBE Code: N/A

A2 **ERA SUPPLY** **RCRA-SQG 1000132932**
2020 TAYLOR ROAD **FINDS CAD982479990**
< 1/8 **ROSEVILLE, CA 95678**
1 ft.

Site 2 of 7 in cluster A

Relative: Lower

Actual: 202 ft.

RCRA-SQG:
Date form received by agency: 09/01/1996
Facility name: ERA SUPPLY
Facility address: 2020 TAYLOR ROAD
ROSEVILLE, CA 95678
EPA ID: CAD982479990
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: STEWART DAVID OWNER
Owner/operator address: NOT REQUIRED

ERA SUPPLY (Continued) **1000132932**

NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 07/15/1988
Facility name: ERA SUPPLY
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110055767825

Environmental Interest/Information System
Registry ID: 110002824506

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

ERA SUPPLY (Continued) **1000132932**

Registry ID: 110055779625

Environmental Interest/Information System
Registry ID: 110055695699

Environmental Interest/Information System

A3 **ALTA SIERRA SERVICES** **HIST UST** **1000143219**
2020 TAYLOR RD **N/A**
< 1/8 **ROSEVILLE, CA 95678**
1 ft.

Site 3 of 7 in cluster A

Relative: HIST UST:
Lower

Region:	STATE
Facility ID:	00000064213
Actual: Facility Type:	Other
202 ft. Other Type:	Not reported
Total Tanks:	0006
Contact Name:	ABOVE
Telephone:	9167823123
Owner Name:	FRANK ANDREWS JR.
Owner Address:	2020 TAYLOR RD.
Owner City,St,Zip:	ROSEVILLE, CA 95678
Tank Num:	001
Container Num:	PERKINS CA
Year Installed:	1971
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Tank Construction:	3/16 inches
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	1971
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Tank Construction:	3/16 inches
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	3
Year Installed:	1971
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Tank Construction:	3/16 inches
Leak Detection:	Stock Inventor
Tank Num:	004
Container Num:	4
Year Installed:	1971
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED

ALTA SIERRA SERVICES (Continued) **1000143219**

Tank Construction: 3/16 inches
Leak Detection: Stock Inventor

Tank Num: 005
Container Num: 5
Year Installed: 1971
Tank Capacity: 00001000
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: 3/16 unknown
Leak Detection: Stock Inventor

Tank Num: 006
Container Num: 6
Year Installed: 1971
Tank Capacity: 00001000
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: 3/16 inches
Leak Detection: Stock Inventor

B4 **FUTURE FORD FLEET SERVICE** **AST** **A100339413**
3020 TAYLOR RD. **N/A**
< 1/8 **ROSEVILLE, CA 95661**
1 ft.

Site 1 of 3 in cluster B

Relative:
Higher

Actual:
213 ft.

AST:
Owner: Future Ford Fleet Service
Total Gallons: 1,970
Certified Unified Program Agencies: Roseville

B5 **FUTURE FORD DETAIL SHOP** **RCRA-SQG** **1004677492**
3020 TAYLOR RD **FINDS** **CAR000097949**
< 1/8 **ROSEVILLE, CA 95661**
1 ft.

Site 2 of 3 in cluster B

Relative:
Higher

Actual:
213 ft.

RCRA-SQG:
Date form received by agency: 06/07/2001
Facility name: FUTURE FORD DETAIL SHOP
Facility address: 3020 TAYLOR RD
ROSEVILLE, CA 95661
EPA ID: CAR000097949
Mailing address: 650 AUTOMALL DR
ROSEVILLE, CA 95661
Contact: JIM QUENNAN
Contact address: 650 AUTOMALL DR
ROSEVILLE, CA 95661
Contact country: US
Contact telephone: (916) 786-3673
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of

FUTURE FORD DETAIL SHOP (Continued) **1004677492**

hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: WESTRUP INVESTMENTS
Owner/operator address: 650 AUTOMALL DR
ROSEVILLE, CA 95661
Owner/operator country: Not reported
Owner/operator telephone: (916) 786-3673
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Violation Status: No violations found

FINDS:

Registry ID: 110012202277

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of

FUTURE FORD DETAIL SHOP (Continued) **1004677492**

events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Registry ID: 110055853054

Environmental Interest/Information System

A6 **EDR US Hist Auto Stat** **1015308228**
2020 TAYLOR RD **N/A**
< 1/8 **ROSEVILLE, CA 95678**
1 ft.

Site 4 of 7 in cluster A

Relative: EDR Historical Auto Stations:
Lower

Actual: Name: SIERRA ALTA BODY SHOP
202 ft. Year: 1999
Address: 2020 TAYLOR RD

Name: SIERRA ALTA BODY SHOP
Year: 2000
Address: 2020 TAYLOR RD

Name: BODYCRAFT COLLISION CENTER
Year: 2006
Address: 2020 TAYLOR RD

Name: ALTA SIERRA BODY SHOP
Year: 2008
Address: 2020 TAYLOR RD

Name: ALTA SIERRA BODY SHOP
Year: 2009
Address: 2020 TAYLOR RD

Name: ALTA SIERRA BODY SHOP
Year: 2010
Address: 2020 TAYLOR RD

A7 **EDR US Hist Auto Stat** **1015306074**
2010 TAYLOR RD **N/A**
< 1/8 **ROSEVILLE, CA 95678**
1 ft.

Site 5 of 7 in cluster A

Relative: EDR Historical Auto Stations:
Lower

Actual: Name: MEINEKE DISCOUNT MUFFLERS
200 ft. Year: 2003
Address: 2010 TAYLOR RD

Name: MEINEKE CAR CARE CTR
Year: 2004
Address: 2010 TAYLOR RD

Name: DUSTY LICDBA MEINEKE DSCNT MFL

(Continued) **1015306074**

Year: 2006
Address: 2010 TAYLOR RD

Name: MEINEKE CAR CARE CENTER
Year: 2007
Address: 2010 TAYLOR RD

Name: MEINEKA CAR CARE CENTER
Year: 2009
Address: 2010 TAYLOR RD

Name: MEINEKE CAR CARE CTR
Year: 2010
Address: 2010 TAYLOR RD

---

8 **EDR US Hist Auto Stat** **1015201393**
1300 E ROSEVILLE PKWY **N/A**
< 1/8 **ROSEVILLE, CA 95661**
1 ft.

EDR Historical Auto Stations:

Relative: Name: TEXACO
Lower Year: 2001
Address: 1300 E ROSEVILLE PKWY

Actual:
196 ft.

Name: TEXACO
Year: 2002
Address: 1300 E ROSEVILLE PKWY

Name: THE ROSEVILLE STATION INC
Year: 2008
Address: 1300 E ROSEVILLE PKWY

Name: ROSEVILLE STATION THE INC
Year: 2009
Address: 1300 E ROSEVILLE PKWY

Name: ROSEVILLE STATION INC
Year: 2010
Address: 1300 E ROSEVILLE PKWY

Name: ROSEVILLE STATION THE INC
Year: 2011
Address: 1300 E ROSEVILLE PKWY

Name: ROSEVILLE STATION THE INC
Year: 2012
Address: 1300 E ROSEVILLE PKWY

A9 **VENTURE OUT RECREATIONAL VEHIC** **HIST UST** **U001613897**
2020 TAYLOR RD **N/A**
< 1/8 **ROSEVILLE, CA 95678**
1 ft.

Site 6 of 7 in cluster A

Relative:
Lower

Actual:
202 ft.

HIST UST:

Region:	STATE
Facility ID:	00000015491
Facility Type:	Other
Other Type:	R.V. SALES & SERVICE
Total Tanks:	0001
Contact Name:	Not reported
Telephone:	9167823178
Owner Name:	FRANK & LOUISE ANDREWS
Owner Address:	1710 DOUGLAS BLVD.
Owner City,St,Zip:	ROSEVILLE, CA 95678
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Tank Construction:	Not reported
Leak Detection:	Stock Inventor

A10 **EDR US Hist Auto Stat** **1015307104**
2018 TAYLOR RD **N/A**
< 1/8 **ROSEVILLE, CA 95678**
1 ft.

Site 7 of 7 in cluster A

Relative:
Lower

Actual:
201 ft.

EDR Historical Auto Stations:

Name:	COOKS COLLISION
Year:	2003
Address:	2018 TAYLOR RD
Name:	COOKS COLLISION OF ROSEVILLE
Year:	2004
Address:	2018 TAYLOR RD
Name:	COOKS COLLISION OF ROSEVILLE
Year:	2005
Address:	2018 TAYLOR RD
Name:	COOKS COLLISION OF ROSEVILLE
Year:	2006
Address:	2018 TAYLOR RD
Name:	COOKS COLLISION OF ROSEVILLE
Year:	2007
Address:	2018 TAYLOR RD
Name:	COOKS COLLISION OF ROSEVILLE
Year:	2008
Address:	2018 TAYLOR RD
Name:	COOKS COLLISION OF ROSEVILLE
Year:	2009

(Continued) **1015307104**

Address: 2018 TAYLOR RD

Name: COOKS COLLISION OF ROSEVILLE
Year: 2010
Address: 2018 TAYLOR RD

Name: COOKS COLLISION
Year: 2011
Address: 2018 TAYLOR RD

Name: COOKS COLLISION
Year: 2012
Address: 2018 TAYLOR RD

B11 **ATLANTIC STREET OVERCROSSING** **HIST CORTESE** **S100273674**
North **ATLANTIC AVE** **LUST** **N/A**
< 1/8 **ROSEVILLE, CA 95678**
0.007 mi.
35 ft. **Site 3 of 3 in cluster B**

Relative:
Higher

Actual:
217 ft.

HIST CORTESE:
Region: CORTESE
Facility County Code: 31
Reg By: LTNKA
Reg Id: 310107

LUST REG 5:
Region: 5
Status: Case Closed
Case Number: 310107
Case Type: Soil only
Substance: GASOLINE
Staff Initials: PRS
Lead Agency: Regional
Program: LUST
MTBE Code: N/A

C12 **SHELL SERVICE STATION** **RCRA-SQG** **1005904551**
SSW **1813 TAYLOR RD** **FINDS** **CAR000127670**
< 1/8 **ROSEVILLE, CA** **HAZNET**
0.027 mi.
142 ft. **Site 1 of 2 in cluster C**

Relative:
Lower

Actual:
176 ft.

RCRA-SQG:
Date form received by agency: 09/03/2002
Facility name: SHELL SERVICE STATION
Facility address: 1813 TAYLOR RD
S A P 135832
ROSEVILLE, CA 95678
EPA ID: CAR000127670
Mailing address: P O BOX 2648
HOUSTON, TX 772522648
Contact: SONDRA BIENVENU
Contact address: P O BOX 2648
HOUSTON, TX 772522648
Contact country: US

SHELL SERVICE STATION (Continued) **1005904551**

Contact telephone: (713) 241-5036
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: EQUILON ENTERPRISES LLC DBA
Owner/operator address: P O BOX 2648
HOUSTON, TX 77252
Owner/operator country: Not reported
Owner/operator telephone: (713) 241-5036
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D018
Waste name: BENZENE

Violation Status: No violations found

FINDS:

Registry ID: 110013305789

SHELL SERVICE STATION (Continued) **1005904551**

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

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Registry ID: 110055861367

Environmental Interest/Information System

HAZNET:

Year:	2004
Gepaid:	CAR000127670
Contact:	N CORTEZ/ENVT'L DATA ANALYST
Telephone:	2818742224
Mailing Name:	Not reported
Mailing Address:	12700 NORTHBOROUGH DRIVE MFT 240-G
Mailing City,St,Zip:	Houston, TX 770672508
Gen County:	Not reported
TSD EPA ID:	CAD982444481
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	0.2
Facility County:	Placer

Year:	2004
Gepaid:	CAR000127670
Contact:	N CORTEZ/ENVT'L DATA ANALYST
Telephone:	2818742224
Mailing Name:	Not reported
Mailing Address:	12700 NORTHBOROUGH DRIVE MFT 240-G
Mailing City,St,Zip:	Houston, TX 770672508
Gen County:	Not reported
TSD EPA ID:	CAD982444481
TSD County:	Not reported
Waste Category:	Other organic solids
Disposal Method:	Transfer Station
Tons:	0.03
Facility County:	Placer

Year:	2003
Gepaid:	CAR000127670
Contact:	N CORTEZ/ENVT'L DATA ANALYST
Telephone:	2818742224
Mailing Name:	Not reported
Mailing Address:	12700 NORTHBOROUGH DRIVE MFT 240-G
Mailing City,St,Zip:	Houston, TX 770672508
Gen County:	Not reported
TSD EPA ID:	CAD028409019

SHELL SERVICE STATION (Continued) **1005904551**

TSD County: Not reported
Waste Category: Other organic solids
Disposal Method: Not reported
Tons: 0.01
Facility County: Placer

Year: 2002
Gepaid: CAR000127670
Contact: N CORTEZ/ENVT'L DATA ANALYST
Telephone: 2818742224
Mailing Name: Not reported
Mailing Address: 12700 NORTHBOROUGH DRIVE MFT 240-G
Mailing City,St,Zip: Houston, TX 770672508
Gen County: Not reported
TSD EPA ID: CAD028409019
TSD County: Not reported
Waste Category: Unspecified organic liquid mixture
Disposal Method: Treatment, Tank
Tons: 0.45
Facility County: Placer

C13 **TAYLOR ROAD SHELL** **UST** **U003782321**
SSW **1813 TAYLOR RD.** **N/A**
< 1/8 **ROSEVILLE, CA 95661**
0.027 mi.
142 ft. **Site 2 of 2 in cluster C**

Relative:
Lower

Actual:
176 ft.

UST:
Facility ID: 31-015-071657
Latitude: 38.7601426
Longitude: -121.2575909
Permitting Agency ROSEVILLE, CITY OF

D14 **WALMART #1988** **CA PLACER CO. MS SWEEPS UST** **S103669065**
NW **6850 FIVE STAR BLVD** **N/A**
< 1/8 **ROCKLIN, CA 95677**
0.042 mi.
220 ft. **Site 1 of 7 in cluster D**

Relative:
Higher

Actual:
236 ft.

PLACER CO. MS:
Facility ID: FA0003009
Facility Status: Closed
Program Element Code: 2301
Program: UNDERGROUND STORAGE TANK - 1 TANK
Record Num: PR0004591
District Code: 18

Facility ID: FA0003009
Facility Status: Closed
Program Element Code: 2106
Program: HAZMAT - ABOVE GROUND WITH WASTE
Record Num: PR0004606
District Code: 18

Facility ID: FA0003009
Facility Status: Closed

WALMART #1988 (Continued) **S103669065**

Program Element Code: 2275
Program: LARGE QUANTITY GENERATOR
Record Num: PR0005893
District Code: 18

SWEEPS UST:
Status: Active
Comp Number: 3009
Number: 9
Board Of Equalization: Not reported
Referral Date: 04-07-93
Action Date: 05-24-94
Created Date: 05-24-94
Owner Tank Id: Not reported
SWRCB Tank Id: 31-000-003009-000001
Tank Status: A
Capacity: 1000
Active Date: 04-07-93
Tank Use: OIL
STG: W
Content: WASTE OIL
Number Of Tanks: 1

D15 **WAL-MART #1988** **UST** **U003942965**
NW **6850 FIVE STAR BLVD** **N/A**
< 1/8 **ROCKLIN, CA 95677**
0.042 mi.
220 ft. **Site 2 of 7 in cluster D**

Relative:
Higher

Actual:
236 ft.

UST:
Facility ID: FA0003009
Latitude: 38.77687
Longitude: -121.26302
Permitting Agency PLACER COUNTY

D16 **EDR US Hist Auto Stat** **1015599380**
NW **6818 FIVE STAR BLVD** **N/A**
< 1/8 **ROCKLIN, CA 95677**
0.061 mi.
323 ft. **Site 3 of 7 in cluster D**

Relative:
Higher

Actual:
233 ft.

EDR Historical Auto Stations:
Name: FIVE STAR TOUCHLESS WASH DETAIL & LUBE
Year: 2000
Address: 6818 FIVE STAR BLVD

Name: JKF AUTO SERVICE INC
Year: 2001
Address: 6818 FIVE STAR BLVD

Name: JKF AUTO SERVICE INC
Year: 2002
Address: 6818 FIVE STAR BLVD

Name: JKF AUTO SERVICE INC
Year: 2003

(Continued) **1015599380**

Address: 6818 FIVE STAR BLVD

Name: JKF AUTO SERVICE INC
Year: 2006
Address: 6818 FIVE STAR BLVD

Name: JKF AUTO SERVICE INC
Year: 2008
Address: 6818 FIVE STAR BLVD

Name: FIVE STAR AUTO REPAIR HANDWASH & DET
Year: 2011
Address: 6818 FIVE STAR BLVD

D17 **FIVE STAR AUTO REPAIR & WASH** **CA PLACER CO. MS** **S102852727**
NW **6818 FIVE STAR BLVD** **N/A**
< 1/8 **ROCKLIN, CA 95677**
0.061 mi.
323 ft. **Site 4 of 7 in cluster D**

Relative:
Higher

Actual:
233 ft.

PLACER CO. MS:
Facility ID: FA0003894
Facility Status: Active
Program Element Code: 2106
Program: HAZMAT - ABOVE GROUND WITH WASTE
Record Num: PR0005855
District Code: 18

Facility ID: FA0003894
Facility Status: Active
Program Element Code: 2270
Program: SMALL QUANTITY GENERATOR
Record Num: PR0008293
District Code: 18

D18 **EDR US Hist Auto Stat** **1015599264**
NW **6814 FIVE STAR BLVD** **N/A**
< 1/8 **ROCKLIN, CA 95677**
0.064 mi.
338 ft. **Site 5 of 7 in cluster D**

Relative:
Higher

Actual:
233 ft.

EDR Historical Auto Stations:
Name: FIVE STAR WASH DETAIL & LUBE
Year: 1999
Address: 6814 FIVE STAR BLVD

Name: FIVE STAR AUTO REPAIR & WASH
Year: 2001
Address: 6814 FIVE STAR BLVD

Name: FIVE STAR AUTO REPAIR & WASH
Year: 2004
Address: 6814 FIVE STAR BLVD

Name: FIVE STAR AUTO REPAIR & WASH
Year: 2005

(Continued) **1015599264**

Address: 6814 FIVE STAR BLVD

D19 **ROCKLIN AUTOMOTIVE** **CA PLACER CO. MS** **S105593065**
NW **6800 FIVE STAR BLVD** **N/A**
< 1/8 **ROCKLIN, CA 95746**
0.074 mi.
391 ft. **Site 6 of 7 in cluster D**

Relative:
Higher

Actual:
232 ft.

PLACER CO. MS:
Facility ID: FA0007998
Facility Status: Active
Program Element Code: 2106
Program: HAZMAT - ABOVE GROUND WITH WASTE
Record Num: PR0009003
District Code: 18

Facility ID: FA0007998
Facility Status: Active
Program Element Code: 2270
Program: SMALL QUANTITY GENERATOR
Record Num: PR0009684
District Code: 18

D20 **EDR US Hist Auto Stat** **1015598754**
NW **6800 FIVE STAR BLVD** **N/A**
< 1/8 **ROCKLIN, CA 95677**
0.074 mi.
391 ft. **Site 7 of 7 in cluster D**

Relative:
Higher

Actual:
232 ft.

EDR Historical Auto Stations:
Name: ROCKLIN TIRE & AUTO SERVICE
Year: 2003
Address: 6800 FIVE STAR BLVD

Name: ROCKLIN TIRE & AUTO SERVICE
Year: 2004
Address: 6800 FIVE STAR BLVD

Name: GOODYEAR TIRE CTR
Year: 2010
Address: 6800 FIVE STAR BLVD

Name: ROCKLIN AUTOMOTIVE
Year: 2012
Address: 6800 FIVE STAR BLVD

E21
NNE
< 1/8
0.075 mi.
396 ft.

1250 PLUMBER WAY
ROSEVILLE, CA 95678

Site 1 of 4 in cluster E

EDR US Hist Auto Stat **1015193200**
N/A

Relative:
Higher

Actual:
219 ft.

EDR Historical Auto Stations:

Name: TRI STAR MOTORSPORT
Year: 2007
Address: 1250 PLUMBER WAY

Name: TRI STAR MOTORSPORT
Year: 2008
Address: 1250 PLUMBER WAY

Name: TRI STAR MOTORSPORT
Year: 2009
Address: 1250 PLUMBER WAY

Name: TRI STAR MOTOR SPORTS
Year: 2010
Address: 1250 PLUMBER WAY

Name: TRI STAR MOTOR SPORTS
Year: 2011
Address: 1250 PLUMBER WAY

Name: TRI STAR MOTOR SPORTS
Year: 2012
Address: 1250 PLUMBER WAY

E22
NNE
< 1/8
0.076 mi.
400 ft.

1200 PLUMBER WAY
ROSEVILLE, CA 95678

Site 2 of 4 in cluster E

EDR US Hist Auto Stat **1015179215**
N/A

Relative:
Higher

Actual:
219 ft.

EDR Historical Auto Stations:

Name: LUXURY AUTO CARE
Year: 2011
Address: 1200 PLUMBER WAY

Name: LUXURY AUTO CARE
Year: 2012
Address: 1200 PLUMBER WAY

E23
NNE
< 1/8
0.078 mi.
413 ft.

1050 PLUMBER WAY
ROSEVILLE, CA 95678

Site 3 of 4 in cluster E

EDR US Hist Auto Stat **1015139865**
N/A

Relative:
Higher

Actual:
220 ft.

EDR Historical Auto Stations:

Name: SCOTTYS AUTOMOTIVE INC
Year: 2002
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMOTIVE INC

(Continued) **1015139865**

Year: 2003
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMOTIVE INC
Year: 2004
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMOTIVE INC
Year: 2006
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMOTIVE INC
Year: 2007
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMOTIVE INC
Year: 2008
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMOTIVE INC
Year: 2009
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMOTIVE INC
Year: 2010
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMITIVE INC
Year: 2011
Address: 1050 PLUMBER WAY

Name: SCOTTYS AUTOMOTIVE INC
Year: 2012
Address: 1050 PLUMBER WAY

E24 **EDR US Hist Auto Stat** **1015153495**
NNE **1101 PLUMBER WAY** **N/A**
< 1/8 **ROSEVILLE, CA 95678**
0.079 mi.
419 ft. **Site 4 of 4 in cluster E**

Relative:
Higher

EDR Historical Auto Stations:
Name: RICKS GOLD CNTRY TIRE & WHL
Year: 2002
Address: 1101 PLUMBER WAY

Actual:
220 ft.

F25 **DAWSON MEL INC** **RCRA-SQG** **1000385067**
SW **1450 ATLANTIC ST** **FINDS** **CAD096906839**
< 1/8 **ROSEVILLE, CA**
0.100 mi.
526 ft. **Site 1 of 2 in cluster F**

Relative:
Lower

RCRA-SQG:
Date form received by agency: 09/01/1996
Facility name: DAWSON MEL INC
Facility address: 1450 ATLANTIC ST

Actual:
177 ft.

DAWSON MEL INC (Continued) **1000385067**

ROSEVILLE, CA 95678
EPA ID: CAD096906839
Mailing address: 1450 ATLANTIC STREET
ROSEVILLE, CA 95678
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: Not reported
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: MEL DAWSON INCORPORATED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

DAWSON MEL INC (Continued) **1000385067**

Historical Generators:
Date form received by agency: 08/18/1980
Facility name: DAWSON MEL INC
Classification: Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 03/15/1984
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110002665241

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

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26 **EDR US Hist Cleaners** **1015040930**
NE **3125 WESTWOOD DR** **N/A**
< 1/8 **ROCKLIN, CA 95677**
0.105 mi.
552 ft.

Relative: **Higher**

Actual: **237 ft.**

EDR Historical Cleaners:
Name: WORKING CLEANERS
Year: 2004
Address: 3125 WESTWOOD DR

F27 **LATHAM LUMBER SALES** **HIST UST** **U001613843**
SW **1460 ATLANTIC ST.** **N/A**
1/8-1/4 **ROSEVILLE, CA 95678**
0.130 mi.
685 ft. **Site 2 of 2 in cluster F**

Relative: **Lower**

Actual: **172 ft.**

HIST UST:
Region: STATE
Facility ID: 00000047602
Facility Type: Other
Other Type: RETAIL LUMBER
Total Tanks: 0002
Contact Name: CHARLES MARSHALL
Telephone: 9167821266
Owner Name: LATHAM LUMBER SALES
Owner Address: 1460 ATLANTIC ST.
Owner City,St,Zip: ROSEVILLE, CA 95678

LATHAM LUMBER SALES (Continued) **U001613843**

Tank Num: 001
Container Num: #1
Year Installed: 1973
Tank Capacity: 00012000
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Tank Construction: Not reported
Leak Detection: Visual, Stock Inventor

Tank Num: 002
Container Num: #2
Year Installed: 1973
Tank Capacity: 00012000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: Visual, Stock Inventor

G28 **KIDDIE KANDIDS NO 00552** **RCRA-SQG** **1010313769**
WNW **1248 GALLERIA BLVD** **CAR000177816**
1/8-1/4 **ROSEVILLE, CA 95678**
0.172 mi.
906 ft. **Site 1 of 2 in cluster G**

Relative:
Higher

Actual:
227 ft.

RCRA-SQG:
Date form received by agency: 09/29/2006
Facility name: KIDDIE KANDIDS NO 00552
Facility address: 1248 GALLERIA BLVD
ROSEVILLE, CA 95678
EPA ID: CAR000177816
Contact: CLINT W EASTMAN
Contact address: 1248 GALLERIA BLVD
ROSEVILLE, CA 95678
Contact country: US
Contact telephone: 916-783-8255
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: TOYS R US
Owner/operator address: ONE GEOFFREY WAY
WAYNE, NJ 95678
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 08/08/2006
Owner/Op end date: Not reported

Owner/operator name: TOYS R US
Owner/operator address: Not reported

KIDDIE KANDIDS NO 00552 (Continued) **1010313769**

Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 08/08/2006
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:
Waste code: D011
Waste name: SILVER

Violation Status: No violations found

H29 **BULJAN GASOLINE SPILL** **SLIC** **S106483875**
SW **111 WILLS RD** **N/A**
1/8-1/4 **ROSEVILLE, CA**
0.183 mi.
966 ft. **Site 1 of 3 in cluster H**

Relative:
Lower

Actual:
167 ft.

SLIC:
Region: STATE
Facility Status: **Open - Verification Monitoring**
Status Date: 09/16/2008
Global Id: SL186453615
Lead Agency: CENTRAL VALLEY RWQCB (REGION 5S)
Lead Agency Case Number: Not reported
Latitude: 38.7565974471455
Longitude: -121.265169382095
Case Type: Cleanup Program Site
Case Worker: KAS
Local Agency: Not reported
RB Case Number: SL186453615
File Location: Regional Board
Potential Media Affected: Not reported
Potential Contaminants of Concern: * Petroleum - Automotive gasolines
Site History: The Site is about 14 acres and is comprised of a small upper plateau and a lower undeveloped plain about 13 feet lower than the upper plateau. The Site operated as a petroleum storage and distribution facility from 1940 until the late 1980s. In 1960, the Buljan family purchased the Site, which consisted of six aboveground storage tanks

BULJAN GASOLINE SPILL (Continued) **S106483875**

(AGTs), a loading rack, and associated aboveground piping. A Site plan is shown on Figure 1. On 22 February 1984, an Olympian tanker truck released about 1,500 gallons of gasoline in the western portion of the Site. According to a June 1988 report, gasoline flowed to the east across the Site and down the slope to the lower plain. Roseville Fire Department personnel responded to the spill and constructed an earthen dam on the lower plain downgradient of the spill to prevent gasoline from entering nearby Dry Creek. No other remedial activities were conducted. On 2 April 1986, a Wickland tanker truck spilled about 300 gallons of gasoline. The spill occurred in the western portion of the Site and was reportedly confined to the Site. Wickland excavated an unknown quantity of soil following the release. In 1999, Amerco Real Estate Company/U-Haul International, Inc. (Amerco) purchased the property. U-Haul currently occupies the upper plateau, and the lower plain is undeveloped. Amerco is currently monitoring the Site for a diesel plume associated with the former Buljan operations.

Click here to access the California GeoTracker records for this facility:

H30 **EDR US Hist Auto Stat** **1015173997**
SW **118 WILLS RD** **N/A**
1/8-1/4 **ROSEVILLE, CA 95678**
0.198 mi.
1044 ft. **Site 2 of 3 in cluster H**

Relative:
Lower

Actual:
165 ft.

EDR Historical Auto Stations:

Name:	FRATCHER AUTO BODY
Year:	1999
Address:	118 WILLS RD
Name:	FRATCHER AUTO BODY
Year:	2000
Address:	118 WILLS RD
Name:	FRATCHER AUTO BODY
Year:	2001
Address:	118 WILLS RD
Name:	FRATCHER AUTO BODY
Year:	2002
Address:	118 WILLS RD
Name:	FRATCHER AUTO BODY
Year:	2003
Address:	118 WILLS RD
Name:	FRATCHER AUTO BODY INC
Year:	2004
Address:	118 WILLS RD
Name:	FRATCHER AUTO BODY INC
Year:	2006
Address:	118 WILLS RD
Name:	FRATCHER AUTO BODY INC
Year:	2007
Address:	118 WILLS RD

(Continued) **1015173997**

Name: FRATCHER AUTO BODY INC
Year: 2008
Address: 118 WILLS RD

Name: FRATCHER AUTO BODY INC
Year: 2009
Address: 118 WILLS RD

Name: FRATCHER AUTO BODY INC
Year: 2011
Address: 118 WILLS RD

Name: FRATCHER AUTO BODY
Year: 2012
Address: 118 WILLS RD

H31 **BULJAN ADJACENT PROPERTIES DIESEL SPILL** **SLIC** **S106483866**
SW **121 WILLS RD** **N/A**
1/8-1/4 **ROSEVILLE, CA**
0.200 mi.
1055 ft. **Site 3 of 3 in cluster H**

Relative:
Lower

Actual:
165 ft.

SLIC:

Region:	STATE
Facility Status:	**Open - Remediation**
Status Date:	11/30/2012
Global Id:	SL186252982
Lead Agency:	CENTRAL VALLEY RWQCB (REGION 5S)
Lead Agency Case Number:	Not reported
Latitude:	38.757195647919
Longitude:	-121.265394687653
Case Type:	Cleanup Program Site
Case Worker:	KAS
Local Agency:	Not reported
RB Case Number:	SL186252982
File Location:	Regional Board
Potential Media Affected:	Other Groundwater (uses other than drinking water), Soil
Potential Contaminants of Concern:	* Petroleum - Diesel fuels
Site History:	Buljan Petroleum Products (Buljan) operated a petroleum storage and distribution facility at the Site from about 1940 until the late 1980s. Buljan had six aboveground storage tanks (AGTs) and associated piping at the Site. The Site is about 14 acres comprised of a small plateau and a lower undeveloped plain about 13 feet lower than the plateau. U-Haul has four buildings on the upper plateau. The Site is bounded on the east by the access ramp to Interstate 80 and on the north by the Atlantic Street and Harding Boulevard overpass. Dry Creek, a westward flowing creek, is along the southern property boundary. In 1999, Amerco, the parent company of U-Haul, purchased the property.

Click here to access the California GeoTracker records for this facility:

I32 **NEXCYCLE** **SWRCY** **S103958694**
NW **6750 STANFORD RANCH RD** **CHMIRS** **N/A**
1/8-1/4 **ROSEVILLE, CA 95678**
0.208 mi.
1100 ft. **Site 1 of 3 in cluster I**

Relative:
Higher

Actual:
230 ft.

SWRCY:

Reg Id:	25504
Cert Id:	RC13297
Mailing Address:	9910 E 6th St
Mailing City:	Rancho Cucamonga
Mailing State:	CA
Mailing Zip Code:	91730
Website:	Not reported
Phone Number:	(408) 501-8876
Grand Father:	N
Rural:	N
Operation Begin Date:	04/21/2007
Aluminium:	Y
Glass:	Y
Plastic:	Y
Bimetal:	Y
Agency:	N/A
Monday Hours Of Operation:	CLOSED
Tuesday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Wednesday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Thursday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Friday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Saturday Hours Of Operation:	9:30 am - 4:00 pm; Closed 1:00 pm - 1:30 pm
Sunday Hours Of Operation:	CLOSED
Cert Status:	Operational
Organization ID:	18826
Organization Name:	Contain-A-Way Inc
Agency Reg ID:	N/A
Operation End Date:	Not reported

CHMIRS:

OES Incident Number:	97-0601
OES notification:	02/10/1997
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported

NEXCYCLE (Continued) **S103958694**

Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Not possible
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	1997
Agency:	Roseville Fd
Incident Date:	1/2/199712:00:00 AM
Admin Agency:	Roseville Fire Department
Amount:	Not reported
Contained:	Yes
Site Type:	Other
E Date:	Not reported
Substance:	Freon 22
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	0.000000
Grams:	0
Pounds:	200
Liters:	0
Ounces:	0
Pints:	0
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	Compressor gasket blown., store evacuated of aprox 200 people, all returned.
OES Incident Number:	'12-7065
OES notification:	11/23/2012
OES Date:	Not reported

NEXCYCLE (Continued) **S103958694**

OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Merchant/Business
Cleanup By:	Unrecoverable
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Lbs.
Other:	Not reported
Date/Time:	2343
Year:	2012
Agency:	Roseville Fire
Incident Date:	11/22/2012
Admin Agency:	Roseville Fire Department
Amount:	Not reported
Contained:	Yes
Site Type:	Not reported
E Date:	Not reported
Substance:	Freon
Quantity Released:	up to 1,500
BBLS:	Not reported
Cups:	Not reported
CUFT:	Not reported

NEXCYCLE (Continued) **S103958694**

Gallons:	Not reported
Grams:	Not reported
Pounds:	Not reported
Liters:	Not reported
Ounces:	Not reported
Pints:	Not reported
Quarts:	Not reported
Sheen:	Not reported
Tons:	Not reported
Unknown:	Not reported
Evacuations:	2 employees
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
Description:	RP is reporting that a possible compressor failure caused the product to release via an emergency release line that runs up to the roof of the warehouse but there is some residual in the building although ventilation of the building is underway. The tank has a 1,500 lb capacity but it is unknown how much product was in the tank prior to the release.

I33 **COSTCO WHOLESALE NO 29** **RCRA-SQG** **1001075559**
NW **6750 STANFORD RANCH ROAD** **FINDS** **CAR000006478**
1/8-1/4 **ROSEVILLE, CA**
0.208 mi.
1100 ft. **Site 2 of 3 in cluster I**

Relative:
Higher

Actual:
230 ft.

RCRA-SQG:

Date form received by agency:	10/12/2000
Facility name:	COSTCO WHOLESALE NO 29
Site name:	COSTCO WHOLESALE #29
Facility address:	6750 STANFORD RANCH ROAD ROSEVILLE, CA 95678
EPA ID:	CAR000006478
Mailing address:	999 LAKE DR. ISSAQUAH, WA 98027
Contact:	SHAWN LUTTRELL
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	(425) 313-6772
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No

COSTCO WHOLESALE NO 29 (Continued) **1001075559**

Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	03/04/1999
Facility name:	COSTCO WHOLESALE NO 29
Site name:	ROSEVILLE #29
Classification:	Large Quantity Generator

Date form received by agency:	09/01/1996
Facility name:	COSTCO WHOLESALE NO 29
Classification:	Small Quantity Generator

Date form received by agency:	10/18/1995
Facility name:	COSTCO WHOLESALE NO 29
Classification:	Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110008285863

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

34
NE
1/8-1/4
0.215 mi.
1136 ft.

6355 WESTWOOD DR
ROCKLIN, CA 95677

EDR US Hist Cleaners **1015083573**
N/A

Relative:
Higher

Actual:
232 ft.

EDR Historical Cleaners:

Name:	BUSY BEE WINDOW WASHING
Year:	2006
Address:	6355 WESTWOOD DR

G35 WNW 1/8-1/4 0.220 mi. 1164 ft. **SHELL SERVICE STATION**
1216 GALLERIA BLVD
ROSEVILLE, CA 95678
Site 2 of 2 in cluster G

Database(s): RCRA-SQG, FINDS, HAZNET, EMI
EDR ID Number: 1005904553
EPA ID Number: CAR000127696

Relative: Higher

Actual: 230 ft.

RCRA-SQG:

Date form received by agency:	09/03/2002
Facility name:	SHELL SERVICE STATION
Facility address:	1216 GALLERIA BLVD S A P 165972 ROSEVILLE, CA 95678
EPA ID:	CAR000127696
Mailing address:	P O BOX 2648 HOUSTON, TX 772522648
Contact:	SONDRA BIENVENU
Contact address:	P O BOX 2648 HOUSTON, TX 772522648
Contact country:	US
Contact telephone:	(713) 241-5036
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	EQUILON ENTERPRISES LLC DBA
Owner/operator address:	P O BOX 2648 HOUSTON, TX 77252
Owner/operator country:	Not reported
Owner/operator telephone:	(713) 241-5036
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

SHELL SERVICE STATION (Continued) **1005904553**

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D018
Waste name: BENZENE

Violation Status: No violations found

FINDS:

Registry ID: 110013305823

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZNET:
Year: 2007
Gepaid: CAR000127696
Contact: R HULL/ENV. REPORTING ANALYST
Telephone: 2818742224
Mailing Name: Not reported
Mailing Address: 12700 NORTHBOROUGH DR 300G03
Mailing City,St,Zip: Houston, TX 770670000
Gen County: Not reported
TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Other organic solids
Disposal Method: Metals Recovery Including Retoring,Smelting,Chemicals,Ect
Tons: 0.13
Facility County: Placer

Year: 2006
Gepaid: CAR000127696
Contact: R HULL/ENV. REPORTING ANALYST
Telephone: 2818742224
Mailing Name: Not reported
Mailing Address: 12700 NORTHBOROUGH DR 300G03
Mailing City,St,Zip: Houston, TX 770670000
Gen County: Not reported

SHELL SERVICE STATION (Continued) **1005904553**

TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Other organic solids
Disposal Method: Recycler
Tons: 0.03
Facility County: Placer

Year: 2005
Gepaid: CAR000127696
Contact: N CORTEZ/ENVT'L DATA ANALYST
Telephone: 2818742224
Mailing Name: Not reported
Mailing Address: 12700 NORTHBOROUGH DRIVE MFT 240-G
Mailing City,St,Zip: Houston, TX 770672508
Gen County: Not reported
TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Other organic solids
Disposal Method: Recycler
Tons: 0.02
Facility County: Placer

Year: 2004
Gepaid: CAR000127696
Contact: N CORTEZ/ENVT'L DATA ANALYST
Telephone: 2818742224
Mailing Name: Not reported
Mailing Address: 12700 NORTHBOROUGH DRIVE MFT 240-G
Mailing City,St,Zip: Houston, TX 770672508
Gen County: Not reported
TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Aqueous solution with total organic residues less than 10 percent
Disposal Method: Treatment, Tank
Tons: 0
Facility County: Placer

Year: 2004
Gepaid: CAR000127696
Contact: N CORTEZ/ENVT'L DATA ANALYST
Telephone: 2818742224
Mailing Name: Not reported
Mailing Address: 12700 NORTHBOROUGH DRIVE MFT 240-G
Mailing City,St,Zip: Houston, TX 770672508
Gen County: Not reported
TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Other organic solids
Disposal Method: Recycler
Tons: 0.06
Facility County: Placer

Click this hyperlink while viewing on your computer to access
2 additional CA_HAZNET: record(s) in the EDR Site Report.

EMI:
Year: 2008

SHELL SERVICE STATION (Continued) **1005904553**

County Code:	31
Air Basin:	SV
Facility ID:	971
Air District Name:	PLA
SIC Code:	5541
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.7377055
Reactive Organic Gases Tons/Yr:	.73497598965
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2009
County Code:	31
Air Basin:	SV
Facility ID:	971
Air District Name:	PLA
SIC Code:	5541
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.69786499999999996
Reactive Organic Gases Tons/Yr:	0.69799999999999995
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2010
County Code:	31
Air Basin:	SV
Facility ID:	971
Air District Name:	PLA
SIC Code:	5541
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.44703999999999999
Reactive Organic Gases Tons/Yr:	0.44538595199999997
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2011
County Code:	31
Air Basin:	SV
Facility ID:	971
Air District Name:	PLA
SIC Code:	5541
Air District Name:	PLACER COUNTY APCD

SHELL SERVICE STATION (Continued) **1005904553**

Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.44704
Reactive Organic Gases Tons/Yr:	0.445385952
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2012
County Code:	31
Air Basin:	SV
Facility ID:	971
Air District Name:	PLA
SIC Code:	5541
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.44704
Reactive Organic Gases Tons/Yr:	0.445385952
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

J36 **ROSEVILLE RAEDY MIX PLANT** **LUST** **U001613417**
SW **721 BERRY STREET** **UST** **N/A**
1/4-1/2 **ROSEVILLE, CA 95678** **HIST UST**
0.264 mi. **SWEEPS UST**
1394 ft. **Site 1 of 3 in cluster J** **WDS**

Relative:
Lower

Actual:
194 ft.

LUST REG 5:

Region:	5
Status:	Case Closed
Case Number:	310169
Case Type:	Soil only
Substance:	DIESEL
Staff Initials:	PRS
Lead Agency:	Local
Program:	LUST
MTBE Code:	N/A

UST:

Facility ID:	31-015-002320
Latitude:	38.75942
Longitude:	-121.26613
Permitting Agency	ROSEVILLE, CITY OF

HIST UST:

Region:	STATE
Facility ID:	00000002320
Facility Type:	Other
Other Type:	READY MIX BATCH PLAN
Total Tanks:	0002
Contact Name:	JACK KROUSE

ROSEVILLE RAEDY MIX PLANT (Continued) **U001613417**

Telephone: 9167837132
Owner Name: A. TEICHERT AND SON, INC.
Owner Address: 3500 AMERICAN RIVER DR.
Owner City,St,Zip: SACRAMENTO, CA 95851

Tank Num: 001
Container Num: A51
Year Installed: Not reported
Tank Capacity: 00010000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Tank Construction: Not reported
Leak Detection: Stock Inventor

Tank Num: 002
Container Num: A52
Year Installed: Not reported
Tank Capacity: 00006000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Tank Construction: Not reported
Leak Detection: Stock Inventor

SWEEPS UST:
Status: Active
Comp Number: 2320
Number: 1
Board Of Equalization: Not reported
Referral Date: 03-10-92
Action Date: 03-10-92
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 31-015-002320-000003
Tank Status: A
Capacity: 12000
Active Date: 03-10-92
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: 1

Status: Not reported
Comp Number: 2320
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 31-015-002320-000001
Tank Status: Not reported
Capacity: 10000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: DIESEL
Number Of Tanks: 2

ROSEVILLE RAEDY MIX PLANT (Continued) **U001613417**

Status:	Not reported
Comp Number:	2320
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	31-015-002320-000002
Tank Status:	Not reported
Capacity:	6000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	Not reported

CA WDS:

Facility ID:	5S 31I004589
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion:	0
Facility Telephone:	9163866929
Facility Contact:	Roger Riott
Agency Name:	TEICHERT & SON INC
Agency Address:	PO BOX 15002
Agency City,St,Zip:	SACRAMENTO 958511002
Agency Contact:	Steve AZEVEDO
Agency Telephone:	9164843011
Agency Type:	Private
SIC Code:	0
SIC Code 2:	Not reported
Primary Waste Type:	Not reported
Primary Waste:	Not reported
Waste Type2:	Not reported
Waste2:	Not reported
Primary Waste Type:	Not reported
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	Not reported
POTW:	Not reported
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.

ROSEVILLE RAEDY MIX PLANT (Continued) **U001613417**

Complexity: Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

J37 **ROSEVILLE READY MIX** **NPDES** **S104163511**
SW **721 BERRY ST** **HIST CORTESE** **N/A**
1/4-1/2 **ROSEVILLE, CA 95678** **LUST**
0.264 mi.
1394 ft. **Site 2 of 3 in cluster J**

Relative:
Lower

Actual:
194 ft.

NPDES:

Npdes Number:	CAS000001
Facility Status:	Active
Agency Id:	0
Region:	5S
Regulatory Measure Id:	199189
Order No:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	5S31I004589
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	04/08/1992
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Teichert Readymix
Discharge Address:	PO BOX 15002
Discharge City:	Sacramento
Discharge State:	California
Discharge Zip:	95851

HIST CORTESE:

Region:	CORTESE
Facility County Code:	31
Reg By:	LTNKA
Reg Id:	310169

LUST:

Region:	STATE
Global Id:	T0606100138
Latitude:	38.7594169
Longitude:	-121.2668102
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	05/27/1993
Lead Agency:	ROSEVILLE, CITY OF
Case Worker:	Not reported
Local Agency:	ROSEVILLE, CITY OF
RB Case Number:	310169
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

ROSEVILLE READY MIX (Continued) **S104163511**

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606100138
Contact Type:	Local Agency Caseworker
Contact Name:	THOMAS DODARO
Organization Name:	ROSEVILLE, CITY OF
Address:	401 OAK STREET
City:	ROSEVILLE
Email:	tdodaro@roseville.ca.us
Phone Number:	Not reported

Global Id:	T0606100138
Contact Type:	Regional Board Caseworker
Contact Name:	PAUL SANDERS
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	psanders@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0606100138
Status:	Open - Site Assessment
Status Date:	03/19/1992

Global Id:	T0606100138
Status:	Completed - Case Closed
Status Date:	05/27/1993

Global Id:	T0606100138
Status:	Open - Case Begin Date
Status Date:	03/19/1992

Regulatory Activities:

Global Id:	T0606100138
Action Type:	Other
Date:	01/01/1950
Action:	Leak Discovery

Global Id:	T0606100138
Action Type:	Other
Date:	01/01/1950
Action:	Leak Reported

J38 **CAPITAL DRUM FACILITY** **NPDES S109932639**
SW **749 GALLERIA BOULEVARD** **SLIC N/A**
1/4-1/2 **ROSEVILLE, CA 95661**
0.276 mi.
1459 ft. **Site 3 of 3 in cluster J**

Relative:
Lower

Actual:
193 ft.

NPDES:

Npdes Number:	CAS000001
Facility Status:	Active
Agency Id:	0

CAPITAL DRUM FACILITY (Continued) **S109932639**

Region:	5S
Regulatory Measure Id:	407879
Order No:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	5S31I022849
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	09/27/2010
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Carlos Mosto
Discharge Address:	749 Galleria Blvd
Discharge City:	Roseville
Discharge State:	California
Discharge Zip:	95678

SLIC:

Region:	STATE
Facility Status:	**Open - Inactive**
Status Date:	09/20/2010
Global Id:	T10000002559
Lead Agency:	ROSEVILLE, CITY OF
Lead Agency Case Number:	Not reported
Latitude:	38.7614779
Longitude:	-121.267533
Case Type:	Cleanup Program Site
Case Worker:	Not reported
Local Agency:	PLACER COUNTY
RB Case Number:	Not reported
File Location:	Not reported
Potential Media Affected:	Not reported
Potential Contaminants of Concern:	Not reported
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

I39 **EXXON #7-0147** **HIST CORTESE** **S104579657**
NW **6700 FIVE STAR BLVD** **LUST** **N/A**
1/4-1/2 **ROCKLIN, CA 95677** **CA PLACER CO. MS**
0.284 mi. **EMI**
1497 ft. **Site 3 of 3 in cluster I**

Relative:
Higher

Actual:
244 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	31
Reg By:	LTNKA
Reg Id:	310352

LUST:

Region:	STATE
Global Id:	T0606100294
Latitude:	38.781435
Longitude:	-121.265022
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	01/03/2001

EXXON #7-0147 (Continued) **S104579657**

Lead Agency:	CENTRAL VALLEY RWQCB (REGION 5S)
Case Worker:	PRS
Local Agency:	PLACER COUNTY
RB Case Number:	310352
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606100294
Contact Type:	Regional Board Caseworker
Contact Name:	PAUL SANDERS
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	psanders@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0606100294
Contact Type:	Local Agency Caseworker
Contact Name:	WEST BOURGAULT
Organization Name:	PLACER COUNTY
Address:	3091 County Center Drive, Suite 180
City:	AUBURN
Email:	wbourgau@placer.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0606100294
Status:	Open - Case Begin Date
Status Date:	06/03/1998

Global Id:	T0606100294
Status:	Completed - Case Closed
Status Date:	01/03/2001

Global Id:	T0606100294
Status:	Open - Site Assessment
Status Date:	06/03/1998

Regulatory Activities:

Global Id:	T0606100294
Action Type:	ENFORCEMENT
Date:	09/27/2000
Action:	Staff Letter

Global Id:	T0606100294
Action Type:	ENFORCEMENT
Date:	01/03/2001
Action:	Closure/No Further Action Letter

Global Id:	T0606100294
Action Type:	Other

EXXON #7-0147 (Continued) **S104579657**

Date: 01/01/1950
Action: Leak Discovery

Global Id: T0606100294
Action Type: Other
Date: 01/01/1950
Action: Leak Reported

LUST REG 5:
Region: 5
Status: Case Closed
Case Number: 310352
Case Type: Drinking Water Aquifer affected
Substance: GASOLINE
Staff Initials: PRS
Lead Agency: Regional
Program: LUST
MTBE Code: 2

PLACER CO. MS:
Facility ID: FA0008239
Facility Status: Active
Program Element Code: 2303
Program: UNDERGROUND STORAGE TANKS - 3 TANKS
Record Num: PR0003845
District Code: 18

Facility ID: FA0008239
Facility Status: Active
Program Element Code: 2114
Program: AS/US HAZMAT - WITH WASTE =>20,000/MONTH
Record Num: PR0003846
District Code: 18

Facility ID: FA0008239
Facility Status: Active
Program Element Code: 2268
Program: CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR
Record Num: PR0008540
District Code: 18

EMI:
Year: 2008
County Code: 31
Air Basin: SV
Facility ID: 894
Air District Name: PLA
SIC Code: 5541
Air District Name: PLACER COUNTY APCD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: .70231
Reactive Organic Gases Tons/Yr: .699711453
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0

EXXON #7-0147 (Continued) **S104579657**

SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2009
County Code:	31
Air Basin:	SV
Facility ID:	894
Air District Name:	PLA
SIC Code:	5541
Air District Name:	PLACER COUNTY APCD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.30670500000000001
Reactive Organic Gases Tons/Yr:	0.307
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

40
SSW
1/4-1/2
0.400 mi.
2113 ft.

ROSEVILLE LANDFILL **WMUDS/SWAT** **S101612270**
BERRY RD **WDS** **N/A**
ROSEVILLE, CA 0

Relative:
Lower

Actual:
198 ft.

WMUDS/SWAT:

Edit Date:	Not reported
Complexity:	Category B - Any facility having a physical, chemical, or biological waste treatment system (except for septic systems with subsurface disposal), or any Class II or III disposal site, or facilities without treatment systems that are complex, such as marinas with petroleum products, solid wastes, and sewage pump out facilities.
Primary Waste:	SLDWST
Primary Waste Type:	Nonhazardous Solid Wastes/Influent or Solid Wastes that contain nonhazardous putrescible and non putrescible solid, semisolid, and liquid wastes (E.G., garbage, trash, refuse, paper, demolition and construction wastes, manure, vegetable or animal solid and semisolid waste).
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Base Meridian:	Not reported
NPID:	Not reported
Tonnage:	0
Regional Board ID:	Not reported
Municipal Solid Waste:	False
Superorder:	False
Open To Public:	False
Waste List:	False
Agency Type:	City
Agency Name:	ROSEVILLE, CITY OF
Agency Department:	Not reported
Agency Address:	2005 HILLTOP CIRCLE
Agency City,St,Zip:	ROSEVILLE CA 95747
Agency Contact:	TERRY BOSIK
Agency Telephone:	9167745754
Land Owner Name:	CITY OF ROSEVILLE

ROSEVILLE LANDFILL (Continued) **S101612270**

Land Owner Address: 316 VERNON STREET
Land Owner City,St,Zip: ROSEVILLE, CA 95678
Land Owner Contact: Not reported
Land Owner Phone: Not reported
Region: 5S
Facility Type: Solid Waste Site-Class III - Landfills for non hazardous solid wastes.
Facility Description: Not reported
Facility Telephone: Not reported
SWAT Facility Name: Not reported
Primary SIC: 4953
Secondary SIC: Not reported
Comments: Not reported
Last Facility Editors: Not reported
Waste Discharge System: True
Solid Waste Assessment Test Program: True
Toxic Pits Cleanup Act Program: False
Resource Conservation Recovery Act: False
Department of Defence: False
Solid Waste Assessment Test Program: CITY OF ROSEVILLE
Threat to Water Quality: Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Sub Chapter 15: True
Regional Board Project Officer: RDB
Number of WMUDS at Facility: 1
Section Range: Not reported
RCRA Facility: No
Waste Discharge Requirements: A
Self-Monitoring Rept. Frequency: Quarterly Submittal
Waste Discharge System ID: 5A310304001
Solid Waste Information ID: Not reported

CA WDS:
Facility ID: Sacramento River 310304001
Facility Type: Solid Waste Site-Class III - Landfills for non hazardous solid wastes.
Facility Status: Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number: Not reported
Subregion: 0
Facility Telephone: Not reported
Facility Contact: DERRICK WHITEHEAD
Agency Name: ROSEVILLE CITY OF 2
Agency Address: 2005 HILLTOP CIRCLE
Agency City,St,Zip: ROSEVILLE 95747
Agency Contact: ART OBRIEN
Agency Telephone: 9167745754
Agency Type: City
SIC Code: 4953
SIC Code 2: Not reported
Primary Waste Type: Nonhazardous Solid Wastes/Influent or Solid Wastes that contain nonhazardous putrescible and non putrescible solid, semisolid, and liquid wastes (E.G., garbage, trash, refuse, paper, demolition and construction wastes, manure, vegetable or animal solid and semisolid waste).
Primary Waste: SLDWST

ROSEVILLE LANDFILL (Continued) **S101612270**

Waste Type2:	Not reported
Waste2:	Solid Wastes
Primary Waste Type:	Nonhazardous Solid Wastes/Influent or Solid Wastes that contain nonhazardous putrescible and non putrescible solid, semisolid, and liquid wastes (E.G., garbage, trash, refuse, paper, demolition and construction wastes, manure, vegetable or animal solid and semisolid waste).
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	No reclamation requirements associated with this facility.
POTW:	The POTW Does not have an approved pretreatment program. Some POTWs may have local pretreatment programs that have not been approved by the regional board and/or EPA.
Treat To Water:	Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Complexity:	Category B - Any facility having a physical, chemical, or biological waste treatment system (except for septic systems with subsurface disposal), or any Class II or III disposal site, or facilities without treatment systems that are complex, such as marinas with petroleum products, solid wastes, and sewage pump out facilities.

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41 **ROSEVILLE RECYCLING** **SWRCY** **S107137796**
SW **451 BERRY ST** **N/A**
1/4-1/2 **ROSEVILLE, CA 95678**
0.407 mi.
2151 ft.

Relative:
Lower

Actual:
176 ft.

SWRCY:

Reg Id:	18700
Cert Id:	RC12847
Mailing Address:	255 Fig St
Mailing City:	Roseville
Mailing State:	CA
Mailing Zip Code:	95678
Website:	Not reported
Phone Number:	Not reported
Grand Father:	N
Rural:	N
Operation Begin Date:	12/01/2005
Aluminium:	Y
Glass:	Y
Plastic:	Y
Bimetal:	Y
Agency:	N/A
Monday Hours Of Operation:	10:00 am - 5:00 pm
Tuesday Hours Of Operation:	10:00 am - 5:00 pm
Wednesday Hours Of Operation:	CLOSED
Thursday Hours Of Operation:	10:00 am - 5:00 pm
Friday Hours Of Operation:	10:00 am - 5:00 pm
Saturday Hours Of Operation:	10:00 am - 5:00 pm
Sunday Hours Of Operation:	CLOSED
Cert Status:	Operational
Organization ID:	18700

ROSEVILLE RECYCLING (Continued) **S107137796**

Organization Name: Roseville Recycling
Agency Reg ID: N/A
Operation End Date: Not reported

42
NW
1/4-1/2
0.416 mi.
2197 ft.

CHEVRON STATION NO 201164
6555 FAIRWAY DR
ROCKLIN, CA 95677

RCRA-SQG **1006805177**
FINDS **CAR000124297**
LUST
CA PLACER CO. MS
HAZNET

Relative:
Higher

Actual:
225 ft.

RCRA-SQG:
Date form received by agency: 06/17/2002
Facility name: CHEVRON STATION NO 201164
Facility address: 6555 FAIRWAY DR
ROCKLIN, CA 956774791
EPA ID: CAR000124297
Mailing address: P O BOX 6004
SAN RAMON, CA 94583
Contact: KATHY NORRIS
Contact address: P O BOX 6004
SAN RAMON, CA 94583
Contact country: US
Contact telephone: (925) 842-5931
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: CHEVRON PRODUCTS CO
Owner/operator address: P O BOX 6004
SAN RAMON, CA 94583
Owner/operator country: Not reported
Owner/operator telephone: (925) 842-5931
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No

CHEVRON STATION NO 201164 (Continued) **1006805177**

Used oil transfer facility: No
Used oil transporter: No

Hazardous Waste Summary:
Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D018
Waste name: BENZENE

Violation Status: No violations found

FINDS:

Registry ID: 110013309552

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LUST:
Region: STATE
Global Id: T10000000340
Latitude: 38.7832271643554
Longitude: -121.265158653259
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 07/27/2011
Lead Agency: CENTRAL VALLEY RWQCB (REGION 5S)
Case Worker: PRS
Local Agency: Not reported
RB Case Number: 310419
LOC Case Number: Not reported
File Location: Regional Board
Potential Media Affect: Soil, Soil Vapor
Potential Contaminants of Concern: Diesel
Site History: The case was opened following an unauthorized release from an underground storage tank system at the subject site. Corrective action is underway as directed by the CVRWQCB. Corrective action may consist of preliminary site investigation, planning and implementation of remedial action, verification monitoring, or a

CHEVRON STATION NO 201164 (Continued) **1006805177**

combination thereof. A summary of the site history is available by clicking on either the "Cleanup Status History", "Regulatory Activities" or the "Site Maps/Documents" tab. For a complete site history the case file at the CVRWQCB should be consulted.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T10000000340
Contact Type:	Regional Board Caseworker
Contact Name:	PAUL SANDERS
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	psanders@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T10000000340
Status:	Open - Verification Monitoring
Status Date:	04/02/2009
Global Id:	T10000000340
Status:	Open - Assessment & Interim Remedial Action
Status Date:	09/11/2008
Global Id:	T10000000340
Status:	Completed - Case Closed
Status Date:	07/27/2011
Global Id:	T10000000340
Status:	Open - Case Begin Date
Status Date:	07/10/2008

Regulatory Activities:

Global Id:	T10000000340
Action Type:	ENFORCEMENT
Date:	10/29/2008
Action:	Staff Letter
Global Id:	T10000000340
Action Type:	ENFORCEMENT
Date:	08/20/2008
Action:	13267 Requirement
Global Id:	T10000000340
Action Type:	ENFORCEMENT
Date:	03/09/2011
Action:	Technical Correspondence / Assistance / Other
Global Id:	T10000000340
Action Type:	ENFORCEMENT
Date:	07/27/2011
Action:	Closure/No Further Action Letter
Global Id:	T10000000340
Action Type:	Other

CHEVRON STATION NO 201164 (Continued) **1006805177**

Date: 01/01/1950
Action: Leak Reported

Global Id: T10000000340
Action Type: ENFORCEMENT
Date: 02/24/2011
Action: Technical Correspondence / Assistance / Other

Global Id: T10000000340
Action Type: Other
Date: 01/01/1950
Action: Leak Discovery

Global Id: T10000000340
Action Type: RESPONSE
Date: 10/31/2008
Action: Other Report / Document

Global Id: T10000000340
Action Type: RESPONSE
Date: 04/10/2009
Action: Soil and Water Investigation Report

Global Id: T10000000340
Action Type: RESPONSE
Date: 04/15/2009
Action: Monitoring Report - Quarterly

Global Id: T10000000340
Action Type: RESPONSE
Date: 08/04/2008
Action: Preliminary Site Assessment Report

Global Id: T10000000340
Action Type: RESPONSE
Date: 09/22/2010
Action: Request for Closure

Global Id: T10000000340
Action Type: RESPONSE
Date: 10/15/2010
Action: Monitoring Report - Quarterly

Global Id: T10000000340
Action Type: RESPONSE
Date: 07/15/2010
Action: Monitoring Report - Quarterly

Global Id: T10000000340
Action Type: RESPONSE
Date: 10/15/2009
Action: Monitoring Report - Quarterly

Global Id: T10000000340
Action Type: ENFORCEMENT
Date: 12/29/2008
Action: Staff Letter

CHEVRON STATION NO 201164 (Continued) **1006805177**

Global Id: T10000000340
Action Type: RESPONSE
Date: 10/15/2008
Action: Soil and Water Investigation Workplan

Global Id: T10000000340
Action Type: ENFORCEMENT
Date: 05/11/2011
Action: Staff Letter

Global Id: T10000000340
Action Type: RESPONSE
Date: 01/15/2009
Action: Monitoring Report - Quarterly

Global Id: T10000000340
Action Type: RESPONSE
Date: 08/31/2011
Action: Well Destruction Report

Global Id: T10000000340
Action Type: RESPONSE
Date: 07/15/2009
Action: Monitoring Report - Quarterly

Global Id: T10000000340
Action Type: RESPONSE
Date: 01/15/2010
Action: Monitoring Report - Quarterly

Global Id: T10000000340
Action Type: RESPONSE
Date: 04/15/2010
Action: Monitoring Report - Quarterly

Global Id: T10000000340
Action Type: ENFORCEMENT
Date: 04/22/2010
Action: Technical Correspondence / Assistance / Other

Global Id: T10000000340
Action Type: ENFORCEMENT
Date: 07/23/2009
Action: Staff Letter

Global Id: T10000000340
Action Type: ENFORCEMENT
Date: 02/24/2011
Action: Technical Correspondence / Assistance / Other

PLACER CO. MS:
Facility ID: FA0003838
Facility Status: Active
Program Element Code: 2302
Program: UNDERGROUND STORAGE TANKS - 2 TANKS
Record Num: PR0005760

CHEVRON STATION NO 201164 (Continued) **1006805177**

District Code: 18

Facility ID: FA0003838
Facility Status: Active
Program Element Code: 2114
Program: AS/US HAZMAT - WITH WASTE =>20,000/MONTH
Record Num: PR0005761
District Code: 18

Facility ID: FA0003838
Facility Status: Active
Program Element Code: 2268
Program: CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR
Record Num: PR0009544
District Code: 18

HAZNET:
Year: 2009
Gepaid: CAR000124297
Contact: Kathy Norris
Telephone: 9258425931
Mailing Name: Not reported
Mailing Address: PO BOX 6004
Mailing City,St,Zip: San Ramon, CA 945830000
Gen County: Not reported
TSD EPA ID: CAD097030993
TSD County: Not reported
Waste Category: Alkaline solution without metals pH >= 12.5
Disposal Method: Discharge To Sewer/Potw Or Npdes(With Prior Storage--With Or Without Treatment)
Tons: 0.10425
Facility County: Placer

Year: 2008
Gepaid: CAR000124297
Contact: Kathy Norris
Telephone: 9258425931
Mailing Name: Not reported
Mailing Address: PO BOX 6004
Mailing City,St,Zip: San Ramon, CA 945830000
Gen County: Not reported
TSD EPA ID: CAD008302903
TSD County: Not reported
Waste Category: Aqueous solution with total organic residues less than 10 percent
Disposal Method: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 0.4284
Facility County: Placer

Year: 2008
Gepaid: CAR000124297
Contact: Kathy Norris
Telephone: 9258425931
Mailing Name: Not reported
Mailing Address: PO BOX 6004
Mailing City,St,Zip: San Ramon, CA 945830000
Gen County: Not reported

CHEVRON STATION NO 201164 (Continued) **1006805177**

TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Other organic solids
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.0375
Facility County: Placer

Year: 2008
Gepaid: CAR000124297
Contact: Kathy Norris
Telephone: 9258425931
Mailing Name: Not reported
Mailing Address: PO BOX 6004
Mailing City,St,Zip: San Ramon, CA 945830000
Gen County: Not reported
TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Other organic solids
Disposal Method: Other Treatment
Tons: 0.45
Facility County: Placer

Year: 2008
Gepaid: CAR000124297
Contact: Kathy Norris
Telephone: 9258425931
Mailing Name: Not reported
Mailing Address: PO BOX 6004
Mailing City,St,Zip: San Ramon, CA 945830000
Gen County: Not reported
TSD EPA ID: CAD044429835
TSD County: Not reported
Waste Category: Unspecified organic liquid mixture
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.102
Facility County: Placer

Click this hyperlink while viewing on your computer to access
5 additional CA_HAZNET: record(s) in the EDR Site Report.

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43 **ATLANTIC ST CAR WASH** **HIST CORTESE** **S103957264**
SW **909 ATLANTIC AVE** **LUST** **N/A**
1/4-1/2 **ROSEVILLE, CA 95678**
0.493 mi.
2603 ft.

Relative:
Lower

Actual:
175 ft.

HIST CORTESE:
Region: CORTESE
Facility County Code: 31
Reg By: LTNKA
Reg Id: 310165

LUST:
Region: STATE
Global Id: T0606100135

ATLANTIC ST CAR WASH (Continued) **S103957264**

Latitude:	38.7573139
Longitude:	-121.2721406
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	04/02/2003
Lead Agency:	ROSEVILLE, CITY OF
Case Worker:	Not reported
Local Agency:	ROSEVILLE, CITY OF
RB Case Number:	310165
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0606100135
Contact Type:	Local Agency Caseworker
Contact Name:	THOMAS DODARO
Organization Name:	ROSEVILLE, CITY OF
Address:	401 OAK STREET
City:	ROSEVILLE
Email:	tdodaro@roseville.ca.us
Phone Number:	Not reported

Global Id:	T0606100135
Contact Type:	Regional Board Caseworker
Contact Name:	PAUL SANDERS
Organization Name:	CENTRAL VALLEY RWQCB (REGION 5S)
Address:	11020 SUN CENTER DRIVE #200
City:	RANCHO CORDOVA
Email:	psanders@waterboards.ca.gov
Phone Number:	Not reported

Status History:

Global Id:	T0606100135
Status:	Completed - Case Closed
Status Date:	04/02/2003

Global Id:	T0606100135
Status:	Open - Case Begin Date
Status Date:	03/19/1992

Global Id:	T0606100135
Status:	Open - Remediation
Status Date:	03/19/1992

Regulatory Activities:

Global Id:	T0606100135
Action Type:	Other
Date:	01/01/1950
Action:	Leak Discovery

Global Id:	T0606100135
Action Type:	Other

ATLANTIC ST CAR WASH (Continued) **S103957264**

Date: 01/01/1950
Action: Leak Reported

LUST REG 5:
Region: 5
Status: Case Closed
Case Number: 310165
Case Type: Soil only
Substance: GASOLINE
Staff Initials: PRS
Lead Agency: Local
Program: LUST
MTBE Code: N/A

---

44 **BERRY STREET MALL - FINGERS LANDFILL** **SWF/LF** **S105678194**
WSW **N OF BERRY STREET W. OF HARDING BLVD.** **Financial Assurance** **N/A**
1/4-1/2 **ROSEVILLE, CA**
0.498 mi.
2629 ft.

Relative:
Lower

Actual:
182 ft.

SWF/LF (SWIS):
Region: STATE
Facility ID: 31-AA-0120
Lat/Long: 38.7653099 / -121.26761
Owner Name: A Greener Globe
Owner Telephone: 9167746490
Owner Address: Not reported
Owner Address2: 600 Treese Way
Owner City,St,Zip: Roseville, CA 95678
Operational Status: Closed
Operator: Not reported
Operator Phone: Not reported
Operator Address: Not reported
Operator Address2: Not reported
Operator City,St,Zip: Not reported
Permit Date: Not reported
Permit Status: Not reported
Permitted Acreage: 0
Activity: Solid Waste Disposal Site
Regulation Status: Unpermitted
Landuse Name: Not reported
GIS Source: GPS
Category: Disposal
Unit Number: 01
Inspection Frequency: Quarterly
Accepted Waste: Not reported
Closure Date: 01/01/1992
Closure Type: Actual
Disposal Acreage: 0
SWIS Num: 31-AA-0120
Waste Discharge Requirement Num: Not reported
Program Type: Not reported
Permitted Throughput with Units: Not reported
Actual Throughput with Units: Not reported
Permitted Capacity with Units: Not reported
Remaining Capacity: Not reported

BERRY STREET MALL - FINGERS LANDFILL (Continued) **S105678194**

Remaining Capacity with Units: Not reported

Region: STATE
Facility ID: 31-AA-0120
Lat/Long: 38.7653099 / -121.26761
Owner Name: Berry Street Mall, Inc
Owner Telephone: 9167860537
Owner Address: Not reported
Owner Address2: P.O. Box 623
Owner City,St,Zip: Roseville, CA 95678
Operational Status: Closed
Operator: Not reported
Operator Phone: Not reported
Operator Address: Not reported
Operator Address2: Not reported
Operator City,St,Zip: Not reported
Permit Date: Not reported
Permit Status: Not reported
Permitted Acreage: 0
Activity: Solid Waste Disposal Site
Regulation Status: Unpermitted
Landuse Name: Not reported
GIS Source: GPS
Category: Disposal
Unit Number: 01
Inspection Frequency: Quarterly
Accepted Waste: Not reported
Closure Date: 01/01/1992
Closure Type: Actual
Disposal Acreage: 0
SWIS Num: 31-AA-0120
Waste Discharge Requirement Num: Not reported
Program Type: Not reported
Permitted Throughput with Units: Not reported
Actual Throughput with Units: Not reported
Permitted Capacity with Units: Not reported
Remaining Capacity: Not reported
Remaining Capacity with Units: Not reported

CA Financial Assurance 2:
Region: 2
SWIS_NO: 31-AA-0120
Closure Approved: No
Closure Inf Coverage Date: Not reported
Closure Plan Coverage: 2253100
Closure Plan Date: 05/05/1992
PostClose Approved: No
PostClose Adequacy Date: 06/19/1992
PostClose Inf Coverage: Not reported
PostClose Inf Coverage Date: Not reported
CorActCoverage: 0
CorActApproved: No
CorAct Mec Adequacy Date: Not reported
CorAct Inf Coverage: Not reported
CorActPlanCoverage: Not reported
CorAct Plan Date: Not reported
Lia Coverage: 0

BERRY STREET MALL - FINGERS LANDFILL (Continued) **S105678194**

Lia Approved:	No
Review:	Not reported
Closure Mechanism A:	Not reported
Closure Mechanism B:	Not reported
Closure Coverage:	0
Closure Adequacy:	Not reported
Closure Approved:	No
Closure Inflation Estimate:	Not reported
Closure Inflation Date:	Not reported
Closure Plan Coverage:	2253100
Closure Plan Date:	05/05/1992
Post Closure Mechanism A:	Not reported
Post Closure Established A:	Not reported
Post Closure Mechanism B:	Not reported
Post Closure Coverate:	0
Post Closure Adequacy:	Not reported
Post Closure Approved:	No
Post Close Inflation Estimate:	Not reported
Post Closure Inflation Date:	Not reported
Post Closure Plan Date:	06/19/1992
Corrective Action Extablished A:	Not reported
Corrective Actiont Coverage:	0
Corrective Action Adequacy:	Not reported
Corrective Action Approved:	No
Corrective Action Inflation Estimate:	Not reported
Corrective Action Inflationdate:	Not reported
Corrective Action Plan Estimate:	Not reported
Corrective Action Plan Date:	Not reported
Liability Mechanism A:	Not reported
Liability Established A:	Not reported
Liability Mechanism B:	Not reported
Liability Coverage:	0
CostAnniversary:	Not reported
ClosureEstablishedA:	Not reported
ClosureEstablishedB:	Not reported
ClosureDisbursement:	0
PostClosureEstablishedB:	Not reported
PostClosureDisbursement:	0
CorrectiveActionMechanismA:	Not reported
CorrectiveActionMechanismB:	Not reported
CorrectiveActionExtablishedB:	Not reported
CorrectiveActiontDisbursement:	0
LiabilityEstablishedB:	Not reported
LiabilityAdequacy:	Not reported
Liability Approved:	No
Contact:	Not reported

45
NNE
1/2-1
0.557 mi.
2939 ft.

ROSEVILLE DISTRICT OFFICE
6050 PACIFIC ST
ROCKLIN, CA 95677

SLIC **U001613794**
HIST UST **N/A**
CA PLACER CO. MS
CHMIRS
ENVIROSTOR

Relative:
Higher

Actual:
223 ft.

SLIC:

Region:	STATE
Facility Status:	**Open - Remediation**
Status Date:	02/01/2002
Global Id:	SL375023633

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Lead Agency:	CENTRAL VALLEY RWQCB (REGION 5S)
Lead Agency Case Number:	Not reported
Latitude:	38.780335
Longitude:	-121.245375666667
Case Type:	Cleanup Program Site
Case Worker:	KAS
Local Agency:	Not reported
RB Case Number:	SL375023633
File Location:	Regional Board
Potential Media Affected:	Other Groundwater (uses other than drinking water), Soil
Potential Contaminants of Concern:	Not reported
Site History:	The site has a discharge history dating back to 1957. Floating separate phase hydrocarbons (SPH) has been documented since 1991. The site is an AGT bulk fuel distribution facility. Between 1957 and 1988 water from oilwater seperator discharged to the groundsurface into field southwest of manifold area. Discontinued in 1989. Effluent routed through carbon filters then discharged to ditch behind office. Between 1995 and 2002 KMEP operated a groundwater intercceptor trench (GIT) that introduced oxygen-releasing compound into groundwater.

Click here to access the California GeoTracker records for this facility:

HIST UST:

Region:	STATE
Facility ID:	00000040405
Facility Type:	Other
Other Type:	CARRIER PIPELINE
Total Tanks:	0001
Contact Name:	J.W. FUTRAL, JR.
Telephone:	9166242431
Owner Name:	SOUTHERN PACIFIC PIPE LINES, I
Owner Address:	610 SOUTH MAIN STREET
Owner City,St,Zip:	LOS ANGELES, CA 90014

Tank Num:	001
Container Num:	1
Year Installed:	1965
Tank Capacity:	00000526
Tank Used for:	WASTE
Type of Fuel:	UNLEADED
Tank Construction:	Not reported
Leak Detection:	Visual

PLACER CO. MS:

Facility ID:	FA0001641
Facility Status:	Active
Program Element Code:	2106
Program:	HAZMAT - ABOVE GROUND WITH WASTE
Record Num:	PR0002403
District Code:	18

Facility ID:	FA0001641
Facility Status:	Active Exempt
Program Element Code:	2275
Program:	LARGE QUANTITY GENERATOR
Record Num:	PR0007025

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

District Code: 18

Facility ID: FA0001641
Facility Status: Active
Program Element Code: 2281
Program: CONDITIONALLY AUTHORIZED
Record Num: PR0007026
District Code: 18

CHMIRS:
OES Incident Number: '10-4349
OES notification: 07/19/2010
OES Date: Not reported
OES Time: Not reported
Incident Date: Not reported
Date Completed: Not reported
Property Use: Not reported
Agency Id Number: Not reported
Agency Incident Number: Not reported
Time Notified: Not reported
Time Completed: Not reported
Surrounding Area: Not reported
Estimated Temperature: Not reported
Property Management: Not reported
Special Studies 1: Not reported
Special Studies 2: Not reported
Special Studies 3: Not reported
Special Studies 4: Not reported
Special Studies 5: Not reported
Special Studies 6: Not reported
More Than Two Substances Involved?: Not reported
Resp Agncy Personel # Of Decontaminated: Not reported
Responding Agency Personel # Of Injuries: Not reported
Responding Agency Personel # Of Fatalities: Not reported
Others Number Of Decontaminated: Not reported
Others Number Of Injuries: Not reported
Others Number Of Fatalities: Not reported
Vehicle Make/year: Not reported
Vehicle License Number: Not reported
Vehicle State: Not reported
Vehicle Id Number: Not reported
CA/DOT/PUC/ICC Number: Not reported
Company Name: Not reported
Reporting Officer Name/ID: Not reported
Report Date: Not reported
Comments: Not reported
Facility Telephone: Not reported
Waterway Involved: No
Waterway: Not reported
Spill Site: Utilities/Substation
Cleanup By: Responsible Party
Containment: Not reported
What Happened: Not reported
Type: Not reported
Measure: Gal(s)
Other: Not reported
Date/Time: 2044

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Year:	2010
Agency:	Kinder-Morgan
Incident Date:	7/19/2010
Admin Agency:	Placer County Health Department
Amount:	Not reported
Contained:	Yes
Site Type:	Not reported
E Date:	Not reported
Substance:	Gasoline
Quantity Released:	40
BBLS:	Not reported
Cups:	Not reported
CUFT:	Not reported
Gallons:	Not reported
Grams:	Not reported
Pounds:	Not reported
Liters:	Not reported
Ounces:	Not reported
Pints:	Not reported
Quarts:	Not reported
Sheen:	Not reported
Tons:	Not reported
Unknown:	Not reported
Evacuations:	Not reported
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
Description:	A faulty pressure switch is leaking which is causing the spill.
OES Incident Number:	06-4771
OES notification:	08/10/2006
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	Not reported
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Reporting Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	2006
Agency:	Kinder Morgan
Incident Date:	8/10/2006 12:00:00 AM
Admin Agency:	Placer County Health Department
Amount:	Not reported
Contained:	Yes
Site Type:	Other
E Date:	Not reported
Substance:	Gasoline
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	0.000000
Grams:	0
Pounds:	0
Liters:	0
Ounces:	2
Pints:	0
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	A repair was done on a leaky valve from yesterday. It tested fine and when working on an MOV valve that pressures the gauge where the valve was replaced and it leaked 2 oz of gasoline. It has now been secured and repaired.
OES Incident Number:	07-4310
OES notification:	07/19/2007
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Agency Incident Number:	Not reported	
Time Notified:	Not reported	
Time Completed:	Not reported	
Surrounding Area:	Not reported	
Estimated Temperature:	Not reported	
Property Management:	Not reported	
Special Studies 1:	Not reported	
Special Studies 2:	Not reported	
Special Studies 3:	Not reported	
Special Studies 4:	Not reported	
Special Studies 5:	Not reported	
Special Studies 6:	Not reported	
More Than Two Substances Involved?:		Not reported
Resp Agncy Personel # Of Decontaminated:		Not reported
Responding Agency Personel # Of Injuries:		Not reported
Responding Agency Personel # Of Fatalities:		Not reported
Others Number Of Decontaminated:		Not reported
Others Number Of Injuries:		Not reported
Others Number Of Fatalities:		Not reported
Vehicle Make/year:	Not reported	
Vehicle License Number:	Not reported	
Vehicle State:	Not reported	
Vehicle Id Number:	Not reported	
CA/DOT/PUC/ICC Number:	Not reported	
Company Name:	Not reported	
Reporting Officer Name/ID:	Not reported	
Report Date:	Not reported	
Comments:	Not reported	
Facility Telephone:	Not reported	
Waterway Involved:	Not reported	
Waterway:	Not reported	
Spill Site:	Not reported	
Cleanup By:	Reporting Party	
Containment:	Not reported	
What Happened:	Not reported	
Type:	Not reported	
Measure:	Not reported	
Other:	Not reported	
Date/Time:	Not reported	
Year:	2007	
Agency:	Kinder Morgan	
Incident Date:	7/19/2007 12:00:00 AM	
Admin Agency:	Placer County Health Department	
Amount:	Not reported	
Contained:	Yes	
Site Type:	Pipe Line	
E Date:	Not reported	
Substance:	Hydraulic oil	
Quantity Released:	Not reported	
BBLS:	0	
Cups:	0	
CUFT:	0	
Gallons:	5	
Grams:	0	
Pounds:	0	
Liters:	0	
Ounces:	0	

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Pints:	0
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	Valve failure caused this spill
OES Incident Number:	06-0990
OES notification:	02/15/2006
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	Not reported
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Contractor
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Year:	2006
Agency:	LFR Environmental Consultants
Incident Date:	2/15/2006 12:00:00 AM
Admin Agency:	Placer County Health Department
Amount:	Not reported
Contained:	Yes
Site Type:	Pipe Line
E Date:	Not reported
Substance:	Remediation Ground Water
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	0.000000
Grams:	0
Pounds:	0
Liters:	0
Ounces:	0
Pints:	0
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	Substance was released from a pump fitting.

OES Incident Number:	99-5104
OES notification:	12/02/1999
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Reporting Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	1999
Agency:	Kinder Morgan Energy
Incident Date:	12/2/199912:00:00 AM
Admin Agency:	Placer County Health Department
Amount:	Not reported
Contained:	Yes
Site Type:	Other
E Date:	Not reported
Substance:	Gasoline
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	0
Grams:	0
Pounds:	0
Liters:	0
Ounces:	0
Pints:	1
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	Leaking coolant line into contained area
OES Incident Number:	013260
OES notification:	Not reported
OES Date:	4/15/1996
OES Time:	12:36:26 AM
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	YES
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	discharger
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	1996
Agency:	sante fe /pacific pipeline
Incident Date:	4/14/96 1955
Admin Agency:	Not reported
Amount:	50 gal
Contained:	NO
Site Type:	PL
E Date:	Not reported
Substance:	diesel
Quantity Released:	Not reported
BBLS:	Not reported
Cups:	Not reported
CUFT:	Not reported
Gallons:	Not reported
Grams:	Not reported
Pounds:	Not reported
Liters:	Not reported
Ounces:	Not reported
Pints:	Not reported
Quarts:	Not reported
Sheen:	Not reported

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Tons:	Not reported
Unknown:	Not reported
Evacuations:	NO
Number of Injuries:	NO
Number of Fatalities:	NO
Description:	control valve failure
OES Incident Number:	99-3245
OES notification:	08/02/1999
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Reporting Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	1999
Agency:	Kinder Morgan Energy
Incident Date:	8/2/199912:00:00 AM

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Admin Agency:	Placer County Health Department
Amount:	Not reported
Contained:	Yes
Site Type:	Industrial Plant
E Date:	Not reported
Substance:	diesel
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	3
Grams:	0
Pounds:	0
Liters:	0
Ounces:	0
Pints:	0
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	misting from a pump pressure switch

OES Incident Number:	97-4906
OES notification:	12/11/1997
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
Special Studies 1:	Not reported
Special Studies 2:	Not reported
Special Studies 3:	Not reported
Special Studies 4:	Not reported
Special Studies 5:	Not reported
Special Studies 6:	Not reported

More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported

Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA/DOT/PUC/ICC Number:	Not reported

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Comments:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Reporting Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	1997
Agency:	SANTA FE PACIFIC PIPELINE
Incident Date:	12/11/199712:00:00 AM
Admin Agency:	Placer County Health Department
Amount:	Not reported
Contained:	Yes
Site Type:	Pipe Line
E Date:	Not reported
Substance:	DIESEL
Quantity Released:	Not reported
BBLS:	0
Cups:	0
CUFT:	0
Gallons:	0.000000
Grams:	0
Pounds:	0
Liters:	0
Ounces:	0
Pints:	0
Quarts:	0
Sheen:	0
Tons:	0
Unknown:	0
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0
Description:	LEAK FROM SCRAPPER TRAP CAUSED SPILL.

ENVIROSTOR:

Facility ID:	71003520
Status:	Refer: Other Agency
Status Date:	Not reported
Site Code:	Not reported
Site Type:	Tiered Permit
Site Type Detailed:	Tiered Permit
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Not reported
Division Branch:	Cleanup Sacramento

ROSEVILLE DISTRICT OFFICE (Continued) **U001613794**

Assembly: 06
Senate: 01
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 38.78374
Longitude: -121.2467
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CAT080011224
Alias Type: EPA Identification Number
Alias Name: 110001185262
Alias Type: EPA (FRS #)
Alias Name: 71003520
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: Not reported
Completed Sub Area Name: Not reported
Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

46
NNW
1/2-1
0.722 mi.
3811 ft.

QUALL RESIDENCE **SLIC S105557168**
6303 EMERALD DRIVE **VCP N/A**
ROCKLIN, CA 95677 **ENVIROSTOR**

Relative:
Higher

Actual:
229 ft.

SLIC:
Region: STATE
Facility Status: **Completed - Case Closed**
Status Date: 09/13/2000
Global Id: SL0606121785
Lead Agency: CENTRAL VALLEY RWQCB (REGION 5S)
Lead Agency Case Number: Not reported
Latitude: 38.7936286403434
Longitude: -121.239275732189
Case Type: Cleanup Program Site
Case Worker: ZZZ
Local Agency: Not reported
RB Case Number: SLT5S786
File Location: Not reported
Potential Media Affected: Soil, Under Investigation

QUALL RESIDENCE (Continued) **S105557168**

Potential Contaminants of Concern: Tetrachloroethylene (PCE)
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

SLIC REG 5:
Region: 5
Facility Status: Preliminary Assessment
Unit: Facility is a Spill or site
Pollutant: TCE
Lead Agency: DTSC
Date Filed: 08/12/03
Report Date: / /
Date Added: 7/12/2000
Date Closed: Not reported

VCP:
Facility ID: 31650001
Site Type: Voluntary Cleanup
Site Type Detail: Voluntary Cleanup
Site Mgmt. Req.: NONE SPECIFIED
Acres: 0.2
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Randy Adams
Supervisor: Fernando A. Amador
Division Branch: Cleanup Sacramento
Site Code: 101172
Assembly: 06
Senate: 01
Special Programs Code: Voluntary Cleanup Program
Status: No Further Action
Status Date: 08/12/2003
Restricted Use: NO
Funding: Responsible Party
Lat/Long: 38.78711 / -121.2618
APN: 371-060-026-000
Past Use: RESIDENTIAL AREA
Potential COC: 10003, 10097
Confirmed COC: 10003,10097
Potential Description: SOIL, SV, IA
Alias Name: JOHN MOURIER CONSTRUCTION INC
Alias Type: Alternate Name
Alias Name: PERIDOT LLC
Alias Type: Alternate Name
Alias Name: QUALL RESIDENCE
Alias Type: Alternate Name
Alias Name: Windsor Ridge Subdivision
Alias Type: Alternate Name
Alias Name: 371-060-026-000
Alias Type: APN
Alias Name: 110013806239
Alias Type: EPA (FRS #)
Alias Name: 110033612687

QUALL RESIDENCE (Continued) **S105557168**

Alias Type: EPA (FRS #)
Alias Name: 101172
Alias Type: Project Code (Site Code)
Alias Name: 31650001
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 10/31/2001
Comments: DTSC and Peridot LLC signed a Voluntary Cleanup Agreement (VCA) on October 31, 2001 to review and provide technical comments to the Quall Residence, 6303 Emerald Drive, Rocklin, Placer County, California, 95677, for Existing Data, additional Air Sampling Plan, Health and Safety Plan and Health Based Risk Assessment (HRA). Following the completion of the HRA, a determination will be made as to whether additional work is needed for the site. If additional work is needed, the VCA scope of work will be amended accordingly.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 08/12/2003
Comments: PEA/NFA--Reviewed additional insitu VOC soil gas and indoor air data; and Focused Human Health Risk Assessment for a single family home. Investigations, including slab removal and soil removed as part of investigations/foundation preparation, resulted in significant reduction of the concentration of contaminants in the indoor air and soil of the bathroom. Bathroom slab was repoured. The subject residence poses no significant risk to public health.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 01/26/2001
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

ENVIROSTOR:
Facility ID: 31650001
Status: No Further Action
Status Date: 08/12/2003
Site Code: 101172
Site Type: Voluntary Cleanup
Site Type Detailed: Voluntary Cleanup
Acres: 0.2
NPL: NO

QUALL RESIDENCE (Continued) **S105557168**

Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Randy Adams
Supervisor: Fernando A. Amador
Division Branch: Cleanup Sacramento
Assembly: 06
Senate: 01
Special Program: Voluntary Cleanup Program
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 38.78711
Longitude: -121.2618
APN: 371-060-026-000
Past Use: RESIDENTIAL AREA
Potential COC: * HALOGENATED SOLVENTS * CONTAMINATED SOIL
Confirmed COC: * HALOGENATED SOLVENTS * CONTAMINATED SOIL
Potential Description: SOIL, SV, IA
Alias Name: JOHN MOURIER CONSTRUCTION INC
Alias Type: Alternate Name
Alias Name: PERIDOT LLC
Alias Type: Alternate Name
Alias Name: QUALL RESIDENCE
Alias Type: Alternate Name
Alias Name: Windsor Ridge Subdivision
Alias Type: Alternate Name
Alias Name: 371-060-026-000
Alias Type: APN
Alias Name: 110013806239
Alias Type: EPA (FRS #)
Alias Name: 110033612687
Alias Type: EPA (FRS #)
Alias Name: 101172
Alias Type: Project Code (Site Code)
Alias Name: 31650001
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 10/31/2001
Comments: DTSC and Peridot LLC signed a Voluntary Cleanup Agreement (VCA) on October 31, 2001 to review and provide technical comments to the Quall Residence, 6303 Emerald Drive, Rocklin, Placer County, California, 95677, for Existing Data, additional Air Sampling Plan, Health and Safety Plan and Health Based Risk Assessment (HRA). Following the completion of the HRA, a determination will be made as to whether additional work is needed for the site. If additional work is needed, the VCA scope of work will be amended accordingly.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 08/12/2003
Comments: PEA/NFA--Reviewed additional insitu VOC soil gas and indoor air data; and Focused Human Health Risk Assessment for a single family home. Investigations, including slab removal and soil removed as part of

QUALL RESIDENCE (Continued) **S105557168**

investigations/foundation preparation, resulted in significant reduction of the concentration of contaminants in the indoor air and soil of the bathroom. Bathroom slab was repoured. The subject residence poses no significant risk to public health.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	01/26/2001
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

47
SSW
1/2-1
0.924 mi.
4880 ft.

ARCO SERVICE STATION #1334 **Notify 65** **S100179176**
1632 DOUGLAS BOULEVARD **N/A**
ROSEVILLE, CA 94235

Relative:
Lower

Actual:
183 ft.

Notify 65:

Date Reported:	Not reported
Staff Initials:	Not reported
Board File Number:	Not reported
Facility Type:	Not reported
Discharge Date:	Not reported
Incident Description:	94235

Count: 20 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
PLACER CITY	1003878014	ROSEVILLE DRUMS	MODOC RD 10 MI N OF ROSEVILLE	95678	CERCLIS-NFRAP
ROCKLIN	1003878030	ROCKLIN DUMP	ROCKLIN RD	95677	CERCLIS-NFRAP
ROCKLIN	1003879731	SOUTHERN PACIFIC (ROUNDHOUSE)	CORNER OF FIRST & ROCKLIN RD.	95677	CERCLIS-NFRAP
ROCKLIN	1006805094	CHEVRON STATION NO 205777	4211 SIERRA	95677	FINDS,HAZNET,RCRA-SQG
ROCKLIN	1014465262	7 ELVEN 34671	6001 STANFORD RD	95677	RCRA-SQG
ROSEVILLE	1014922522	A TEICHERT AND SON INC	4401 DULUTH AVE	95678	RCRA-SQG
ROCKLIN	1016447599	WALMART SUPERCENTER NO 3587	5402 CROSSINGS DR	95677	RCRA-SQG
ROCKLIN	1016453007	TARGET STORE T2604	5104 COMMONS DR	95677	RCRA-SQG
ROSEVILLE	A100337390	SUNBELT RENTALS	1005 ALANTOWN DR.	95678	AST
ROSEVILLE	A100339067	HERTZ EQUIPMENT RENTAL	10680 INDUSTRIAL AV.	95678	AST
	A100339830	CAL TRANS WHITMORE	4 MILES EAST OF BAXTER		AST
	M300002441	GLADDING MCBEAN & CO	LINCOLN PIT		MINES
	M300003127	RMC PACIFIC MATERIALS	PATTERSON SAND & GRAVEL - SHER		MINES
ROCKLIN	S100181986	PLACER COUNTY INDUSTRIAL TREATMENT	SOUTH END OF CINCINNATI AVE	95677	ENVIROSTOR
ROSEVILLE	S100351302	SPENCE/VERMILLION TIRE FIRE	BERRY STREET (APN 015-100-30 &	95678	ENVIROSTOR
ROCKLIN	S101589749	CITY6 OF ROCKLIN	2555 CORP YARD RD	95677	FID,SWEEPS UST
ROCKLIN	S101589785	EXXON SERVICE STATION/SWC STANDARD	5 STAR BLVD	95677	FID,SWEEPS UST
ROSEVILLE	S101628003	LIFT STATION SEWER ASSESMENT D	N ROSEVILLE	95678	FID,SWEEPS UST
ROSEVILLE	S101628008	ROSEVILLE CORP. YARD	FAIR DR	95678	FID,SWEEPS UST
ROCKLIN	S116678765	AUTONATION MAZDA SUBARU	5485 PACIFIC ST B & C	95677	MS PLACER

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/29/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/31/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 151

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/29/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/19/2014
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 116

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/05/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/19/2014
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 116

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/05/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 05/30/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 18

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/19/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/03/2014
Next Scheduled EDR Contact: 07/14/2014
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 06/05/2014
Date Data Arrived at EDR: 06/06/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 33

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/06/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 06/05/2014
Date Data Arrived at EDR: 06/06/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 33

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/06/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/19/2014
Date Data Arrived at EDR: 05/20/2014
Date Made Active in Reports: 05/22/2014
Number of Days to Update: 2

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/20/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 06/16/2014
Date Data Arrived at EDR: 06/17/2014
Date Made Active in Reports: 07/10/2014
Number of Days to Update: 23

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 06/17/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 06/16/2014
Date Data Arrived at EDR: 06/17/2014
Date Made Active in Reports: 07/11/2014
Number of Days to Update: 24

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/17/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/14/2014
Date Data Arrived at EDR: 05/15/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 61

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 04/24/2014
Date Data Arrived at EDR: 04/25/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 53

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/02/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 05/12/2014
Date Data Arrived at EDR: 05/12/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 36
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/28/2014
Date Data Arrived at EDR: 05/01/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 47
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/16/2014
Date Data Arrived at EDR: 06/17/2014
Date Made Active in Reports: 07/10/2014
Number of Days to Update: 23
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 06/17/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/02/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/24/2014
Date Data Arrived at EDR: 04/25/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 53
Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 05/12/2014
Date Data Arrived at EDR: 05/12/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 36

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/14/2014
Date Data Arrived at EDR: 05/15/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 33

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 05/01/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 47

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 05/07/2014
Date Data Arrived at EDR: 05/09/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 39

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 05/12/2014
Date Data Arrived at EDR: 05/14/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 34

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/04/2014
Date Data Arrived at EDR: 04/08/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 70

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 03/20/2014
Date Data Arrived at EDR: 04/01/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 77
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 06/05/2014
Date Data Arrived at EDR: 06/06/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 33
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/06/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/20/2014
Date Data Arrived at EDR: 03/20/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 20
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 07/03/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 06/16/2014
Date Data Arrived at EDR: 06/17/2014
Date Made Active in Reports: 07/11/2014
Number of Days to Update: 24
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/17/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 02/20/2014
Date Made Active in Reports: 03/27/2014
Number of Days to Update: 35
Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/19/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/02/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Varies

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30
Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 05/07/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 25

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/04/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 06/05/2014
Date Data Arrived at EDR: 06/06/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 33

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/06/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 07/14/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 25

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 06/04/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 06/02/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/05/2014
Date Data Arrived at EDR: 05/06/2014
Date Made Active in Reports: 05/19/2014
Number of Days to Update: 13

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/09/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 28

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 06/11/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 04/01/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 105

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 02/04/2014
Date Data Arrived at EDR: 04/29/2014
Date Made Active in Reports: 05/09/2014
Number of Days to Update: 10

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/29/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 06/16/2014
Date Data Arrived at EDR: 06/17/2014
Date Made Active in Reports: 07/10/2014
Number of Days to Update: 23

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/17/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 06/16/2014
Date Data Arrived at EDR: 06/17/2014
Date Made Active in Reports: 07/10/2014
Number of Days to Update: 23

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/17/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/11/2014
Date Data Arrived at EDR: 03/13/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/06/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 55

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 06/04/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/30/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/10/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 01/30/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 132

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/06/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/25/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 05/22/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 05/22/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/29/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 05/06/2014
Date Data Arrived at EDR: 05/16/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/09/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 06/05/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/08/2014
Date Data Arrived at EDR: 04/09/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/10/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 06/13/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/01/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 01/15/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 06/20/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/19/2014
Date Data Arrived at EDR: 05/20/2014
Date Made Active in Reports: 05/28/2014
Number of Days to Update: 8
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/20/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 04/02/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 27
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 06/17/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/16/2013
Number of Days to Update: 35
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 06/09/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 06/25/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 05/30/2014
Date Data Arrived at EDR: 05/30/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 38

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 41

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 03/25/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 34

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 06/26/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 04/21/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 05/05/2014
Date Data Arrived at EDR: 05/14/2014
Date Made Active in Reports: 05/22/2014
Number of Days to Update: 8

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/19/2014
Date Data Arrived at EDR: 05/20/2014
Date Made Active in Reports: 05/22/2014
Number of Days to Update: 2

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/19/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/16/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Quarterly

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/02/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/16/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/11/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 04/09/2014
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 05/16/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Quarterly

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/25/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Annually

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/25/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Annually

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/22/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/27/2014
Date Data Arrived at EDR: 05/28/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 40
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/28/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/14/2014
Date Data Arrived at EDR: 04/15/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 9
Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/15/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Quarterly

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/23/2014
Date Data Arrived at EDR: 06/13/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 26
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 06/09/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339
Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/18/2014
Next Scheduled EDR Contact: 07/28/2014
Data Release Frequency: N/A

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/16/2014
Date Data Arrived at EDR: 06/17/2014
Date Made Active in Reports: 07/10/2014
Number of Days to Update: 23
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/17/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 04/22/2014
Date Data Arrived at EDR: 04/24/2014
Date Made Active in Reports: 05/09/2014
Number of Days to Update: 15

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/30/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 04/22/2014
Date Data Arrived at EDR: 04/24/2014
Date Made Active in Reports: 05/12/2014
Number of Days to Update: 18

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/30/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 03/24/2014
Date Data Arrived at EDR: 03/24/2014
Date Made Active in Reports: 04/30/2014
Number of Days to Update: 37

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 06/19/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 20

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 04/03/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 26

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/26/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/11/2014
Date Data Arrived at EDR: 06/13/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 24

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 05/05/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 05/05/2014
Date Data Arrived at EDR: 05/06/2014
Date Made Active in Reports: 05/13/2014
Number of Days to Update: 7

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 05/05/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/29/2014
Date Data Arrived at EDR: 05/30/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 38

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 05/05/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 04/15/2014
Date Made Active in Reports: 05/01/2014
Number of Days to Update: 16

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 07/11/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 26

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/22/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 04/28/2014
Date Data Arrived at EDR: 04/30/2014
Date Made Active in Reports: 05/13/2014
Number of Days to Update: 13

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/22/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/12/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 05/30/2014
Date Made Active in Reports: 06/20/2014
Number of Days to Update: 21

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/27/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 04/22/2014
Date Data Arrived at EDR: 04/24/2014
Date Made Active in Reports: 05/13/2014
Number of Days to Update: 19

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/21/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 06/19/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/31/2014
Date Data Arrived at EDR: 06/06/2014
Date Made Active in Reports: 07/17/2014
Number of Days to Update: 41

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 07/10/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/21/2014
Date Data Arrived at EDR: 04/22/2014
Date Made Active in Reports: 05/19/2014
Number of Days to Update: 27

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/17/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/07/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/25/2014
Number of Days to Update: 28

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/16/2014
Next Scheduled EDR Contact: 11/03/2014
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 04/23/2014
Date Data Arrived at EDR: 04/25/2014
Date Made Active in Reports: 05/22/2014
Number of Days to Update: 27

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/21/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 04/14/2014
Number of Days to Update: 46

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/13/2014
Date Data Arrived at EDR: 03/27/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 32

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/11/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 06/27/2014
Number of Days to Update: 16

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/02/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 01/03/2014
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 34

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 07/02/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/27/2014
Date Data Arrived at EDR: 05/29/2014
Date Made Active in Reports: 06/24/2014
Number of Days to Update: 26

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/27/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/13/2014
Date Made Active in Reports: 06/27/2014
Number of Days to Update: 14

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 06/02/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 28

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 05/22/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 05/30/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/04/2013
Number of Days to Update: 27

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 05/13/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2014
Date Data Arrived at EDR: 05/15/2014
Date Made Active in Reports: 05/22/2014
Number of Days to Update: 7

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/07/2014
Next Scheduled EDR Contact: 08/28/2014
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2014
Date Data Arrived at EDR: 05/15/2014
Date Made Active in Reports: 05/28/2014
Number of Days to Update: 13

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/07/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2014
Date Data Arrived at EDR: 05/14/2014
Date Made Active in Reports: 05/21/2014
Number of Days to Update: 7

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/07/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Quarterly

PLACER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 29

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 06/09/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/15/2014
Date Data Arrived at EDR: 04/17/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 7

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/23/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 04/15/2014
Date Data Arrived at EDR: 04/17/2014
Date Made Active in Reports: 05/09/2014
Number of Days to Update: 22

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/23/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/06/2014
Date Data Arrived at EDR: 04/08/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 21

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/11/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/06/2014
Date Data Arrived at EDR: 04/08/2014
Date Made Active in Reports: 04/29/2014
Number of Days to Update: 21

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/08/2014
Next Scheduled EDR Contact: 10/20/2014
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/30/2014
Date Data Arrived at EDR: 05/30/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 38

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 05/12/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 06/09/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2013
Date Data Arrived at EDR: 11/19/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 42

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 06/04/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 05/09/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 05/09/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/20/2014
Date Data Arrived at EDR: 06/23/2014
Date Made Active in Reports: 07/11/2014
Number of Days to Update: 18
Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/19/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/11/2014
Date Data Arrived at EDR: 06/13/2014
Date Made Active in Reports: 07/09/2014
Number of Days to Update: 26
Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 06/09/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 04/03/2014
Date Data Arrived at EDR: 04/04/2014
Date Made Active in Reports: 05/01/2014
Number of Days to Update: 27
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/16/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/16/2014
Date Data Arrived at EDR: 06/19/2014
Date Made Active in Reports: 07/10/2014
Number of Days to Update: 21
Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/13/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28
Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/22/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 06/02/2014
Date Data Arrived at EDR: 06/03/2014
Date Made Active in Reports: 06/23/2014
Number of Days to Update: 20

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 06/02/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 06/02/2014
Next Scheduled EDR Contact: 09/15/2014
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/12/2014
Date Data Arrived at EDR: 05/19/2014
Date Made Active in Reports: 05/28/2014
Number of Days to Update: 9

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 05/12/2014
Next Scheduled EDR Contact: 08/25/2014
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 05/27/2014
Date Data Arrived at EDR: 05/28/2014
Date Made Active in Reports: 06/20/2014
Number of Days to Update: 23

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/27/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 06/12/2014
Date Made Active in Reports: 06/20/2014
Number of Days to Update: 8

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/22/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 04/25/2014
Date Data Arrived at EDR: 04/01/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 27

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/13/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 03/25/2014
Date Data Arrived at EDR: 04/01/2014
Date Made Active in Reports: 05/05/2014
Number of Days to Update: 34

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/13/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/02/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 40

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/26/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 04/03/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 25

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/26/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/09/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 07/17/2014
Number of Days to Update: 36

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 06/09/2014
Next Scheduled EDR Contact: 09/22/2014
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 05/16/2014
Date Data Arrived at EDR: 05/16/2014
Date Made Active in Reports: 06/13/2014
Number of Days to Update: 28

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 04/28/2014
Date Data Arrived at EDR: 05/20/2014
Date Made Active in Reports: 05/27/2014
Number of Days to Update: 7

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/16/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/01/2014
Next Scheduled EDR Contact: 10/13/2014
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/16/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 04/28/2014
Date Data Arrived at EDR: 04/30/2014
Date Made Active in Reports: 05/19/2014
Number of Days to Update: 19

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/27/2014
Date Data Arrived at EDR: 06/17/2014
Date Made Active in Reports: 07/11/2014
Number of Days to Update: 24

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/16/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 04/08/2014
Date Made Active in Reports: 05/05/2014
Number of Days to Update: 27

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 06/19/2014
Next Scheduled EDR Contact: 10/06/2014
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/19/2014
Date Data Arrived at EDR: 05/22/2014
Date Made Active in Reports: 06/19/2014
Number of Days to Update: 28

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 05/19/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/23/2014
Next Scheduled EDR Contact: 09/01/2014
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/17/2014
Next Scheduled EDR Contact: 10/27/2014
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/01/2014
Date Data Arrived at EDR: 05/07/2014
Date Made Active in Reports: 06/10/2014
Number of Days to Update: 34

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/07/2014
Next Scheduled EDR Contact: 08/18/2014
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/21/2014
Next Scheduled EDR Contact: 08/04/2014
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/27/2014
Next Scheduled EDR Contact: 09/08/2014
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 09/27/2013
Number of Days to Update: 49

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/16/2014
Next Scheduled EDR Contact: 09/29/2014
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

I-80/SR-65 INTERCHANGE
INTERSTATE 80 & STATE ROUTE 65
ROSEVILLE, CA 95678

TARGET PROPERTY COORDINATES

Latitude (North):	38.7689 - 38° 46' 8.04''
Longitude (West):	121.2523 - 121° 15' 8.28''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	651836.5
UTM Y (Meters):	4292374.5
Elevation:	203 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	38121-G3 ROSEVILLE, CA
Most Recent Revision:	1992
East Map:	38121-G2 ROCKLIN, CA
Most Recent Revision:	1981

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

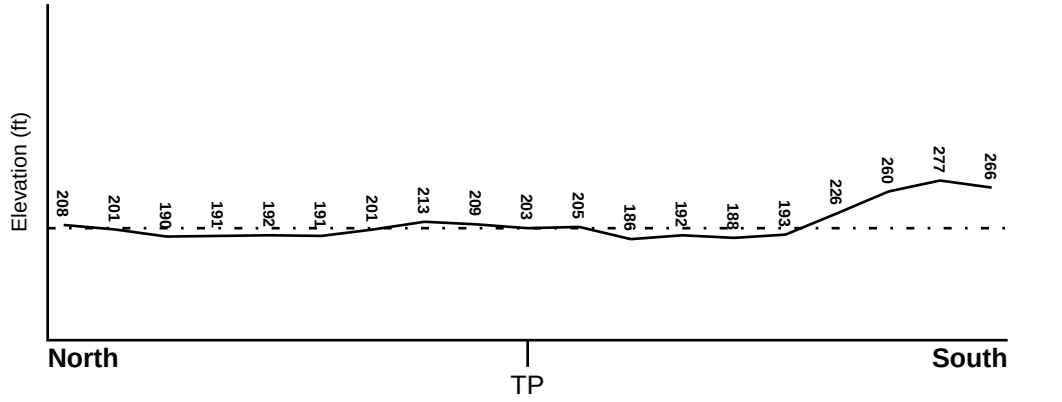
TOPOGRAPHIC INFORMATION

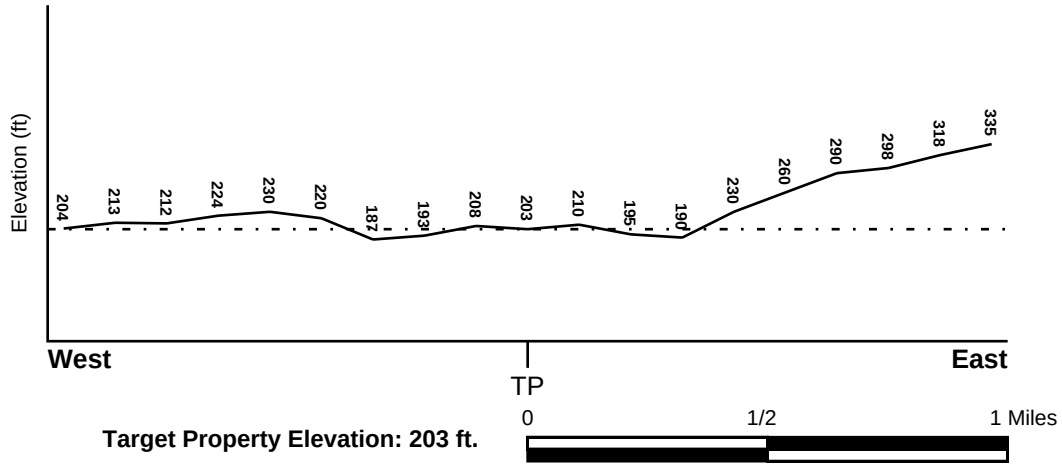
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





0 1/2 1 Miles

Target Property Elevation: 203 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
PLACER, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	0602430009D - FEMA Q3 Flood data
Additional Panels in search area:	0602420010C - FEMA Q3 Flood data 0602430008D - FEMA Q3 Flood data 0602430016D - FEMA Q3 Flood data 0602430017D - FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
ROSEVILLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

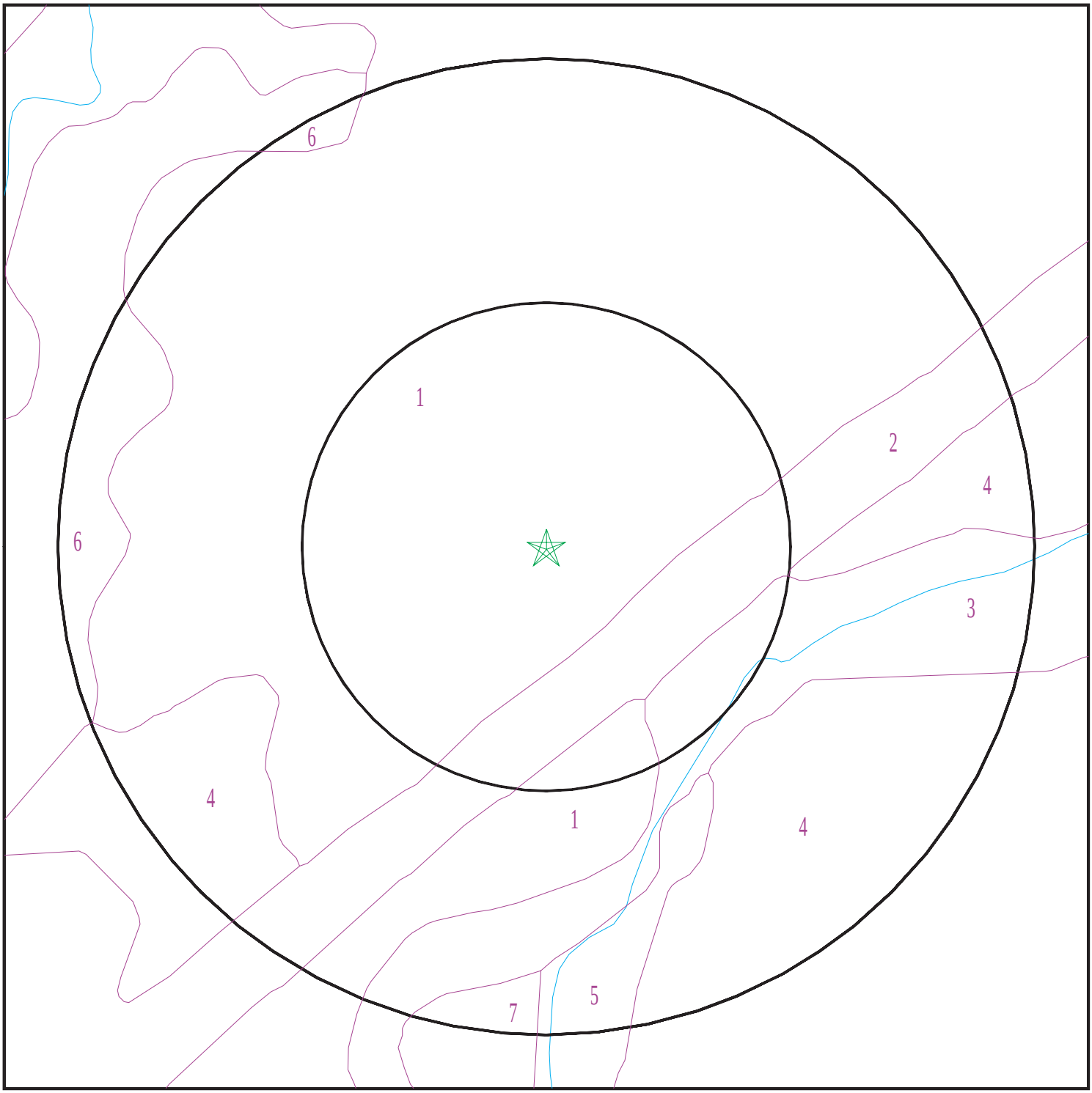
Era:	Cenozoic
System:	Tertiary
Series:	Pliocene
Code:	Tpc *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4009326.1s



SITE NAME:	I-80/SR-65 Interchange	CLIENT:	Blackburn Consulting
ADDRESS:	Interstate 80 & State Route 65 Roseville CA 95678	CONTACT:	Laura Long
LAT/LONG:	38.7689 / -121.2523	INQUIRY #:	4009326.1s
		DATE:	July 18, 2014 8:01 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: COMETA

Soil Surface Texture: sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	18 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	18 inches	29 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit 50% or more), Fat Clay.	Max: 0.42 Min: 0.01	Max: 7.3 Min: 6.1
3	29 inches	59 inches	sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 7.3 Min: 6.6

Soil Map ID: 2

Soil Component Name: XERORTHENTS

Soil Surface Texture: variable

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	variable	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: Xerofluvents

Soil Surface Texture: stratified loamy sand to fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 111 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	stratified loamy sand to fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 141 Min: 1.4	Max: 8.4 Min: 7.9
2	14 inches	37 inches	stratified loamy sand to fine sandy loam to silt loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 141 Min: 1.4	Max: 8.4 Min: 7.9
3	37 inches	55 inches	stratified loam to silty clay loam to clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14 Min: 1.4	Max: 8.4 Min: 7.9

Soil Map ID: 4

Soil Component Name: EXCHEQUER

Soil Surface Texture: very stony loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 28 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	very stony loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	11 inches	14 inches	unweathered bedrock	Not reported	Not reported	Max: 141 Min: 0.07	Max: Min:

Soil Map ID: 5

Soil Component Name: INKS

Soil Surface Texture: cobbly loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	cobbly loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6.5 Min: 5.6
2	5 inches	18 inches	very cobbly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Clayey Gravel	Max: 14 Min: 4	Max: 6.5 Min: 5.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	18 inches	22 inches	unweathered bedrock	Not reported	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 6

Soil Component Name: FIDDYMENT

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 14 Min: 4	Max: 6 Min: 5.1
2	11 inches	27 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 7.3 Min: 6.1
3	27 inches	35 inches	indurated	Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	35 inches	38 inches	weathered bedrock	Not reported	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 7

Soil Component Name: RUBBLE LAND

Soil Surface Texture: fragmental material

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	fragmental material	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	Not reported	Max: 141 Min: 141	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000190140	1/8 - 1/4 Mile SW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

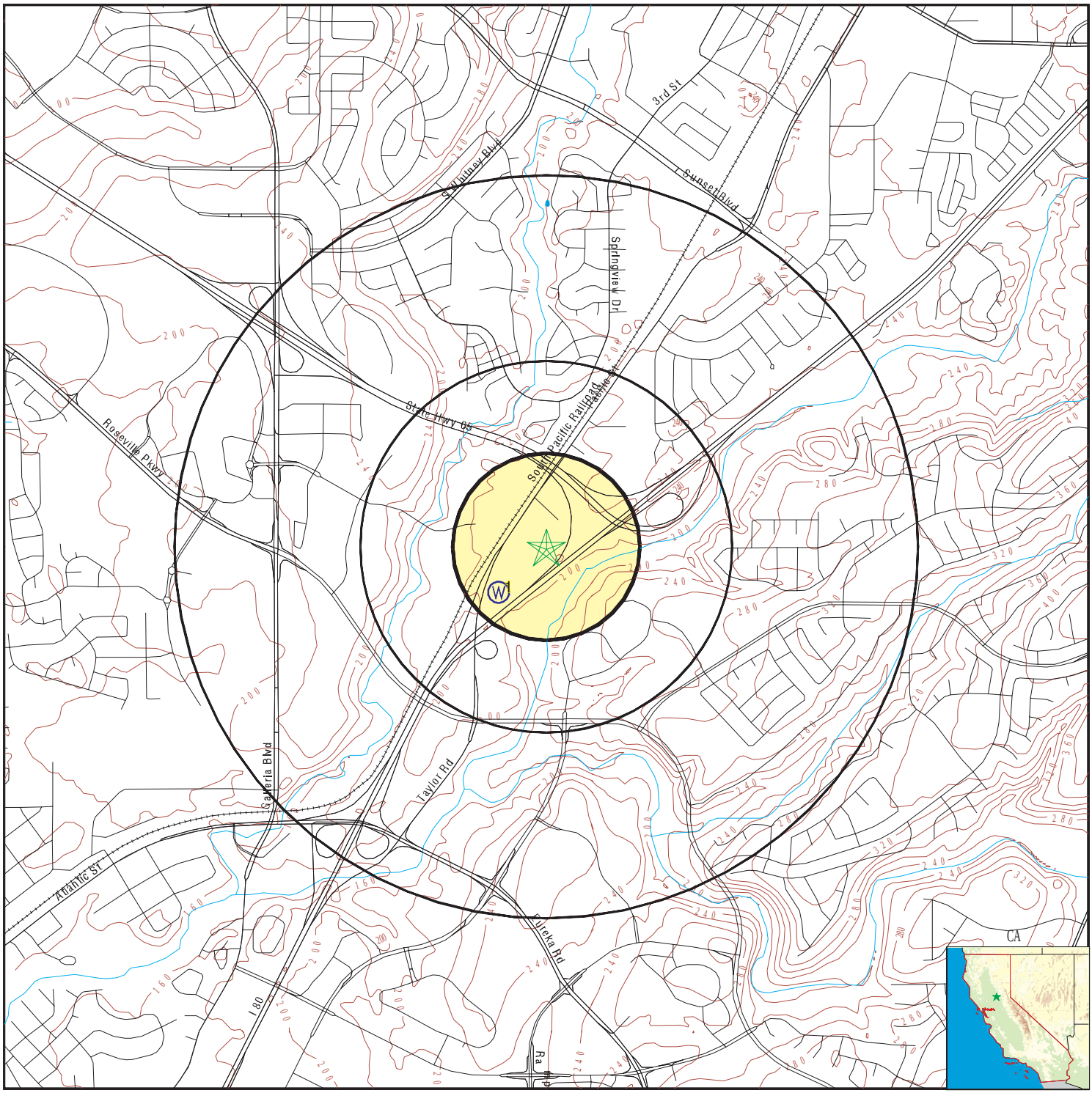
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 4009326.1s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	I-80/SR-65 Interchange	CLIENT:	Blackburn Consulting
ADDRESS:	Interstate 80 & State Route 65 Roseville CA 95678	CONTACT:	Laura Long
LAT/LONG:	38.7689 / -121.2523	INQUIRY #:	4009326.1s
		DATE:	July 18, 2014 8:01 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **SW** **1/8 - 1/4 Mile** **Higher**	**FED USGS**	**USGS40000190140**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-384602121151301		
Monloc name:	011N006E25Q001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18020111	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.7671233
Longitude:	-121.2546719	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	208.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Central Valley aquifer system		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19760120	Welldepth:	344
Welldepth units:	ft	Wellholedepth:	344
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
95678	31	0

Federal EPA Radon Zone for PLACER County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 95678

Number of sites tested: 9

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	-0.022 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D

Site Photographs

Photo 1: Plumbers Way at Taylor Road

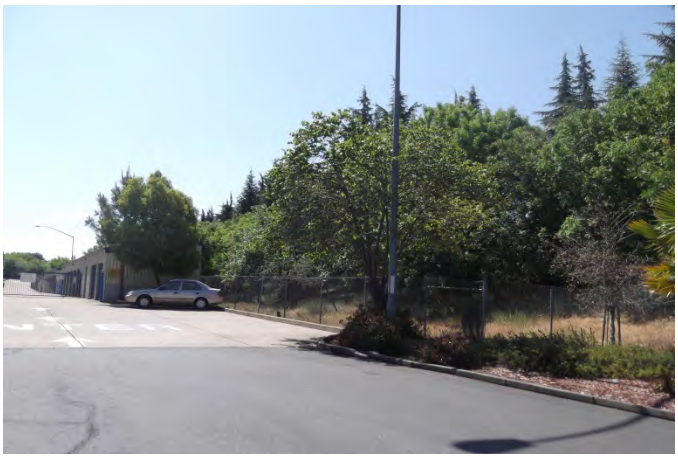
Photo 4: Taylor Road Self storage adjacent to SR-65 overpass

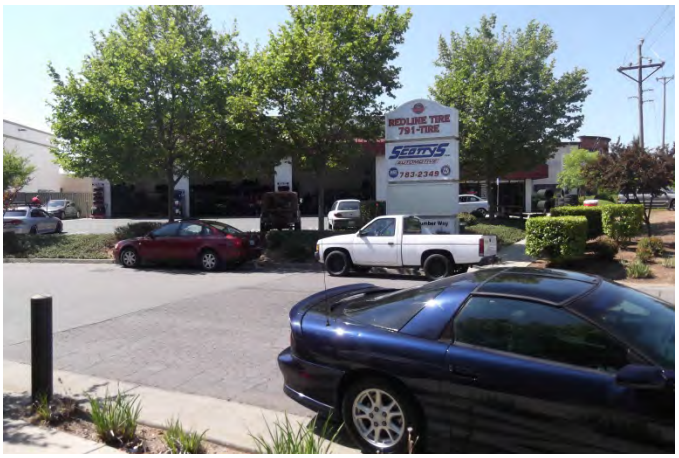

Photo 2: Plumbers Way

Photo 5: APN 015-162-006 100 Stonehouse Road – vacant offices parking lot

Photo 3: SR-65 overpass at Taylor Road

Photo 6: APN 015-162-006 100 Stonehouse Road – vacant offices

Photo 7: APN 015-162-007 Stonehouse Road looking east

Photo 10: APN 015-162-007 Stonehouse Road office, POD crate and storage building

Photo 8: APN 015-162-007 Stonehouse Road office and POD crate

T Photo 11: APN 015-162-007 Stonehouse Road POD crate, vehicles and storage building

Photo 9: APN 015-162-007 Stonehouse Road POD crate and vehicles

Photo 12: APN 015-162-007 adjacent to Taylor Road

Photo 13: APN 015-162-004 Flooring Liquidators

Photo 16: APN 015-162-002 Taylor Road entrance to Cattlemen's Restaurant

Photo 14: APN 015-162-005 Driveway at Taylor Road

Photo 17: APN 015-162-003 Meineke, Cooks Collision, Yamaha

Photo 15: APN 015-162-003 Meineke, Cooks Collision, Yamaha

Photo 18: APN 015-162-003 view towards Taylor Road

Photo 19: APN 015-162-007 Stonehouse Court - Residence

Photo 20: APN 015-162-007 Stone House Court - Residence

Photo 21: APN 015-162-005 Alta Sierra Body Shop

Photo 22: APN 015-162-006 Vacant Offices

Photo 24: APN 015-450-079 Golfland Landscape

Photo 23: APN 015-162-006 Vacant Offices Acquisition Area

Photo 25: APN 015-450-079 Golfland Parking

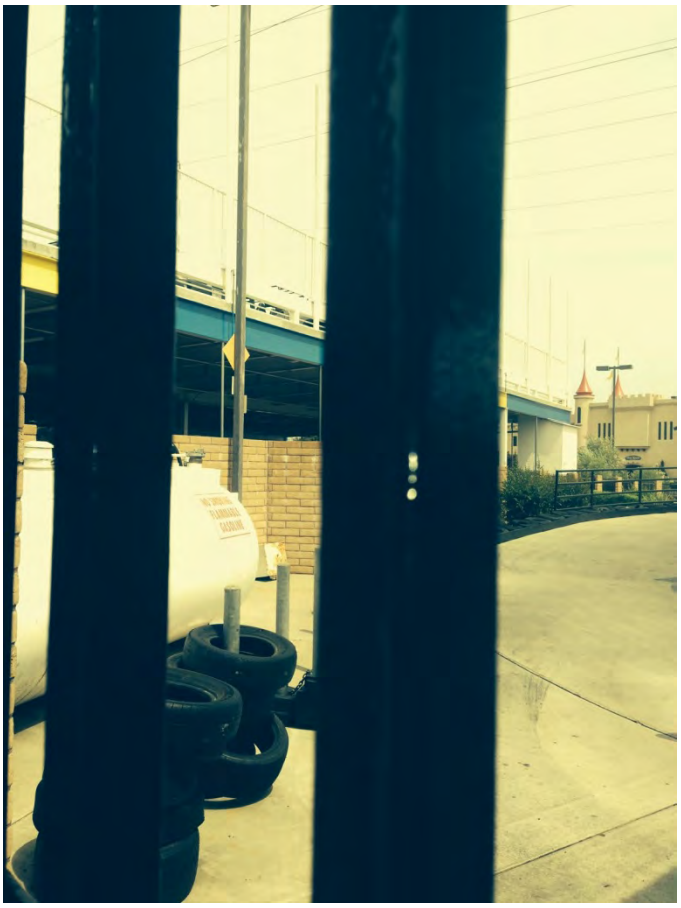
Photo 26: APN 015-450-079 Golfland AST

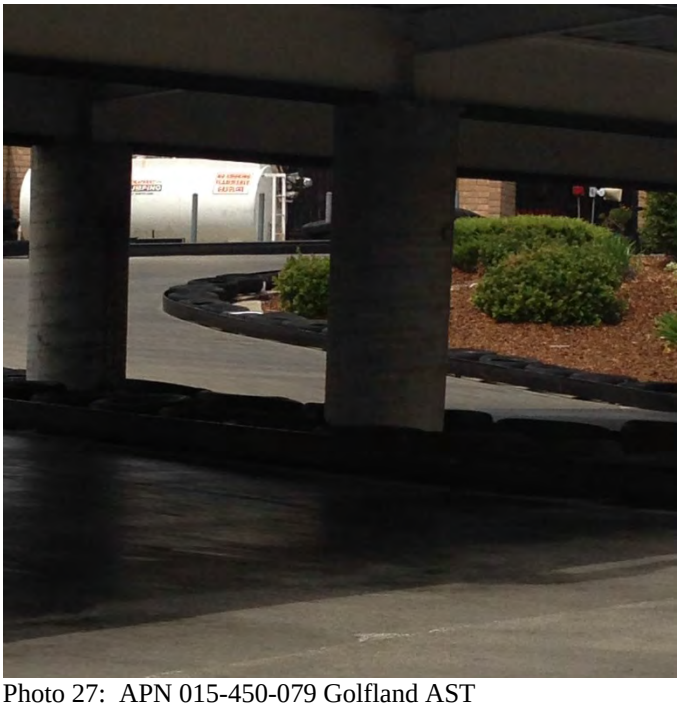
Photo 27: APN 015-450-079 Golfland AST

APPENDIX E

Geocon Aerially Deposited Lead and
Traffic Stripe Paint Investigation Report

AERIALLY DEPOSITED LEAD AND TRAFFIC STRIPE PAINT SITE INVESTIGATION REPORT

Interstate 80, PM 2.88 to 5.60 (KP 4.6 to 9.0)
Placer County, California

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 3
P.O. BOX 911
MARYSVILLE, CALIFORNIA 95901

Caltrans

PREPARED BY:

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742

GEOCON

GEOCON PROJECT NO. S9300-06-42
TASK ORDER NO. 42, EA NO. 03-367831

JULY 2008

GEOCON
CONSULTANTS, INC.

GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9300-06-42
July 21, 2008

Ms. Alicia Beyer
California Department of Transportation - District 3
Environmental Engineering Office
703 B Street, P.O. Box 911
Marysville, California 95901

Subject: INTERSTATE 80, PM 2.88 TO 5.6 (KP 4.6 TO 9.0)
PLACER COUNTY, CALIFORNIA
CONTRACT NO. 03A1368, TASK ORDER NO. 42, EA 03-367831
AERIALLY DEPOSITED LEAD AND TRAFFIC STRIPE PAINT SITE INVESTIGATION REPORT

Dear Ms. Beyer:

In accordance with California Department of Transportation Contract No. 03A1368, Task Order No. 42, and Expense Authorization 03-367831, Geocon Consultants, Inc. has conducted an aerially deposited lead and traffic stripe paint investigation along Interstate 80, Post Mile 2.88 to 5.60 (Kilometer Post 4.6 to 9.0), in Placer County, California. This report summarizes the scope of services performed and outlines the investigation procedures and methods implemented, including the advancement of 86 direct-push and hand-auger borings for aerially deposited lead sampling, traffic stripe paint sampling, and laboratory testing.

The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the data presented herein. The contents of this report do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Please contact us if there are any questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Alfred P. Worcester, PG, CEG
Senior Project Geologist

John E. Juhrend, PE, CEG
Project Manager

REGISTERED PROFESSIONAL ENGINEER
JOHN JUHREND
No. 46681
Exp. 06/30/09
CIVIL
STATE OF CALIFORNIA

APW:JEJ:jaj

(5 + 2CD) Addressee

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AERIALLY DEPOSITED LEAD AND TRAFFIC STRIPE PAINT SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Aerially Deposited Lead (ADL) and Traffic Stripe Paint Site Investigation report for the Interstate 80 (I-80), Post Mile (PM) 2.88 to 5.60 (Kilometer Post [KP] 4.6 to 9.0) lane-widening project, was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 03A1368, Task Order (TO) No. 42, and Expense Authorization (EA) 03-367831.

1.1 Project Description and Proposed Improvements

Caltrans proposes to widen eastbound and westbound I-80 between PM 2.88 and 5.60 (KP 4.6 to 9.0). The project scope includes the construction of soundwalls and retaining walls, road widening along the outside shoulder of I-80 (auxiliary lanes), removal of existing retaining walls, upgrade of drainage at Woodside Park, redesign of the Taylor Road on-ramp, widening of the State Route 65 (SR-65) connector ramps, and widening of the Miners Ravine Bridge. At the Taylor Road overpass and SR-65 bridge abutments, Caltrans may construct tie-back walls along eastbound I-80. New overhead signs are also planned where proposed freeway widening requires removal and replacement of existing signs. Caltrans also plans to construct a new overhead sign in the median between north- and southbound SR-65, on the south side of the SR-65/I-80 overpass.

We show the approximate project location on the Vicinity Map, Figure 1, and the soil boring and traffic stripe paint sample locations on the Site Plans, Figures 2-1 through 2-14.

1.2 General Objectives

The purpose of the scope of services outlined in TO No. 42 is to evaluate whether impacts due to ADL from motor vehicle exhaust exist in the surface and near surface soils within the project boundaries, and to determine whether traffic stripe paint on the roadway contains lead and chromium. Caltrans will use the investigative results to inform the construction contractor if lead-impacted soil and lead/chromium-impacted traffic stripe paint is present within the project boundaries for health, safety, management, and disposal evaluation purposes.

2.0 BACKGROUND

2.1 Potential Lead Soil Impacts

Ongoing testing by Caltrans throughout the State of California has indicated that ADL exists along major freeway routes due to emissions from vehicles previously powered by leaded gasoline.

2.2 Potential Lead Chromium-based Traffic Stripe Paint Impacts

Yellow traffic stripe paint used by Caltrans may contain lead-chromate. The presence of elevated levels of lead and chromium requires sampling and analytical testing of the paint stripe materials to determine appropriate health and safety procedures and proper management and disposal practices. Disposal of removed traffic stripe paint materials is dependent on the method utilized to remove these materials (i.e. focused stripe removal vs. pavement grinding).

2.3 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as "California hazardous" for handling and disposal purposes are contained in the *CCR*, Title 22, Division 4.5, Chapter 11, Article 3, § 66261.24. Criteria to classify a waste as "Resource, Conservation, and Recovery Act (RCRA) hazardous" are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), Section 261.

For waste containing metals, the waste is classified as California hazardous when: 1) the total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste may have the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value, since the WET uses a 1:10 dilution ratio. On that basis, soluble metal analysis is required when a total metal is detected at a concentration greater than or equal to ten times the respective STLC (assuming 100 percent of the total metals are soluble). A material is classified as RCRA hazardous, or Federal hazardous, when the soluble metal content exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP). The TTLC value for lead is 1,000 milligrams per kilogram (mg/kg). Both the STLC and TCLP hazardous waste values for lead are 5.0 milligrams per liter (mg/l).

The regulatory criteria for suspected hazards associated with the site are based on toxicity. Wastes may also be classified as hazardous based on other criteria such as flammability, reactivity, corrosivity, and ignitability. For this investigation, toxicity (i.e., lead concentrations in soil) and corrosivity (i.e., soil pH) are the primary factors considered for waste classification. Based on current and past site usage, onsite soil is not expected to exhibit other hazardous waste characteristics.

The Department of Toxic Substances Control (DTSC) regulates and interprets hazardous waste laws in California. DTSC generally considers excavated or transported materials that exhibit "hazardous waste" characteristics to be a "waste" requiring proper management, treatment and disposal. Soil that contains lead above hazardous waste thresholds and is left in-place would not be necessarily classified by DTSC as a "waste." The DTSC has provided site-specific determinations that "movement of wastes within an area of contamination does not constitute "land disposal" and, thus, does not trigger

hazardous waste disposal requirements." Therefore, lead-impacted soil that is scarified in-place, moisture-conditioned, and recompacted during roadway improvement activities might not be considered a "waste." DTSC should be consulted to confirm waste classification. It is noted that in addition to DTSC regulations, health and safety requirements and other local agency requirements may also apply to the handling and disposal of lead-impacted soil.

3.0 SCOPE OF SERVICES

We performed the following scope of services requested by Caltrans in TO No. 42:

3.1 Pre-field Activities

- Conducted a TO meeting on May 21, 2008, to discuss the scope of services. Present at the meeting were Caltrans Quality Assurance (QA) Manager Alicia Beyer, Caltrans Traffic Engineer Ralph Topham, and Geocon TO Manager Alfred Worcester. The purpose of the TO meeting was to identify and discuss the project boundaries, discuss additions to the proposed improvements (i.e. additional overhead signs), and to review existing road and traffic conditions. Geocon staff marked the approximate project limits and proposed sample locations in white paint for subsequent utility clearance notification.
- Prepared a *Health and Safety Plan* dated May 2008, to provide guidelines on the use of personal protective equipment and the health and safety procedures to be implemented during the proposed field activities.
- Prepared a *Workplan* dated May 27, 2008, which describes the requested scope of services and quality assurance/quality control (QA/QC) sampling and laboratory procedures.
- Provided 48-hour notice to Underground Service Alert (USA) prior to job site mobilization.
- Retained the services of Advanced Technology Laboratories (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of samples.
- Retained the services of Flash Safety, Inc., a Caltrans-approved traffic safety company to provide traffic control while working within the project limits.

3.2 Field Activities

The field activities were conducted from May 28 to 30, 2008. We collected soil samples from 62 direct-push and 6 hand-auger borings along the eastbound (EB) and westbound (WB) unpaved shoulders of I-80. We also collected soil samples from 18 direct-push borings advanced in the shoulder area of the on- and off-ramps within the project limits, which include ramps to Eureka/Atlantic Road, Taylor Road, and SR-65.

The borings were advanced at approximately 350-foot (106.7 meter [m]) intervals and at staggered distances of 3 to 6 feet (ft) (0.9 to 1.8 m) from edge of pavement, where possible. We advanced the borings to depths of approximately 3 ft (0.9 m). We collected three soil samples from each boring at approximate depth intervals of 0.0 to 1.0 foot (0 to 0.3 m), 1.0 to 2.0 ft (0.3 to 0.6 m), and 2.0 to 3.0 ft

(0.6 to 0.9 m). At eight boring locations, we encountered refusal at depths of less than 3 ft (0.9 m). Two hundred and fifty-one soil samples were submitted to ATL under chain-of-custody (COC) protocol for chemical analyses.

Six yellow traffic stripe paint samples were collected from EB and WB I-80, near the existing ramp merges to the freeway. The paint-chip samples were collected using a rock hammer or chisel to lift a chip of the traffic stripe paint from the roadway. The paint-chip samples were placed in labeled plastic bags pending delivery to ATL under COC protocol.

4.0 INVESTIGATIVE METHODS

4.1 Boring and Traffic Stripe Paint Locations

Caltrans designated the soil boring locations near the proposed improvements, which include lane widening, soundwalls, retaining walls, and overhead signs. Caltrans intends to construct the project in two phases, consisting of improvements along EB I-80 and improvements along WB I-80. For purposes of discussion, we have similarly subdivided this report.

Borings EB1 through EB36 were advanced along the outside shoulders of EB I-80. Borings WB1 through WB32 were advanced along the outside shoulders of WB I-80. We advanced ramp borings R1 through R17 along the shoulders of the existing on- and off-ramps at the Eureka/Atlantic/I-80 interchange, the SR-65/I-80 interchange, and the Taylor Road/I-80 interchange. One boring (R-18) was located in the median of SR-65, near the south abutment of the SR-65/I-80 overpass (see Figure 2-9). Ramp borings R1 through R3 and R11 through R18 are included in the EB I-80 phase and ramp borings R4 through R10 are included in the WB I-80 phase. We show the approximate soil boring locations on Figures 2-1 through 2-14.

Caltrans designated paint sampling locations within the proposed project limits. Traffic stripe paint chip sample PC1 was obtained from the EB I-80 on-ramp at Eureka Road. Paint chip sample PC2 was obtained from the southbound SR-65 on-ramp to EB I-80. Sample PC3 was obtained from the WB I-80 off-ramp to southbound Eureka Road. Sample PC4 was obtained from the WB I-80 off-ramp at SR-65. PC5 was obtained from the WB I-80 off-ramp to northbound Atlantic Street. Sample PC6 was obtained from the EB I-80 off-ramp at Taylor Road. We show the approximate paint sample locations on the Site Plans.

The coordinates of each sampling location were determined using a differential global positioning system (GPS). The GPS used during the field activities has an approximate error of no more than 3 ft (0.9 m). The latitude and longitude of the sample locations are summarized on Table 1.

4.2 Aerially Deposited Lead Soil Sampling Procedures

Two hundred fifty-one soil samples were collected from 80 direct-push and six hand-auger borings advanced at the site. Soil samples obtained using the direct-push rig were collected in new disposable cellulose thermoplastic (acetate) liners driven by the direct-push rig. Following retrieval of the core sample, the acetate liner that contained the sample was cut open, and the soil samples transferred into new Ziploc® re-sealable plastic bags, and homogenized in the field. The soil samples were collected in one-foot (0.9 m) intervals, from 0.0 to 1.0 ft (0 to 0.3 m), 1.0 to 2.0 ft (0.3 to 0.6 m), and 2.0 to 3.0 ft (0.6 to 0.9 m). The samples were labeled in the field, placed in an ice chest, and delivered to ATL under COC documentation.

Soil samples EB34 through EB36 and WB30 through WB32 were obtained using a hand-auger. Soil samples from approximately 1-foot (0.3 m) depth intervals were transferred into new Ziploc® re-sealable plastic bags and homogenized in the field. The sample bags were labeled in the field, placed in an ice chest, and delivered to ATL under COC documentation.

QA/QC procedures conducted during field activities included sample equipment decontamination (direct-push and hand-auger) prior to each boring, clean single-use acetate liners, single-use re-sealable plastic sample bags, and sample COC documentation. Soil sampling equipment was cleansed between borings by washing the equipment with an Alconox™ solution followed by a double rinse with deionized water. Sampling activities were conducted under the supervision of Geocon's field manager.

The borings were backfilled with surface soil from the immediate vicinity of the boring location. Decontamination water was discharged to the ground surface away from surface water bodies or storm drain inlets.

4.3 Traffic Stripe Paint Sampling Procedures

The traffic stripe paint samples were collected using a hammer to break a chip off the traffic stripe paint. The paint samples were placed in single-use Ziploc® re-sealable plastic bags, subsequently labeled, and delivered to ATL under COC documentation.

4.4 Traffic Control

Flash Safety, Inc. provided traffic control measures (shoulder encroachment and partial closure) using warning signs, traffic cones, and an attenuator truck. The fieldwork was performed under the supervision of our field supervisor and TO manager. Where feasible, we positioned the field vehicles on the unpaved shoulders of I-80, so that traffic was not obstructed. Lane closures or detours were not required. To notify traffic of our presence, flashing rooftop warning lights were activated on the direct-push rig, support truck, and attenuator truck.

4.5 Laboratory Analyses

4.5.1 ADL Soil Samples

The soil samples collected within the project boundaries were submitted to ATL for the following analyses under a five-working day turn-around-time (TAT). The laboratory was instructed to homogenize the ADL soil samples prior to analysis in accordance with Contract 03A1368 requirements.

- Two hundred fifty-one soil samples were analyzed for total lead following United States Environmental Protection Agency (EPA) Test Method 6010B.
- Twelve soil samples were analyzed for soluble (WET) lead following EPA Test Method 7420 and EPA Test Method 6010B.
- Six selected soil samples were analyzed for soil pH following EPA Test Method 9045C.

4.5.2 Traffic Stripe Paint Samples

The traffic stripe paint samples collected within the project boundaries were submitted to ATL for the following analyses under a five-working day TAT.

- Six traffic stripe paint samples were analyzed for total lead and total chromium following EPA Test Method 6010B.
- Three traffic stripe paint samples were analyzed for soluble (WET) chromium following EPA Test Method 7420 and EPA Test Method 6010B.

4.5.3 Quality Assurance/Quality Control

In accordance with Caltrans Contract 03A1368, ATL homogenized the soil samples prior to analysis. QA/QC procedures were conducted for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix, whichever was more frequent, with the spike made at ten times the detection limit or at the analyte level.

The COC documentation was reviewed for accuracy and completeness prior to submitting the soil samples to the laboratory. The laboratory was instructed to handle, analyze, and conduct QA/QC procedures in accordance with Caltrans Contract No. 03A1368. Copies of the laboratory analytical reports, including QC summary and COC documentation, are presented in Appendix A.

5.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

Caltrans intends to construct the I-80 lane-widening project in two phases. The first phase will consist of constructing the proposed improvements along EB I-80, and a second phase to construct improvements along WB I-80. We have similarly divided our discussion of field observations and test results for the EB and WB I-80 project phases.

5.1 Site Conditions

We advanced soil borings along the shoulders of EB and WB I-80, and along the shoulders of existing on- and off-ramps connecting to I-80 within the project limits. Borings located in embankment fill were typically advanced through dark brown, medium dense, silty sand with clay. Where borings were located in native materials, the subsurface consisted predominately of reddish-brown, dense to very dense, sand with clay, silt and fine gravel to a maximum depth of 3.0 ft (0.9 m).

We encountered refusal in eight borings (EB10, EB14, EB19, EB20, EB30, EB31, WB5, and WB9), at depths of 1.5 to 2.5 ft (0.45 to 0.76 m). These borings appeared to be located in cut areas through native bedrock composed of deeply weathered granite.

We did not observe groundwater in the soil borings advanced to 3.0 ft (0.9 m). Soil discoloration, "chemical" odors, or other obvious indications of hazardous substances or petroleum hydrocarbon products were not observed at the soil boring locations, in the cuttings, or in the soil samples collected.

5.2 ADL Analytical Results

We present a brief summary of the ADL test results for EB and WB I-80 below. Individual ADL test results are presented in Table 1. The laboratory reports and COC documentation are presented in Appendix A.

5.2.1 Eastbound I-80

Total lead was detected in 46 of 135 soil samples analyzed, with values greater than the laboratory method reporting limit (MRL) of 5.0 milligrams per kilogram (mg/kg), at concentrations ranging from 5.1 to 360 mg/kg.

Five of the 135 soil samples had reported total lead concentrations greater than or equal to 50 mg/kg (ten times the Soluble Threshold Limit Concentration (STLC) for lead of 5.0 milligrams per liter (mg/l). Soluble lead (WET) was measures at concentrations above 5.0 mg/l in three of the five samples, and with a range of 4.3 to 28 mg/l.

Soil pH values ranged from 6.4 to 6.9.

5.2.2 Westbound I-80

Total lead was detected in 50 of 116 soil samples analyzed (above the MRL of 5.0 mg/kg), at concentrations ranging from 5.4 to 190 mg/kg.

Seven of the 116 soil samples had reported total lead concentrations greater than or equal to 50 mg/kg (ten times the STLC of 5.0 mg/l). Soluble lead (WET) was measures at concentrations above 5.0 mg/l in three of the seven samples, and with a range of 3.0 to 17 mg/l.

Soil pH values ranged from 6.2 to 7.5.

5.3 Traffic Stripe Paint Sample Analytical Results

We present a brief summary of the traffic stripe paint sample test results for EB and WB I-80 below. Individual paint sample analytical results are presented on Table 2. Laboratory reports and COC documentation are included in Appendix A.

5.3.1 Eastbound I-80

Total lead test results for traffic stripe paint samples ranged from 860 mg/kg the (PC2) to 8,200 mg/kg (PC6). Paint samples PC1 and PC6 had total lead concentration greater than the California hazardous waste threshold (TTLC) of 1,000 mg/kg for lead.

Total chromium was reported at concentrations ranging from 210 mg/kg (PC2) to 2,000 mg/kg (PC6), which are less than the California hazardous waste threshold of 2,500 mg/kg. Soluble (WET) chromium was detected in two paint chip samples at concentrations of 2.8 mg/l (PC1) and 6.9 mg/l (PC6).

5.3.2 Westbound I-80

Total lead test results for traffic stripe paint samples ranged from less than the MRL of 1.0 mg/kg (PC3) to 6,100 mg/kg (PC5). Paint sample PC5 has a total lead concentration greater than the California hazardous waste threshold of 1,000 mg/kg for lead.

Total chromium was reported at concentrations ranging from 3.4 mg/kg (PC3) to 1,500 mg/kg (PC5), which are less than the California hazardous waste threshold of 2,500 mg/kg. Soluble (WET) chromium was detected in one paint chip sample at a concentration of 5.4 mg/l (PC5).

5.4 Laboratory Quality Assurance/Quality Control

We reviewed ATL's laboratory QA/QC data provided with the laboratory report in Appendix A. The data indicate acceptable non-detect results and surrogate recoveries for method blanks and acceptable

recoveries and relative percent differences (RPDs) for matrix spikes and matrix spike duplicates (MS/MSDs). The RPDs for duplicate (DUP) and/or MS/MSDs were outside criteria limits for samples 099080-020A-MSD, 099080-040A-DUP, 099054-090A-DUP, 099054-112AMS, and 099054-054A-DUP. ATL stated that the "laboratory control samples (LCS) validate the analytical batch."

The laboratory indicated that dilution was necessary for samples 099080-114A, 099080-116A, 099080-118A, 099080-119A, 099054-060A, 099054-089A, 099054-100A, and 099054-112A, due to sample matrix. The data showed acceptable recoveries and RPDs for the remainder of the matrix spikes and duplicates. Based on this limited data review, no additional qualifications of the soil data are necessary, and the data are of sufficient quality for the purposes of this report.

5.5 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the arithmetic means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and soluble lead concentrations exists that would allow the prediction of soluble lead concentrations based on calculated UCLs. The statistical methods used are discussed in a book entitled *Statistical Methods for Environmental Pollution Monitoring,* by Richard Gilbert (1987); in an EPA *Technology Support Center Issue* document entitled, *The Lognormal Distribution in Environmental Applications,* by Ashok Singh et. al., (December 1997); and in a book entitled *An Introduction to the Bootstrap,* by Bradley Efron and Robert J. Tibshirani (1993).

5.5.1 Calculating the UCLs for the Arithmetic Mean

The upper one-sided 90% and 95% UCLs of the arithmetic mean are defined as the values that, when calculated repeatedly for randomly drawn subsets of site data, equal or exceed the true mean 90% and 95% of the time, respectively. Statistical confidence limits are the classical tool for addressing uncertainties of a distribution mean. The UCLs of the arithmetic mean concentration are used as the mean concentrations because it is not possible to know the true mean due to the essentially infinite number of soil samples that could be collected from a site. The UCLs therefore account for uncertainties due to limited sampling data. As data become less limited at a site, uncertainties decrease, and the UCLs move closer to the true mean.

Non-parametric bootstrap techniques used to calculate the UCLs are discussed in the previously referenced EPA document and in *An Introduction to the Bootstrap.* For those samples in which total lead was not detected at concentrations exceeding the laboratory MRL, a value equal to one-half of the MRL was used in the UCL calculation. The bootstrap UCL results are included in Appendix B. The calculated UCLs and statistical results for the EB and WB phases of the I-80 project are summarized in the following tables:

Eastbound I-80

SAMPLE INTERVAL	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0.0 to 1.0 ft (0 to 0.3 m)	37.6	41.3	26.1	2.5*	360
1.0 to 2.0 ft (0.3 to 0.6 m)	6.1	6.4	5.1	2.5*	24
2.0 to 3.0 ft (0.6 to 0.9 m)	5.6	6.0	4.5	2.5*	27

* = one-half of the MRL

Westbound I-80

SAMPLE INTERVAL	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0.0 to 1.0 ft (0 to 0.3 m)	32.6	34.8	25.0	2.5*	190
1.0 to 2.0 ft (0.3 to 0.6 m)	9.0	9.6	6.7	2.5*	55
2.0 to 3.0 ft (0.6 to 0.9 m)	5.5	5.8	4.3	2.5*	39

* = one-half of the MRL

5.5.2 Correlation of Total and Soluble Lead

Total and corresponding soluble (WET) lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of soluble lead (WET) concentrations based on the UCLs calculated above in Section 5.4.1.

To estimate the degree of interrelation between total and corresponding soluble (WET) lead values (x and y, respectively), the *correlation coefficient [r]* is used. The correlation coefficient is a ratio that ranges from +1 to –1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of –1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. We calculated the *correlation coefficient [r]* for the twelve (x, y) data points (i.e., soil samples analyzed for both total lead [x] and soluble [WET] lead [y]), with a result of $r = 0.938$. A *correlation coefficient* greater than or equal to 0.8 is an acceptable indicator that a correlation exists.

For the *correlation coefficient* that indicates a linear relationship between total and soluble (WET) lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0784(x)$, where x represents total lead concentrations and y represents predicted soluble lead (WET) concentrations. This equation was used to estimate the expected WET soluble lead concentrations for the UCLs calculated in Section 5.4.1.

Regression analysis results and a scatter plot depicting the (x, y) data points along with the regression line are included in Appendix B. The 90% and 95% UCL-predicted WET soluble lead concentrations for the project's EB and WB project construction phases are summarized in Sections 6.1.1 and 6.1.2. Due to the relatively small population size of the soluble lead (WET) test results, we did not perform separate correlation and regression analysis for each EB and WB phase of the I-80 project.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 ADL Soil Waste Disposal/Reuse Classification

Waste classifications based on the 90% UCL of the lead content for the relevant excavation depths has historically been considered sufficient to satisfy a good faith effort by the EPA as discussed in SW-846. Risk assessment characterization is typically based on the 95% UCL of the lead content in the waste for the relevant depths; this is in accordance with the Risk Assessment Guidance for Superfund (RAGS), Volume 1, Documentation for Exposure Assessment. Per Caltrans, the 90% UCLs are to be used to evaluate onsite reuse and the 95% UCLs are to be used to evaluate offsite disposal.

6.1.1 Eastbound I-80

The following presents the predicted soluble (WET) lead concentrations and waste classifications for soil within the EB I-80 project area, based on the calculated total lead UCLs and the relationship between total and soluble (WET) lead. Based on excavation scenarios proposed by the Caltrans QA Manager, we summarize the 90% and 95% UCL-predicted soluble (WET) lead calculations to depths of 0.0 to 1.0 ft (0 to 0.3 m), 0 to 2.0 ft (0.6 m), and 0 to 3.0 ft (0.9 m).

Eastbound I-80

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	95% UCL Predicted WET Lead (mg/l)	Waste Classification
0 to 1.0 ft (0 to 0.3 m)	37.6	2.9	41.3	3.2	Non-hazardous
Underlying soil (1.0 to 3.0 ft)	*5.9*	*0.5*	*6.2*	*0.5*	*Non-hazardous*
0.0 to 2.0 ft (0 to 0.6 m)	21.9	1.7	23.9	1.9	Non-hazardous
Underlying soil (2.0 to 3.0 ft)	*5.6*	*0.4*	*6.0*	*0.5*	*Non-hazardous*
0 to 3.0 ft (0 to 0.9 m)	16.4	1.3	17.9	1.4	Non-hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal

Based on the above table, soil excavated to a maximum depth of 3.0 ft (0.9 m) will not be classified as a California hazardous waste since the 90% UCL-predicted soluble (WET) lead concentrations are less than the lead STLC of 5.0 mg/l. Consequently, soil excavated from the surface to any depth up to 3.0 ft (0.9 m) can be reused or disposed as non-hazardous soil with respect to lead content.

6.1.2 Westbound I-80

The following presents the predicted soluble (WET) lead concentrations and waste classifications for soil within the WB I-80 project area, based on the calculated total lead UCLs and the relationship

between total and soluble (WET) lead. We summarize the 90% and 95% UCL-predicted soluble (WET) lead calculations for the depths listed on the table below:

Westbound I-80

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	95% UCL Predicted WET Lead (mg/l)	Waste Classification
0 to 1.0 ft (0 to 0.3m)	32.6	2.6	34.8	2.7	Non-hazardous
Underlying soil (1.0 to 3.0 ft)	*7.3*	*0.6*	*7.7*	*0.6*	*Non-hazardous*
0.0 to 2.0 ft (0 to 0.6m)	20.8	1.6	22.2	1.7	Non-hazardous
Underlying soil (2.0 to 3.0 ft)	*5.5*	*0.4*	*5.8*	*0.5*	*Non-hazardous*
0 to 3.0 ft (0 to 0.9 m)	15.7	1.2	16.7	1.3	Non-hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal

Based on the above table, soil excavated to a maximum depth of 3.0 ft (0.9 m) will not be classified as a California hazardous waste since the 90% UCL-predicted soluble (WET) lead concentrations are less than the lead STLC of 5.0 mg/l. Consequently, soil excavated from the surface to any depth up to 3.0 ft (0.9 m) can be reused or disposed as non-hazardous soil with respect to lead content.

6.2 Traffic Stripe Paint Waste Classification/Disposal

Traffic stripe paint chip samples were obtained per Caltrans' request, since it may be removed from the underlying asphalt concrete by grinding or sand blasting, which would create a paint waste stream.

6.2.1 Eastbound I-80

The highest reported concentrations of total lead for the yellow traffic stripe paint samples were 3,200 mg/kg (PC1) and 8,200 mg/kg (PC6). Since the total lead concentration of two of the three paint samples is greater than the TTLC value for lead of 1,000 mg/kg, the yellow traffic stripe paint may require disposal as a California hazardous waste. Additional analytical testing of the yellow traffic stripe paint waste stream would be required to determine appropriate disposal options.

The highest reported level of total chromium for the yellow traffic stripe paint samples was 2,000 mg/kg (PC6). The yellow traffic stripe paint will not require disposal as a California hazardous waste with respect to the total chromium level since this value is less than the TTLC value for chromium of 2,500 mg/kg. The highest reported level of soluble (WET) chromium was 6.9 mg/l. Yellow traffic stripe paint will not require disposal as a California hazardous waste with respect to soluble chromium since it is less than the chromium STLC value of 560 mg/l.

6.2.2 Westbound I-80

The highest reported concentration of total lead for the yellow traffic stripe paint samples was 6,100 mg/kg (PC5). Since the total lead concentration of one of the three yellow traffic stripe paint samples (PC5) is greater than the TTLC value for lead of 1,000 mg/kg, the yellow traffic stripe paint may require disposal as a California hazardous waste, with respect to lead. Additional analytical testing of the yellow traffic stripe paint waste stream would be required to determine appropriate disposal options.

The highest reported level of total chromium for the yellow traffic stripe paint samples was 1,500 mg/kg (PC5). The yellow traffic stripe paint will not require disposal as a California hazardous waste with respect to total chromium level since it is less than the TTLC value for chromium of 2,500 mg/kg. The highest reported level of soluble (WET) chromium was 5.6 mg/l. Yellow traffic stripe paint will not require disposal as a California hazardous waste with respect to soluble chromium since it is less than the chromium STLC value of 560 mg/l.

6.3 Worker Protection

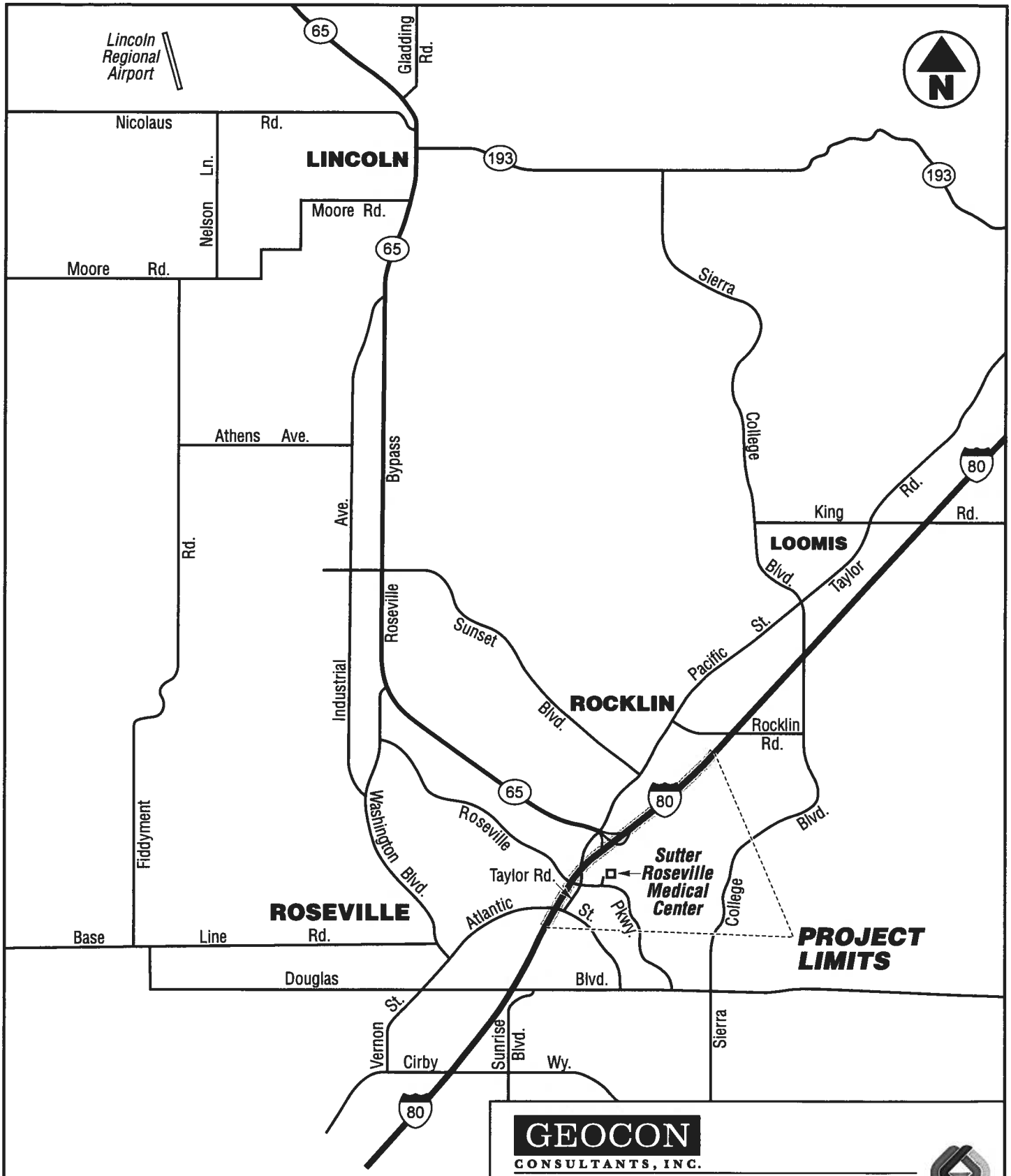
Per Caltrans' requirements, the contractor(s) should prepare a project-specific Lead Compliance Plan (CCR Title 8, Section 1532.1, the "Lead in Construction" standard) to minimize worker exposure to lead-impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of lead-impacted soil.

Since material at the site contains lead and/or chromium and according to Caltrans, removal of the yellow traffic stripe paint may produce toxic waste streams, we recommend that a health and safety plan be prepared to minimize worker exposure. The health and safety plan should include a discussion of the constituents of concern, routes of exposure, permissible exposure limits, and personal protective measures. The health and safety plan should be reviewed and signed by the onsite construction workers prior to any field activities. We also recommend that contractors prepare a dust control plan if they intend to grind asphalt that has been coated with yellow paint. The dust control plan should include dust mitigation and monitoring procedures.

7.0 REPORT LIMITATIONS

This report was prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. Findings as presented in this report are predicated on the results of the limited sampling and laboratory testing conducted. In addition, the information obtained is not intended to address potential impacts associated with sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. We strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



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Interstate 80 Placer ADL (03-PLA-80)

I-80 PM 2.9-5.6 (KP 4.6-9.0) Placer County, California	**VICINITY MAP**
GEOCON Proj. No. S9300-06-42	
Task Order No. 42	July 2008 | Figure 1

APPENDIX F

BCI Initial Site Assessment Eureka Road/
I-80 Improvement Project

Initial Site Assessment
Eureka Road/I-80 Improvement Project
Roseville, California

Prepared for
PSOMAS

November 2008

Prepared by
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Initial Site Assessment
Eureka Road/I-80 Improvement Project
Roseville, California

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Figure 1- Vicinity Map

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INVESTIGATIVE SUMMARY

Blackburn Consulting (BCI) has completed this Initial Site Assessment (ISA) for the Eureka Road/I-80 Improvement Project in Roseville, California. The purpose of this assessment is to identify recognized environmental conditions[1] (RECs) and/or potential RECs within and adjacent to the area proposed for improvements. The project involves road improvements on Eureka Road, Eureka Road/North Sunrise Avenue Intersection and Eureka Road/Taylor Road/I-80 Eastbound Ramp Intersection. PSOMAS has identified eight properties adjoining the project for which right of ways will be acquired.

Sites Within or Adjacent to the Project Corridor with Potential RECs

There are two sites adjacent to the project corridor, Taylor Road Shell Station (APN 015-450-014) located at 183 Taylor Road, and Roseville Golfland (APN 015-450-079), located at 1893 Taylor Road), which have registered Underground Fuel Storage Tanks (USTs) or Above Ground Fuel Storage Tanks (ASTs). Both USTs and ASTs are associated with the potential release of hydrocarbons to the soil and groundwater. However, the tanks identified in this report are relatively new, installed after 1993, are constructed with spill containment controls and have no reported leaks; therefore we do not expect significant contamination associated with leaks from these tanks. Due to the age and proximity of the tanks to the project, no further action is recommended.

There are two sites within/adjacent to the project corridor, Bob's Cycle Center and Taylor Road Shell Station, that utilize other hazardous materials in their daily operations.

- Bob's Cycle Center (APN 048-450-053) generates small quantities of hazardous waste consisting of an aqueous solution of <10% organic residue generated during shop operations.
- Taylor Road Shell Station (APN 015-450-014) is a small quantity generator of hazardous waste including organic solids/liquids and xylene, all associated with automobile service and maintenance operations. They also store hazardous materials in the registered USTs.

There have been no reported incidents or indication of releases at either of these sites. No further action is recommended.

BCI uses the term Recognized Environmental Condition (REC) in general but not strict compliance with ASTM E1527-05, which defines the meaning as *"the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimus conditions that generally do not present a threat to human health or the environment and generally would not be the subject of an enforcement action if brought to the attention of the appropriate regulatory agencies. Conditions determined to be de minimus are not recognized environmental conditions."* BCI includes this definition to clarify conditions addressed in this ISA but, it does not imply that this ISA is compliant with ASTM E 1527 – 05.

Sites Near the Project Corridor with Known RECs

Petroleum contamination has been identified at the site known as Buljan Gas (111/121 Wills Road). This site is approximately 0.23 miles west of the project corridor and is located west of I-80 at the I-80 westbound on-ramp and south of Atlantic Street (which transitions to Eureka Road). The site is bordered by Dry Creek (south) and Miners Ravine (east). The Buljan Gas site is an open case with the Regional Water Quality Control Board (RWQCB) due to localized soil contamination and shallow groundwater contamination. There are no indications that contamination associated with the Buljan Gas site release will impact the project corridor. No further action is recommended.

Sites Near the Project Corridor which Use/Store Hazardous Materials

Several sites near the project corridor utilize hazardous materials in their daily operations. A majority of these are automobile sales, service and repair including Carmax #7147 (APN 048-450-064, located at 1450 Eureka Road) and multiple automobile businesses (Roseville Automall) located from 100-900 Automall Drive. Hazardous wastes such as solvents and petroleum products are generated in conjunction with these operations. This area began development in the early 1990's. Construction at that time would include spill containment controls that meet all current state regulations. There have been no reported leaks; therefore we do not expect contamination associated with these operations to impact the project corridor. Due to the age and proximity of these sites, no further action is recommended.

Aerially Deposited Lead

Aerially Deposited Lead (ADL) has been found to occur in soils adjacent to highways. The lead is presumably from the historical use of leaded gasoline and subsequent exhaust emissions. If improvement work is proposed within existing Caltrans right-of-way at Interstate 80, the potential for ADL should be evaluated. An appropriate soil management plan will need to be developed for soil containing significant concentrations of ADL. Hazardous levels of ADL will need to be removed and disposed of at a Class 1 disposal facility.

Yellow Traffic Stripes

Yellow traffic stripes are know to contain heavy metals such as lead and chromium at concentrations in excess of the hazardous waste thresholds established by the California Code of Regulations (CCR) and may produce toxic fumes when heated. Consequently, removal of yellow traffic striping within the project area will require that an appropriate Lead Compliance Plan be developed.

Contaminated Shallow Groundwater/Surface Water/Soil at Miners Ravine

Miners Ravine is a perennial, ungauged stream with high flows occurring during the rainy season. There is also a potential for shallow, perched groundwater, at levels near the elevation of surface water to be encountered in the Miners Ravine channel.

Miners Ravine has historically been the site of Placer County mining operations during the Gold Rush and areas of tailings (mining waste) may still be present. Mine tailings were identified on historical topographic maps (1967, 1975, and 1981) in the project area. Mine tailings have been associated with elevated levels of mercury contamination and may impact both the soil and water (surface and shallow ground water) quality. BCI's site observation did not reveal any areas of this project that will impact obvious areas of historic mine tailings. However, the foundation area for the Eureka Road bridge is expected to be in an area disturbed by previous grading operations, therefore, based on visual observations we are not able to determine if there may have been historic mine tailings in the bridge improvement area. We recommend further investigation into the origin and process used to create mine tailings in this area, and if no definitive history of the mining operations is available, we recommend a Phase II subsurface investigation to determine the potential impact mine tailings may have on the soil and/or shallow groundwater at this site. The Phase II would be limited to sample collection and analysis of sediment and shallow groundwater from the bridge construction area.

1. INTRODUCTION

In 2007, PSOMAS retained Blackburn Consulting (BCI) to perform an Initial Site Assessment (ISA) for the Eureka Road/I-80 Improvement Project in Roseville, California. The purpose of this assessment is to identify recognized environmental conditions[2] (RECs) and potential RECs within and adjacent to the proposed improvement corridor.

To conduct this ISA, BCI:

- Conducted a limited site visit to observe current land use and potential indications of contamination on the subject properties, and view publicly accessible portions of the adjacent properties;
- Identified past and present land use to assess the potential for hazardous materials impact;
- Reviewed historical aerial photographic coverage and topographic map coverage of the site and surrounding properties for indications of potential sources of contamination;
- Obtained preliminary project plans indicating parcel numbers.
- Performed federal, state, and county records review for indications of the use, misuse, or storage of hazardous and/or potentially hazardous materials in or adjacent to the project corridor. The federal, state, and county database search was provided by a record check service (EDR). A copy of their report is attached in Appendix A.
- Reviewed the general site geology, groundwater, and soil conditions through published maps and literature.

2. PROJECT LOCATION AND DESCRIPTION

The Eureka Road/I-80 Improvement Project is located in the City of Roseville, Placer County, California. The project involves Eureka Road from approximately North Sunrise Avenue on the east and Interstate 80 eastbound on-ramp on the west. We show the project area on Figure 1. The project includes improvements at the following locations:

[2] BCI uses the term Recognized Environmental Condition (REC) in general but not strict compliance with ASTM E1527-05, which defines the meaning as *"the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimus conditions that generally do not present a threat to human health or the environment and generally would not be the subject of an enforcement action if brought to the attention of the appropriate regulatory agencies. Conditions determined to be de minimus are not recognized environmental conditions."* BCI includes this definition to clarify conditions addressed in this ISA but, it does not imply that this ISA is compliant with ASTM E 1527 – 05.

- **Westbound Eureka Road**: Provide a fourth travel lane beginning approximately 600 feet east of North Sunrise Avenue and extending to Taylor Road. This includes widening of Eureka Road Bridge.

- **North Sunrise Avenue/Eureka Road Intersection**: Convert the inside through lane on northbound and southbound North Sunrise Avenue to a left turn lane. Convert the current free right turn lanes on southbound North Sunrise Avenue and westbound Eureka Road to signal-controlled right turn lanes. Extend the southbound merge lane on North Sunrise Avenue.

- **Eureka Road/Taylor Road/I-80 Eastbound Ramp Intersection**: Construct a second left turn lane on eastbound Eureka Road from eastbound I-80 off-ramp. Install ramp metering with two mixed flow lanes on the eastbound I-80 on-ramp from westbound Eureka Road. Widen eastbound I-80 on-ramp from eastbound Eureka Road.

3. SITE CONDITIONS

3.1 Topography and Drainage

In general, site topography slopes gently to the west. Miners Ravine traverses the site in a northeast to southwest direction with a channel area on the order of 200 to 300 feet wide which is 20 to 25 feet below the surrounding area (i.e. existing road surface elevation). Channel slopes are gently to moderately sloping. Ground elevations range from a high of approximately 250 feet above mean sea level (MSL) near North Sunrise Avenue (based on topography provided by PSOMAS) to a low of approximately 155 feet at Miners Ravine.

Cuts and fills for roadways and development have modified original topography and drainage. Cuts on the order of 5 feet occur near the intersection of Eureka Road and North Sunrise, and fills on the order of 15 to 20 feet occur at the abutments for Eureka Road Bridge. Drainage along the project alignment generally flows to Miners Ravine through storm drainage facilities.

3.2 General Geologic Conditions

BCI evaluated the geology of the area through available geotechnical reports, geologic maps and literature, site review, and subsurface investigation. Based on the Geologic Map of the Sacramento Quadrangle, the project alignment is immediately underlain by Miocene-Pliocene age (approximately 23 to 2 million years old) volcanic/intervolcanic deposits of the Mehrten Formation.

Review and subsurface exploration confirms the presence of the Mehrten Formation within the project area. Deposits of the Mehrten Formation are exposed in cuts along the alignment and within Miners Ravine and consist primarily of andesitic, volcanic mudflow breccia and cobble conglomerate. Breccia consists of a gray mixture of gravel to boulder size, angular, andesitic fragments. These fragments are well cemented in a matrix of volcanic lapilli and ash (tuff). The conglomerate consists primarily of cobbles in a well-cemented matrix of andesitic sand and silt, and often contains interbedded layers of sandstone, siltstone, and lenses of mudflow breccia. In

this area, bedding within the Mehrten Formation typically dips gently (2 to 4 degrees) to the west/southwest.

3.3 Surface Water, Groundwater and Wells

Miners Ravine is a perennial, ungauged stream with high flows occurring during the rainy season. Springs and urban runoff contribute to summertime flows in the system. Miners Ravine is a tributary of the Dry Creek system and is approximately 15.65 miles in length. Miners Ravine was the site of placer mining operations during the Gold Rush and areas of tailings (mining waste) remain to this day. Tailings were identified on historical topographic maps (1967, 1975 and 1981).

We reviewed groundwater level data made available by the California Department of Water Resources (DWR) and available groundwater elevation maps (DWR: 1974, 1993, and Placer County: 2002). In the project vicinity, the regional groundwater table has been recorded at an elevation of approximately 10 to 20 feet above mean sea level (amsl). This is a depth of more than 100 feet below the ground surface throughout a majority of the project. The regional groundwater gradient is to the southwest.

Shallow groundwater, however, likely occurs in the Miners Ravine channel. Groundwater levels near the elevation of water in the channel should be anticipated.

No public wells are reported adjacent to the project corridor.

4. CURRENT LAND USE

The project corridor consists of a floodplain/preservation area, undeveloped land, and existing roadway, curb, gutter, sidewalk, and open shoulder areas, which include portions of the following roads:

- Eureka Road
- North Sunrise Avenue
- Taylor Road
- I-80 Interchange

The properties adjacent to these roadways are mixed use. We summarize the general land use of each portion of the corridor below.

***Eureka Road Corridor from Taylor Road to N. Sunrise Ave*:** This portion of the project includes a floodplain/preservation area and commercial/retail properties. The area north of Eureka Road is bordered by Miners Ravine floodplain, Olympus Point/United Artist Theater, and a Black Angus restaurant. The south side of Eureka Road is bordered by Miners Ravine floodplain, two large furniture showrooms, several restaurants and a fitness facility.

***Interstate 80 Interchange at Eureka Road/Taylor Road*:** The properties located between EB I-80 on ramp (from WB Eureka Road) and Taylor Road are primarily commercial, including a Shell Service Station, several restaurant and retail buildings, a Park and Ride parking lot, and Sunsplash/Golfland's raceway, golf and water park. The property south of Eureka at I-80, including the eastbound I-80 on ramp from Atlantic Street and the eastbound I-80 off ramp to EB Eureka Road is undeveloped. This area is bordered to the east by Miners Ravine and to the south by Dry Creek.

***N. Sunrise Avenue/Eureka Road*:** This portion of the project is bordered by undeveloped land, commercial, and retail properties. The property at the northeast intersection of Eureka Road and N. Sunrise Ave. is undeveloped land. East of the project corridor are multiple restaurants and the Hardrock Substation. A restaurant is located at the northwest intersection. The southwest intersection and continuing on the west side of N. Sunrise Avenue is a plaza containing a furniture showroom, tanning salon, Bob's Cycle Center, and restaurants.

Planned Acquisition Properties: According to PSOMAS, they plan to acquire portions of eight parcels to complete roadway widening and related improvements. Typically, the planned acquisitions are narrow strips of land along the existing roadways. The planned acquisition properties are listed below.

048-450-054-000 (Bob's Cycle Center, Tanning Salon)
048-450-051-000 (Fitness Center, Restaurant, Parking)
048-450-053-000 (Furniture Store, Restaurant)
048-450-083-000 (Furniture Store)
048-450-093-000 (Parking)
015-450-042-000 (Olympus Point Theaters)
015-450-043-000 (Parking)
015-450-044-000 (Restaurant)

5. HISTORICAL LAND USE

5.1 Historical Aerial Photograph Review

BCI's aerial photo review includes photos from 1952, 1962, 1981, 1993, and 1998 as listed below:

1952 Photo by Southwestern, Scale 1"=555'
1961 Photo by Cartwright, Scale 1"=555'
1981 Photo by Cartwright, Scale 1'=333'
1993 Photo by USGS, Scale 1"=666'
1998 Photo by USGS, Scale 1"=666'

We reviewed historic aerial photography in an attempt to identify significant changes in site use and/or facilities that may indicate the potential for hazardous materials within or adjacent to the project corridor. Copies of aerial photographs are provided in Appendix B. The following is a summary of notable features we observed on historic aerial photographs:

1952: The project corridor is generally open land which includes the Miners Ravine floodplain. Early counterparts of Eureka Road and Taylor Road are present. Interstate 80 is not present. Southern Pacific Railroad is present and is located as it is today; due west of the project corridor.

1962: The project corridor is similar to the 1952 photograph with the following significant changes:

1. Interstate 80 is constructed and includes an overcrossing for the eastbound off-ramp and on-ramps at Atlantic Street (Atlantic Street transitions to Eureka Road at I-80).
2. No commercial buildings have been added.
3. Power lines are present and are located running perpendicular to I-80.

1981: The project corridor is similar to the 1962 photographs.

1993: The project corridor is similar to the 1981 photographs with the following significant changes:

1. Interstate 80 modifications include removal of the eastbound on- and off-ramp overpass, and the addition of new on and off ramps and overcrossing. The configuration is the same as present day.
2. Eureka Road Bridge (over Miners Ravine) is now present and Eureka Road is improved east of I-80 to its present day configuration.
3. Development east of Miners Ravine and south of Eureka Road includes a large commercial and retail area described as Olympus Pointe. There is no development north of Eureka Road.
4. North Sunrise Avenue is now improved to its present day form. Development along N. Sunrise Avenue includes Olympus Pointe and Sam's Club/Home Depot to the west and Roseville Automall to the east.

1998: The project corridor is similar to the 1993 photographs with the following significant changes:

1. Development of the parcels between I-80 and Taylor Road. This area includes a service station and mixed retail/commercial use.
2. Development east of Miners Ravine north of Eureka Road includes Olympus Pointe Theater and a restaurant.
3. The southeast corner of Eureka Road/N. Sunrise Avenue is now developed. The Roseville Automall has several new areas developed.

5.2 Historical Topographic Map Review

BCI's topographic map review includes USGS 7 ½ -minute quad maps from 1910, 1953, 1954, 1967, 1975, 1981, and 1992; and 15 minute quad maps from 1953 and 1954. Copies of topographic maps are provided in Appendix B. This summary includes the noted changes within and adjacent to the project area as recorded on the maps:

1910: The project corridor is generally open land including the Miners Ravine floodplain. Land is primarily used for cattle grazing. Early counterparts of Eureka Road are present. Interstate 80 is not present. To the west of the project corridor Southern Pacific Railroad is present and has a spur line branching south from the main line at Atlantic Road/Eureka Road. The spur line is located where I-80 will eventually be located.

1953: The project corridor is similar to the 1910 map with the following significant changes:

1. I-80 is under construction identified as North Sacramento Freeway.
2. Early counterparts of Eureka Road have shifted north.
3. The Southern Pacific Railroad spur is gone (located where I-80 is being constructed).
4. Electric lines are present running due east/west and appear to be within the project corridor.

1967: The project corridor is similar to the 1953 map with the following significant changes:

1. I-80 is completed. Taylor Road is constructed.
2. Mine tailings are identified in Miners Ravine.
3. Additional electric lines are present running parallel to and north of the existing lines and appear to be within the project corridor.

1975: The project corridor is similar to the 1967 map.

1981: The project corridor is similar to the 1975 map.

1992: The project corridor is similar to the 1981 map with the following significant changes:

1. I-80 on and off-ramps have been reconfigured to present day configuration.
2. Eureka Road and North Sunrise Blvd. are constructed.

5.3 Historical City of Roseville Directory Review

A historical City of Roseville Directory was reviewed to look for evidence of sites within the project area that are not identified in other sections of this report and/or to obtain additional information about sites included in other sections of this report. There was no new information identified in this report.

5.4 Historical Sanborn Map Review

Sanborn Maps do not exist for the project area.

6. CURRENT AND PAST USES OF NEARBY PROPERTIES

Nearby properties consist of Miners Ravine floodplain/preservation area and mixed use areas. The mixed use areas were initially developed for rural and railroad (Southern Pacific Railway parallels I-80 corridor) use. These properties now consist (with the exception of the railroad) of commercial/retail services. A significant portion of these services involve automobile service and sales as well as theaters, restaurants, and retail.

The area southwest of I-80 now consists of a U-Haul facility and Fratcher's Autobody Shop. This area historically housed oil tanks (servicing Southern Pacific Railway) in the 1950's. Subsequent use has included fuel storage (Mel Dawson Inc., Latham Lumber, Buljan Gasoline) and commercial services.

Located on the west side of I-80 is the Berry Street Receiving Station. The Hardrock Substation is located at the northwest corner of Eureka Road and Rocky Ridge Road. The Roseville Sanitary Landfill is also located at Berry Road.

7. RECORDS REVIEW

7.1 Review of County, State, and Federal Records

We requested EDR to perform a county, state, and federal database review. To complete that review EDR searched the following databases:

- National Priorities List (NPL)
- Proposed, Delisted, Liens NPL
- Comprehensive Environmental Response, Compensation, And Liability Information System (CERCLIS)
- CERCLIS No further Remedial Action Planned (CERC-NFRAP)
- Corrective Action Report (CORRACTS)
- Resource Conservation and Recovery Information System
- US Engineering Controls Site List
- Emergency Response Notification System (ERNS)
- Hazardous Materials Information Reporting System (HMIRS) & CA (CHMIRS)
- DOT OPS Incident and Accident Data
- Clandestine Drug Labs
- US Brownfields
- DoD/FUDS Formerly Used Defense Sites
- Land Use Control Information System
- Superfund Consent Decrees (CONSENT)
- Spills, Leaks, Investigations and Cleanup (SLIC)
- Records of Decision
- Uranium Mill Tailing Sites
- Open Dump Inventory
- Debris Region 9
- Mines

- Toxic Chemical Release Inventory System (TRIS)
- Toxic Substances Control Act (TSCA)
- FTTS FIFRA/TSCA & Section 7 Tracking Systems
- Integrated Compliance Information System
- Facility Index System (FINDS)
- PCB Activity Database
- Material Licensing Tracking System
- Radiation Information Database
- Biennial Reporting System
- Annual Workplan Sites (AWP)
- Calsites Database (Cal-Sites)
- "Cortese" Hazardous Waste & Substances Sites List (Cortese)
- Proposition 65 records (Notify 65)
- School Property Evaluation Program
- Toxic Pits Cleanup Act Sites (Toxic Pits)
- Solid Waste Information System (SWF/LF)
- Waste Discharge System (CA WDS)
- Recycler Database (SWRCY)
- Waste Management Unit Database (WMUDS/SWAT)
- Leaking Underground Storage Tanks (LUST)
- Underground Storage Tanks (UST)
- Above Ground Storage Tanks (AST)
- Statewide Spills, Leaks, Investigation & Cleanup (SLIC)
- Environmental Liens Listing
- Notify 65 Proposition 65 Records
- Deed Restriction Listing
- Drycleaners
- Well Investigation Program
- State Response Sites
- HAZNET Facility and Manifest Data
- Emissions Inventory Data
- EnviroStor Database
- Registered Waste Tire Haulers Listing
- California Bond Expenditure Plan
- Facility Inventory Database (CA FID UST)
- No Further Remedial Action Planned (NFRAP)
- Voluntary Cleanup Program Properties (VCP)
- Underground Storage Tanks on Indian Land (Indian UST)
- County Records

We provide the EDR report dated April 07, 2008 in Appendix C (Executive Summary in hardcopy, the complete report on CD). EDR searched a 1-mile radius from the approximate project boundary. EDR plotted sites with adequate address information. Sites with inadequate address information are listed as "Orphan Sites" and mapped locations are not provided. BCI reviewed the list of 16 orphan sites identified by EDR. Our review of the orphan sites determined that none of these sites indicate that there are any potential RECs associated with these locations which are expected to affect the project.

7.2 Summary of Records Search

To generate this summary, we reviewed the EDR database records search for all sites listed within the searched area. This summary discusses parcels where contamination and/or potentially hazardous waste issues were identified. It includes a brief description of listed sites that are within the project boundary or are considered close enough to the project to have a potential impact. Most of the sites are locations that legally use, store, and/or generate and/or

dispose of hazardous materials, or are previously mitigated sites that we do not expect to present a potential hazardous materials/waste impact within the corridor.

The following section identifies sites recorded in the EDR search. Each section represents sites located within, adjacent, or near to specific portions of the project corridor.

Sites Within or Adjacent to the Project Corridor:

Taylor Road Shell Station. 1813 Taylor Road. This site maintains a registered Underground Fuel Storage Tank (UST) and is a small quantity generator (SQG) of organic solids, organic liquid mixtures, and benzene. Disposal methods include transfer station, treatment/tank. No violations reported. (RCRA-SQG, FINDS, UST, HAZNET)

Roseville Golfland Ltd. 1893 Taylor Road. This site maintains a registered 1,000 gallon above ground fuel storage tank. Records indicate proper spill containment/control is in place. No violations reported. This site is adjacent to the project corridor. (AST)

Bob's Cycle Center. 378 N. Sunrise Blvd. This site is listed as a generator of an aqueous solution of <10% total organic residues. Disposal method is via treatment tank. No violations noted or releases indicated. (HAZNET)

Sam's Club 384 N. Sunrise Blvd. Sam's Club is no longer at this location. This site was a SQG of metal sludge. Disposal method was via recycler. On 1/16/1999 a back hoe cut a natural gas line during construction. The Fire Department responded. On 3/19/1994 latex paint was washed down the storm drain while contractors were washing paintbrushes. Subsequent flow was into Dry Creek. They were cited by CA Department of Fish and Game at the scene. No other violations or releases indicated (CHMIRS, HAZNET).

Sites w/in 1/8 miles of the Project Corridor:

Carmax. 1450 Eureka Road. This site is a listed Small Quantity Generator (SQG) for organic residue, oxygenated solvents, spent halogenated solvents, benzene and oil/water separation sludge. Disposal methods include treatment/tank and transfer station. No violations are indicated. On 11/13/2001 a tractor cut a natural gas line. The Fire Department responded. PG&E closed pipeline and repaired. On 1/18/2002 a back hoe dug into a 2" gas pipe causing natural gas release. Fire Department responded. (RCRA-SQG, FINDS, CHMIRS, HAZNET)

Roseville Automall. This area consists of 12 automobile sales/service centers. There are two listed 10,000 gallon UST (900 Automall Drive) containing regular unleaded and diesel fuel. Tanks were registered in 1991. No incidents reported. All of the centers are SQG's handling spent halogenated solvents, non-halogenated solvents, oxygenated solvents, petroleum hydrocarbon waste. No incidents reported. (RCRA-SQG, FINDS, SWEEPS UST, HAZNET)

Home Depot. 324 N. Sunrise Blvd. This site is a SQG of ignitable hazardous waste, mercury, benzene, MEK, and spent non-halogenated solvents. (RCRA-SQG)

Mel Dawson Inc. 1450 Atlantic Street. Mel Dawson Inc. was a petroleum bulk storage facility. This site was listed in 1980 as a large quantity generator (LQG). An on-site inspection was conducted in 1984 and no violations were found. This site was relisted in 1996 as a small quantity generator. No bulk storage tanks are visible at this site. (RCRA-SQG, FINDS)

Latham Lumber Sales. 1460 Atlantic Street. This site is listed as a historical UST site. The tank was installed in 1973 and was used for storage of regular fuel. No further information is available. (HIST UST)

Buljan Gasoline Spill/Adjacent Property Diesel Spill. 111, 121 Wills Road. This site is listed (January 7, 2008) as a Spills, Leaks, Investigations and Cleanups (SLIC) Section site indicating that soil or groundwater contamination has occurred. (SLIC)

8. RECONNAISSANCE INFORMATION

BCI completed a site reconnaissance on April 11, 2008. Observations were made from publicly accessible parcels. Our observations generally support the land use descriptions and background data above.

9. OTHER REVIEW

9.1 Review of Title Documents

BCI was not provided title documents for this assessment.

9.2 Prior Environmental Investigations

BCI is not aware of any prior hazardous materials assessments completed for this project or corridor.

10. FINDINGS, CONCLUSIONS, & RECOMMENDATIONS

We performed this Initial Site Assessment for the Eureka Road/I-80 Improvement project. Typical of an Initial Site Assessment, the scope is directed at determining whether there may be hazardous materials on, or near, the project corridor at levels that are likely to impact the project and/or warrant mitigation pursuant to regulations.

10.1 Sites with RECs and/or Potential RECs

Following is a brief description of sites within/adjacent and near the general project area that were identified as having potential contamination and/or hazardous material issues. Generally, we did not encounter hazardous material conditions that we expect will significantly impact project design and/or construction.

Sites Within or Adjacent to the Project Corridor with Potential RECs

There are three sites within/adjacent to the corridor, Taylor Road Shell Station and Roseville Golfland and Bob's Cycle Center, which utilize and/or store hazardous materials in their daily operations.

Taylor Road Shell Station. 1813 Taylor Road. This site is a small quantity generator (SQG) of organic solids, organic liquid mixtures, and benzene all associated with automobile service/maintenance operations. Disposal methods include a transfer station and treatment/tank. No violations or releases are indicated. This site also maintains registered Underground Fuel Storage Tanks (USTs). USTs are associated with the potential release of hydrocarbons to the soil and groundwater. However, these tanks are relatively new, installed after 1993, are constructed with spill containment controls, and have no reported leaks; therefore we do not expect significant contamination associated with leaks from these tanks. Due to the age and proximity of the tanks to the project, further action is not recommended.

Roseville Golfland Ltd. 1893 Taylor Road. Roseville Golfland does not generate hazardous waste, but maintains a registered 1,000 gallon above ground fuel storage tank. Records indicate proper spill containment/control is in place. ASTs are associated with the potential release of hydrocarbons to the soil and groundwater. However, this tank is relatively new, installed after 1993, is constructed with spill containment controls meeting current state regulations, and has no reported leaks; therefore we do not expect significant contamination associated with leaks from this tank. Due to the age and proximity of the tank to the project, further action is not recommended.

Bob's Cycle Center. 378 N. Sunrise Blvd. This site is listed as a generator of small quantities of hazardous waste that consist of an aqueous solution of <10% total organic residues. Disposal method is via treatment tank. No violations noted or releases indicated. No further action is recommended.

Sites Near the Project Corridor which Use/Store Hazardous Materials

Several sites near to the project corridor utilize hazardous materials in their daily operations. These sites are included only to provide a more thorough background of the project vicinity. None of these sites were determined to have any hazardous materials conditions which would impact the project. A majority of these are automobile sales, service and repair including Carmax #7147 (APN 048-450-064, located at 1450 Eureka Road) and multiple automobile businesses (Roseville Automall) located from 100-900 Automall Drive. Hazardous wastes such as solvents and petroleum products are generated during these operations. This area began development in the early 1990's. Construction at that time would include spill containment controls that meet all current state regulations. There have been no reported leaks; therefore we do not expect significant contamination associated with these operations. Due to the age and proximity of these sites, no further action is recommended.

Sites Near (within 1/8 mile) the Project Corridor with Known RECs

Petroleum contamination has been identified at the site known as Buljan Gas which is located at 111/121 Wills Road. This site is west of the project corridor and west of I-80 at the I-80 westbound on-ramp at Atlantic Street (which transitions to Eureka Road). The site is bordered by Dry Creek (south) and Miners Ravine (east). The Buljan Gas site is an open case with the Regional Water Quality Control Board (RWQCB) due to localized soil contamination and shallow groundwater contamination. There are no indications that the Buljan Gas site release will impact this project. No further action is recommended.

10.2 General Contamination/Hazardous Materials Issues

10.2.1 Aerially Deposited Lead

Aerially Deposited Lead (ADL) has been found to occur in soils adjacent to highways. The lead is presumably from the historical use of leaded gasoline and subsequent exhaust emissions. If improvement work is proposed within existing Caltrans right-of-way at Interstate 80, the potential for ADL should be evaluated. An appropriate soil management plan will need to be developed for soil containing significant concentrations of ADL.

10.2.2 Yellow Traffic Stripes

Yellow traffic stripes are know to contain heavy metals such as lead and chromium at concentrations in excess of the hazardous waste thresholds established by the California Code of Regulations (CCR) and may produce toxic fumes when heated. Consequently, removal of any yellow traffic striping within the project area will require that an appropriate Lead Compliance Plan be developed.

10.2.3 Contaminated Shallow Groundwater/Surface Water at Miners Ravine

Miners Ravine is a perennial, ungauged stream with high flows occurring during the rainy season. There is also a potential for shallow, perched groundwater, at levels near the elevation of surface water to be encountered in the Miners Ravine channel.

Miners Ravine has historically been the site of Placer County mining operations during the Gold Rush and areas of tailings (mining waste) may still be present. Mine tailings were identified on historical topographic maps (1967, 1975, and 1981) in the project area. Mine tailings have been associated with elevated levels of mercury contamination and may impact both the soil and water (surface and shallow ground water) quality. BCI's site observation did not reveal any areas of this project that will impact obvious areas of historic mine tailings. However, the foundation area for the Eureka Road bridge is expected to be in an area disturbed by previous grading operations, therefore, based on visual observations we are not able to determine if there may have been historic mine tailings in the bridge improvement area. . We recommend further investigation into the origin and process used to create mine tailings in this area, and if no definitive history of the mining operations is available, we recommend a Phase II subsurface investigation to determine the potential impact mine tailings may have on the soil and/or shallow groundwater at this site. The Phase II would be limited to sample collection and analysis of sediment and shallow groundwater from the bridge construction area.

11. LIMITATIONS

This report summarizes the findings and opinions of Blackburn Consulting, Inc. (BCI), with regard to the potential for RECs to be present on or immediately adjacent to the project corridor at concentrations likely to warrant mitigation under current statutes and guidelines. Our findings and opinions are based on information obtained on given dates or provided by specified individuals, through records review, site review, and related activities. Our information is only as good as the information provided to us. Conditions can change after we have made our observations. We cannot warrant or guarantee that hazardous materials do not exist at the site. To further reduce your risk, invasive exploration may be necessary.

This report was prepared for the specific use of our client and applies only to project corridor as described. We are not responsible for interpretations by others of data presented in this report. This report does not represent a legal opinion. No warranty is expressed or implied. We based our conclusions in this report on judgment and experience.

The scope of our investigation did not include determining the presence of radon, lead-based paint, or asbestos-containing materials. Identifying endangered species, geologic hazards, archeological sites, or ecologically sensitive areas are also beyond the scope of this report.

The governmental records portion of this report was derived from public records and is updated on a continual basis. For this reason, we advise you not to use this information to base a decision after 90 days of the issue date of this report. Also, conditions at the site can and will change over time. Please contact BCI to revise this report to reflect new information.

APPENDIX G

Caltrans Hazardous Waste Revised Evaluation

State of California

Business, Transportation and Housing Agency

Memorandum

ISA REFERENCED IN SCOPE

Date: March 24, 2009

File: 03-PLA-80-PM 2.4/5.7
03-PLA-65 PM R4.8/R6.9
EA 4E320K
PEAR

Note: ALT 1 w/Access from Taylor Rd - under I 80 is not included in 3/24/09 ISA - This option adds one lane each.

To: **KEN LASTUFKA**
Environmental Coordinator

From: **MA. ALICIA BEYER**
North Region Hazardous Waste Office

Subject: Hazardous Waste Revised Evaluation for a Preliminary Environmental Analysis Report

This traffic improvement project has four alternatives. However, this hazardous waste evaluation is for Alternative 3, which is Alternatives 1 and 2 combined.

The project proposes 80/65 IC alterations to include HOV Direct Connector, EB 80 to NB 65 ramp re-alignment, SB 65 to EB 80 ramp re-alignment, and auxilary lanes for for both slip connectors, SB 65 to WB 80 & WB 80 to NB 65. Revision was done because preliminary geometrics have been revised.

Temporary Construction Easements (TCE) and new Right of Way (R/W) will be acquired. The project has state, local and federal funding.

Proposed Scope of Work:

- Vegetation removal.
- Ground disturbance, road cut/fill.
- Road widening (I-80 & SR 65).
- Grinding.
- Reconstruct drainage, pave and re-grade side ditches, and extend and construct culverts as necessary.
- Reconstruct, remove and place new metal beam guard railing (MBGR).
- Bridge work, construct fly-over connector ramp.
- Demolish Route 65/I-80 JCT separation Bridge No.19-0151 R/L (PM R4.863).
- Demolish and replace Taylor Rd OC Bridge No.19-0093 (PM 3.661).
- Widen/modify East Roseville Viaduct Bridge No.19-0152 R/L (PM R5.45).
- Ramp demolition and replacement:
  SB 65 to WB I-80; SB 65 to EB I-80; EB I-80 to NB 65
- Modified EB Eureka ramps - lane additions and slight alignment changes.
- Construct additional lane SB 65 to EB I-80 ramp.
- Construct various TOS elements within the project area.
- Landscaping.
- Construct retaining walls fro new ramp abutment as needed.
- Overhead traffic signs relocation.
- Construction staging area(s).

Conclusions:

I. **Records review.** The hazardous waste investigation was limited to a review of aerial photographs, a field review, and the use of GeoTracker record search data from the Regional Water Quality Control Board. Based on this review and without the benefit of soil and ground water sampling, or a full field investigation, no hazardous waste as petroleum hydrocarbons is expected to be encountered within the proposed project work scope.

II. **Yellow and white traffic stripe.** Due to potentially hazardous levels of lead and chromium in yellow and white color traffic paint and/or thermoplastic stripes, if removal is included in the project scope, it shall be removed and disposed in accordance with the Non-Standard Special Provision 15-300 N-SSP.

III. **Aerial Deposited Lead (ADL)**
Lead-contaminated soil may exist due to the historical use of leaded gasoline, leaded airline fuels, waste incineration, etc. The areas of primary concern in relation to highway facilities are soils along routes that have had high vehicle emissions due to large traffic volumes, congestion, or stop and go situations during the time period when leaded gasoline was in use. For practical purposes, most Aerially Deposited Lead (ADL), due to vehicle emissions, would have been deposited prior to 1986. If the project area was constructed or reconstructed with clean material after 1986, it is likely that the levels of ADL contaminated soil are low. The only way to approximate the level of ADL contaminated soil is by sampling and testing the project area by performing a Preliminary Site Investigation (PSI). Depending on the test results, soil on the project may have to be managed as a hazardous waste in compliance with State and Federal laws.

a.) **Along I-80 from Post Mile (PM) 2.88 to PM 5.60.** Based on Geocon, Consultants, ADL site investigation report dated July 2008, conducted under contract 03A1368, Task Order No. 42 for project EA 367831, concluding:

"Lead has been detected within the top 3 ft of material in unpaved areas within the highway right of way. Levels of lead found within the project limits range from less than 5 to 360 mg/kg total lead with an average concentration of 14 mg/kg total lead, as analyzed by EPA Test Method 6010 or EPA Test Method 7000 series. Levels of lead found within the project limits have an average soluble concentration of 1.5 mg/l as analyzed by the California Waste Extraction Test and based upon a 95% Upper Confidence Limit Predicted WET Lead."

Soils excavated from the surface to any depth up to 3 ft can be reused or disposed as non-hazardous soil with respect to lead content.

b.) **Along SR 65 PM R4.8 to R7.0.** Based on the past agricultural use of land and on that the original SR 65 was realigned during 1985/1986 from approximately the City of Lincoln to the current I-80 intersection. The original SR 65 was abandoned and since then, roadway improvements, and new intersections and over crossings have been constructed along the current SR 65. Levels of ADL if any, are expected to be very low.

Soils excavated from the surface to any depth up to 3 ft can be reused on site with respect to lead content. However, no excess oil shall leave the project area without being tested for testing for ADL.

c.) **Conclusion and recommendations for ADL along I-80 and SR 65.**
The Contractor shall prepare a project specific "Lead Compliance Plan" and a lead awareness training to prevent or minimize worker exposure to lead while handling material potentially containing aerially deposited lead. Attention is directed to Title 8, California Code of Regulations, Section 1532.1, "Lead," for specific Cal-OSHA requirements when working with lead. Handling material containing aerially deposited lead shall be in conformance with rules and regulations including, but not limited to the following agencies:

- California Division of Occupational Safety and Health Administration (Cal-OSHA)
- California Regional Water Quality Control Board,

The Lead Compliance Plan shall contain the elements listed In Title 8, California 1987of Regulations, Section 1532.1(e)(2)(B). Before submission to the Engineer, the Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene. The Plan shall be submitted to the Engineer at least 15 days prior to beginning work in areas containing aerially deposited lead.

Lead Compliance Plan cost is expected to be about $3,500.

Caltrans handling procedures for soil must include Dust Control, Spillage Prevention, and Air Quality Monitoring during construction.

IV. Naturally Occurring Asbestos (NOA)

Based on the "The State of California, Air Resources Board (ARB) Map" showing the principal Asbestos Deposits, this project site is not located in an area of naturally occurring asbestos (NOA).

V. Asbestos Containing Materials (ACM's)

Demolish Route 65/I-80 JCT separation Bridge No. 19-0151 R/L - Built in 1985.
Demolish/Replace Taylor Road OC Bridge No. 19-0093 – Built in 1989.
Widen/Modify East Roseville Viaduct Bridge No. 19-0152 R/L – Built in 1987.
Demolish Ramps (SB 65 to WB I-80; SB 65 to EB I-80; EB I-80 to NB 65)

The As-builts showed the use of neoprene strip and expanded polystyrene in the constructions expansion joints and pads for the above structures. Based on the As-built plans there are no asbestos containing materials (ACM's) and or Lead base paint on the structures. However, utilities running trough the utilities openings in the structure may contain ACMs. N-SSP's may apply.

VI. NESHAP Notification

As required by the National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40 CFR Part 61, Subpart M, and California Health and Safety Code section 39658(b)(1), the Contractor shall prepare bridge/structure demolition, or widening notification form and attachments to be submitted to the California Air Resource Board, Compliance Division, (2020 'L' Street, Sacramento, CA 95814,) and to County of Placer APCD (3091 County Center Dr., Suite 240, Auburn, CA 95603, Ph(530)745-2330, http://www.placer.ca.gov/Departments/Air.aspx) as required by NESHAP, 40CFR Part 61, and California Air Resources Control Board rules.

VII. Asphalt Grindings.

No AC grindings may be placed in shoulder backing at locations where erosion or maintenance operations could result in their deposit into waterways. Surplus excavated soil if any, shall not be disposed of outside the project limits. Caltrans handling procedures for soil must include Dust Control, Spillage Prevention, and Air Quality Monitoring during construction.

VIII. Metal Beam Guardrail (MBGR) wood post.

If MBRG is removed, than the contractor shall prepare and submit safety and health work practices for handling treated wood waste approved by an industrial hygienist certified in comprehensive practice by the American Board of Industrial Hygiene. Treated Wood Waste Non-Standard Special Provision (N-SSP) is required.

Manage treated wood waste under title 22 CA Code of Regulations, Division 4.5, Chapter 34. Wood removed from metal beam guard railing is treated with creosote, pentachlorophenol, copper azole, copper boron azole, chromated copper arsenate, ammoniacal copper zinc arsenate, copper naphthenate, alkaline copper quaternary, or acid copper chromate. Treated wood waste must be disposed in an approved treated wood waste facility.

If there are new modifications to the project limits or work scope, a supplemental ISA will be required cover those changes. Do not hesitate to call at me at (530) 741-4580 if you have any questions or comments.

cc: Sam Vandell – Project Engineer
Chad Baker - Advance Planning

Attachment J
Value Analysis

Final
Value Analysis Study Report

District 3, I-80/SR 65 Interchange Improvements
Placer County, California

PN EA 03-4E3200
D3-Placer County – I-80 PM 1.9/6.1, SR 65 R 4.8/R7.3
Contract No. LOTA 10-01

VA Study Dates: August 4-8, 2014
November 2014

Prepared by

CH2MHILL®

2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833

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ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
Caltrans	California Department of Transportation
CD	collector-distributor
CD4	Collector-Distributor 4 Structure
CY	cubic yards(s)
EN Line	eastbound to northbound connector ramp
FAST	Function Analysis System Technique
FHWA	Federal Highway Administration
HOT	high-occupancy toll
HOV	high-occupancy vehicle
HQ	Headquarters
I	Interstate
kV	kilovolt(s)
LCC	life-cycle cost
LOS	level of service
MOT	maintenance of traffic
PA&ED	Project Approval and Environmental Document
PCTPA	Placer County Transportation Planning Agency
PDT	Project Design Team
PG&E	Pacific Gas and Electric
PM	post mile
PSR	Project Study Report
ROW	right-of-way
SE Line	southbound to eastbound connector ramp
SF	square foot/feet
SR	State Route
SW Line	southbound to westbound connector ramp
UPRR	Union Pacific Railroad

USACE	U.S. Army Corps of Engineers
VA	Value Analysis
VASSR	Value Analysis Study Summary Report
VMT	vehicle miles traveled
WN Line	westbound to northbound connector ramp

1. VA STUDY SUMMARY REPORT – FINAL FINDINGS DISTRICT 3, I-80/SR 65 INTERCHANGE IMPROVEMENTS

This Final Value Analysis (VA) Report pertains to the Interstate (I)-80/State Route (SR) 65 Interchange Improvements project in Placer County, California. CH2M HILL facilitated the VA Study on behalf of the Placer County Transportation Planning Agency (PCTPA) and California Department of Transportation (Caltrans). A VA Orientation Meeting and site visit were held at the Caltrans (District 3) Rocklin Field Office and the project site on August 4, 2014. The remainder of the 5-day VA Study was conducted at the Caltrans Rocklin Field Office. Exhibit 1-1 shows the site location map.

Exhibit 1-1. Site Location Map

EXECUTIVE SUMMARY

The proposed project is located in Placer County in the cities of Roseville and Rocklin at the I-80/SR 65 interchange. The project limits consist of I-80 from the Douglas Boulevard interchange to the Rocklin Road interchange (post miles [PM] 1.9 to 6.1) and SR 65 from the I-80 separation to the Pleasant Grove Boulevard interchange (PM R4.8 to R7.3). The existing I-80/SR 65 interchange is a type F-6 freeway-to-freeway interchange. **The purpose of the project is to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards.**

The following build alternatives are under consideration and were designed to satisfy the project purpose and need, while avoiding or minimizing environmental impacts.

- Alternative 1—Taylor Road Full Access Interchange
- Alternative 2—Collector-Distributor System Ramps
- Alternative 3—Taylor Road Interchange Eliminated

Alternatives 1, 2, and 3 propose to add capacity, a bidirectional high-occupancy vehicle (HOV) system, and high-speed connector ramps. Local and regional circulation and access would be improved, as would weaving conditions along I-80 between Eureka Road/Atlantic Street and Taylor Road, and along SR 65 between the I-80/SR 65 interchange and Galleria Boulevard/Stanford Ranch Road. Other improvements would include widening the East Roseville Viaduct, replacing the Taylor Road overcrossing, and realigning the existing eastbound I-80 to northbound SR 65 loop connector.

Design Features that Apply to All Build Alternatives

The build alternatives include common design features and have similar phasing approaches, staging, storage, and site access. Common design features of the build alternatives are listed below. For alignment and other improvement features that differ between alternatives, see the individual alternative descriptions.

- I-80 would be widened to add one or two mixed-flow lanes and one or two auxiliary lanes in each direction of travel, depending on the location within the project limits. A retaining wall would be constructed in the eastbound direction between the Eureka Road interchange and the Roseville Parkway overcrossing. A tie-back wall would be constructed in the eastbound direction under the Roseville Parkway overcrossing.
- SR 65 would be widened to include one HOV lane, one additional mixed-flow lane, and one or two auxiliary lanes in each direction of travel, depending on the location within the project limits. Widening along SR 65 would occur on both the inside and outside of the existing pavement, in both the northbound and southbound directions. The median would be fully paved and include a concrete barrier. An additional concrete barrier would be added in the northbound direction between the HOV and general purpose lanes to prevent weaving between I-80 and the Galleria Boulevard/Stanford Ranch Road interchange. In the southbound direction, a 4-foot-wide pavement delineation soft barrier would separate the HOV and general purpose lanes to prohibit weaving between the Galleria Boulevard/Stanford Ranch Road on-ramp and the HOV direct connector ramp.
- The SR 65 mainline widening would require reconstruction of the ramp connections for all of the Galleria Boulevard/Stanford Ranch Road interchange ramps. The northbound Stanford Ranch Road slip off-ramp would be widened to two lanes to accommodate a future project at the ramp terminus. A retaining wall would be required along northbound SR 65 under the Galleria Boulevard/Stanford Ranch Road overcrossing to accommodate the northbound Galleria Boulevard loop off-ramp improvements. The southbound Galleria Boulevard/Stanford Ranch Road on-ramp would be reconstructed to a two-lane ramp plus HOV preferential lane. The southbound Pleasant Grove Boulevard on-ramp would also be adjusted to accommodate

the mainline widening. The existing wetland near the Pleasant Grove Boulevard on-ramp would not be affected and would be protected as an environmentally sensitive area during construction. The widening along SR 65 would occur within the existing right-of-way (ROW).

- The East Roseville Viaduct would be widened in the northbound and southbound directions, spanning Antelope Creek, Union Pacific Railroad (UPRR) tracks, and Taylor Road. The existing parallel structures would be widened on both sides and would require additional columns to support the widened structures. The additional columns would be placed parallel to the existing columns along the entire length of the viaduct. The viaduct widening in the northbound direction would shift the edge of the deck approximately 33 feet closer to the Hearthstone apartment complex, and the widening in the southbound direction would shift the edge of the deck approximately 10 feet closer to the Preserve at the Creekside apartment complex.
- The existing eastbound I-80 to northbound SR 65 loop connector would be removed and replaced with a high-speed three-lane flyover. The existing eastbound to northbound and southbound to eastbound connector structures over I-80 would be removed and replaced, including existing piers and abutments. Approach roadways would be removed and regraded.
- One lane of capacity would be added to each connector ramp by realigning the existing ramps. The westbound to northbound connector ramp (WN Line) would be constructed on fill with a retaining wall along a portion of the outside shoulder, while the southbound to eastbound connector ramp (SE Line) and eastbound to northbound connector ramp (EN Line) would consist of a combination of fill, retaining walls, and structures. Impacts on the Secret Ravine floodway and/or floodplain would vary by alternative. The southbound to westbound connector ramp (SW Line) would vary slightly with each alternative.
- A direct-connecting HOV ramp would be added to serve eastbound I-80 to northbound SR 65 and southbound SR 65 to westbound I-80. The HOV connector would be located in the I-80 median and retained by mechanically stabilized earth walls before transitioning to a structure over westbound I-80 and other local and/or connector ramps. The HOV connector would transition back to fill with a cast-in-place retaining wall along the shoulder before conforming to the East Roseville Viaduct. The HOV connector design would be the same across all three build alternatives.
- The existing I-80/Taylor Road ramp connections (eastbound off-ramp and westbound on-ramp) would be modified. The existing access from I-80 to the eastbound Taylor Road off-ramp would be removed, and either relocated or reconfigured depending on the alternative.

- Taylor Road, within the project limits, would be improved, including replacement of the Taylor Road overcrossing. The structure would be replaced to accommodate the I-80 widening with a profile correction until conforming to the existing road grade. The facility would be widened to accommodate anticipated traffic volumes, but the number of lanes would vary by alternative. Curb, gutter, sidewalk, and driveway modifications would be constructed along the south side of Taylor Road to conform to the roadway widening.
- Other ramps and intersections of the I-80/Eureka Road/Atlantic Street interchange, SR 65/Galleria Boulevard/Stanford Ranch Road interchange, and the SR 65/Pleasant Grove Boulevard interchange would be improved.
- Although all three build alternatives do not directly affect the Stone House on Assessor's Parcel Number (APN) 015-162-007, the entire parcel may be acquired due to the percentage of the parcel that would be affected. Additionally, the build alternatives would affect the Cattlemen's Steakhouse parking lot. The area of impact varies by alternative.
- Transportation System Management (TSM) features would be incorporated into the build alternatives, including ramp widening for storage or HOV bypass lanes, and auxiliary lanes.

Individual Alternative Descriptions

Alternative 1—Taylor Road Full Access Interchange

This alternative would improve spacing and weaving movements between interchanges on I-80. The two existing Taylor Road interchange ramps would be relocated to the east and reconstructed in a Type L-1/L-12 interchange configuration, providing two additional ramp connections and improving access between the local streets and freeway system. The interchange would be positioned within the I-80/SR 65 interchange footprint and use portions of the existing eastbound I-80 to northbound SR 65 loop connector as well as the existing southbound SR 65 to eastbound I-80 connector. The existing Taylor Road interchange ramps would be removed and the area would be regraded.

Alternative 1 avoids the steel transmission towers, as the eastbound improvements would occur within the existing Caltrans ROW in this location.

Alternative 2—Collector-Distributor System Ramps

This alternative would improve spacing and weaving movements between interchanges on I-80 by collecting and redirecting eastbound ramp traffic onto a collector-distributor ramp system. The collector-distributor system would provide eastbound access to Taylor Road and access from Eureka Road at the Atlantic Street/Eureka Road interchange, and would restrict local traffic from leaving or entering the I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. The two existing Taylor Road interchange ramps would remain in their current location but would be reconfigured to accommodate the surrounding improvements.

The proposed eastbound widening and retaining wall between the Eureka Road interchange and the Roseville Parkway overcrossing would require relocation of a 220-kilovolt (kV) Pacific Gas and Electric (PG&E) overhead transmission tower, the lines of which cross I-80 just south of Roseville Parkway. The eastbound lanes and retaining wall of Alternative 2 would impact the billboard located in the

Golfland Sunsplash parking lot. The relocation of the steel tower and the billboard would require the Golfland Sunsplash parking lot to be reconfigured.

Alternative 3—Taylor Road Interchange Eliminated

Similar to Alternative 2, this alternative would improve spacing and weaving movements between interchanges on I-80 by collecting eastbound Eureka Road on-ramp traffic. Weaving on I-80 would be significantly improved because ramp traffic would be redirected to a collector-distributor system and restricted from entering and exiting the I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. Unique to Alternative 3, the two existing Taylor Road interchange ramps would be eliminated, and access to the Taylor Road area would be accommodated by the adjacent local interchanges at the Atlantic Street/Eureka Road, Rocklin Road, and Galleria Boulevard/Stanford Ranch Road interchanges. The connector ramps serving I-80 and SR 65 (SW, EN, SE, WN Lines, and HOV lane) are the same between Alternatives 2 and 3.

The proposed eastbound widening and retaining wall between the Eureka Road interchange and the Roseville Parkway overcrossing would require relocation of a 220-kV PG&E overhead transmission tower, the lines of which cross I-80 just south of Roseville Parkway. Alternative 3 would also impact the billboard located in the Golfland Sunsplash parking lot. The relocation of the steel tower and the billboard would require the Golfland Sunsplash parking lot to be reconfigured.

No Build Alternative (No Project)

This alternative would not make any improvements to the I-80/SR 65 interchange or adjacent transportation facilities to satisfy the purpose and need identified above. HOV and auxiliary lanes proposed on SR 65 north of Galleria Boulevard/Stanford Ranch Road, and other local improvements separately proposed and identified in the Metropolitan Transportation Plan, would be implemented according to their proposed schedules.

Total project costs for all elements of the project are currently estimated at:

- Alternative 1 — $346,350,000
- Alternative 2 — $348,680,000
- Alternative 3 — $339,710,000

PROJECT PURPOSE AND NEED

At the time of the VA Study, the proposed project has not entered into the formal public Purpose Scoping process. The Notice of Preparation of a Draft Environmental Impact Report was completed in January 2013. Project-level objectives have been defined, and include the following measures. To be successful the project will:

- Reduce congestion
- Improve traffic operations and enhance safety
- Maintain community access
- Consider all travel modes and use

Exhibit 1-2 shows congestion near the Taylor Road off-ramp.

Other items discussed related to the purpose and need include:

- Operational improvements
- Improvements to local access
- Consideration of alternative modes of travel related to local streets
- Roadway maintenance
- Access to Taylor Road, sidewalk, bike lanes, and transit
- HOV system as a component of the project

Exhibit 1-2. Congestion on I-80 from Roseville Parkway Overcrossing

VA STUDY TIMING

The VA Study was conducted when the project design was in the conceptual or *Project Report* phase. The VA Study was conducted the week of August 4, 2014. The anticipated date of construction for the project is anticipated to begin in the early 2020s, as a funding source has yet to be identified.

VA STUDY OBJECTIVES

The objectives of the VA Study were to increase the value of the project. There was not a specific objective to simply reduce cost. Value was defined and measured using the Caltrans decision model. The target VA outcomes, goals, and deliverables were defined on June 17, 2014, during a meeting with the project participants listed below:

- Luke McNeel-Caird/Placer County Transportation Planning Agency (PCTPA)
- Sam Jordan/Caltrans District 3
- Kevin Espinoza/Caltrans District 3 Engineering Services
- Troy Tusup/Caltrans Headquarters (HQ) VA
- Chris Benson/CH2M HILL
- Leo Heuston/CH2M HILL
- Don Ulrich/CH2M HILL

The following mission for the VA was recorded.

Expected Outcomes

- Cost savings without compromise to functional integrity
- Endorsement of a design concept using a decision analysis/rating system
- Overall and phased project funding summary

Goals from VA Study

- Cost saving opportunities within each alternative
- Develop recommendations that provide safe facilities for users and workers
- Refinement of alternatives to better meet purpose and need

Deliverables

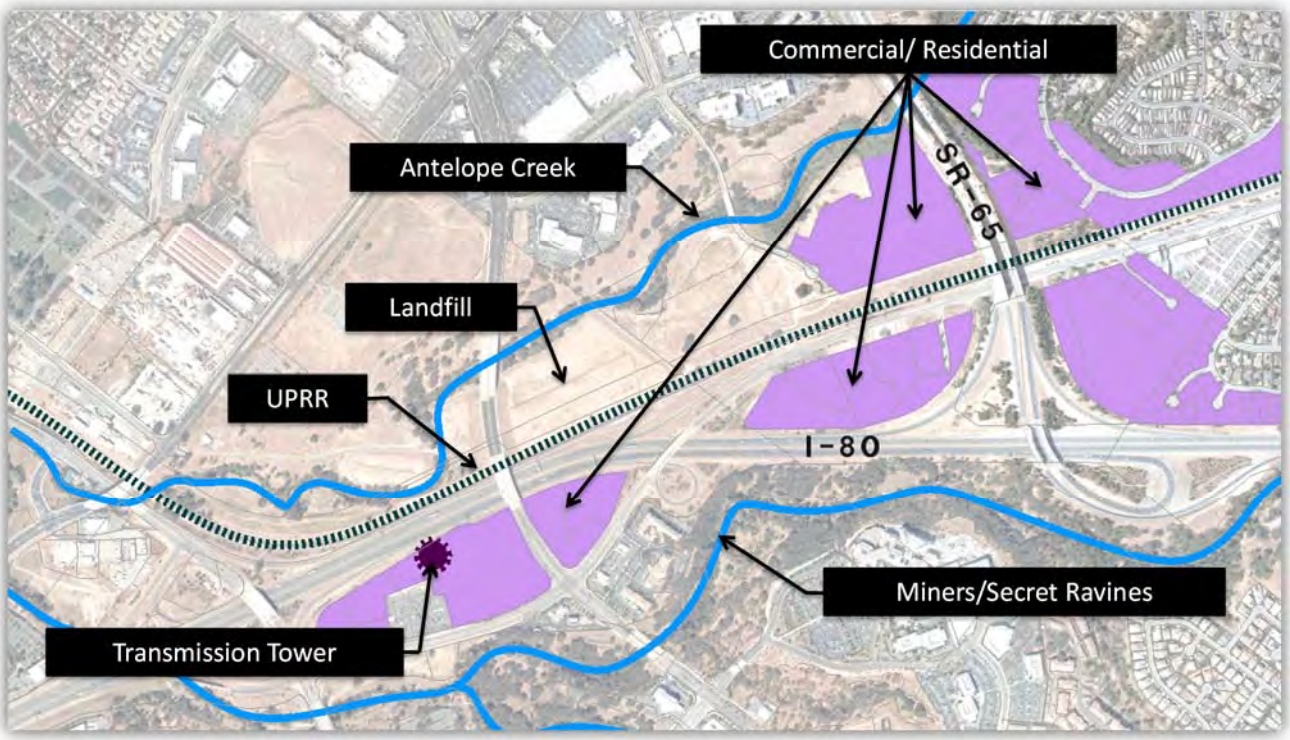
- Draft VA Report within 2 to 3 weeks
- Preliminary VA Report with implementation action forms (acceptance/nonacceptance forms or notes on conditional items)
- Final VA Report (one hard copy and electronic copy to Caltrans; electronic copies to agencies) within 4 weeks depending on alternative dispositions

KEY PROJECT ISSUES

Community and Environmental Challenges

As shown in Exhibit 1-3 below, there are many challenges to project construction. The amount of ROW is limited, there are issues with UPRR, and open spaces and riparian impacts are likely. The acquisition of private property is highly sensitive with the local communities, as are noise impacts and impacts to traffic during construction. All of the alternatives present the potential to impact the Miners/Secret Ravine area, which includes protected species and important recreational properties. In fact, the level and extent of environmental impact may dictate which alternative is eventually implementable.

Exhibit 1-3. Community and Environmental Challenges



Project Risks

Currently, the top 10 risks facing the project include:

1. Impacts on waters of the U.S. associated with Secret Ravine, Miners Ravine, and Antelope Creek
2. Receipt of the National Environmental Policy Act Record of Decision
3. The seven stakeholder groups may not be able to reach consensus on decisions
4. Inability to fund the project
5. Caltrans may not accept design exception alternatives
6. ROW acquisition takes longer than anticipated
7. Utility relocation costs more and takes longer to reconcile than planned
8. Changes in political administration
9. Changes in key staff
10. Loss of community support as a result of the need to rely on local funding

EVALUATION OF BASELINE CONCEPT

As referenced above, the VA Team was given three alternatives to consider. None of the alternatives had been defined as the Preferred Alternative. Thus, the first step of the VA process involved defining which alternative would serve as the best Baseline Alternative. *"Best"* was defined by using the Caltrans decision model; the results are presented below.

Performance Attributes

Based on the project purpose and need, six performance attributes were established for the VA Study. These six attributes focused on the project need, which is to reduce congestion, improve traffic operations and enhance safety, maintain community access, and consider alternative travel modes. For each of the objectives related to transportation system performance, detailed performance measures were developed. The performance attributes used in the VA process for defining the best Baseline Alternative are presented below in Exhibit 1-4. Mainline operations and local operations were considered the most important by the team, followed by environmental impacts. These same attributes were used for each of the VA alternatives and VA strategies.

Performance Attributes

1. Mainline Operations
2. Local Operations
3. Environmental Impacts
4. Construction Impacts
5. Phaseability
6. Land Use Compatibility

Exhibit 1-4. Weighted Performance Attributes

Performance Attributes	Mainline Operations	Local Operations	Environmental Impacts	Construction Impacts	Phaseability	Land Use Compatibility		Priorities
Mainline Operations	1	5	5	7	5	2		**0.391**
Local Operations	0.2	1	5	7	5	3		**0.242**
Environmental Impacts	0.2	0.2	1	5	3	6		**0.151**
Construction Impacts	0.1429	0.1429	0.2	1	0.5	5		**0.068**
Phaseability	0.2	0.2	0.3333	2	1	5		**0.089**
Land Use Compatibility	0.5	0.3333	0.1667	0.2	0.2	1		**0.059**
SUBTOTALS	2.24	6.88	11.70	22.20	14.70	22.00		**1.00**

Results for Performance and Value Scores

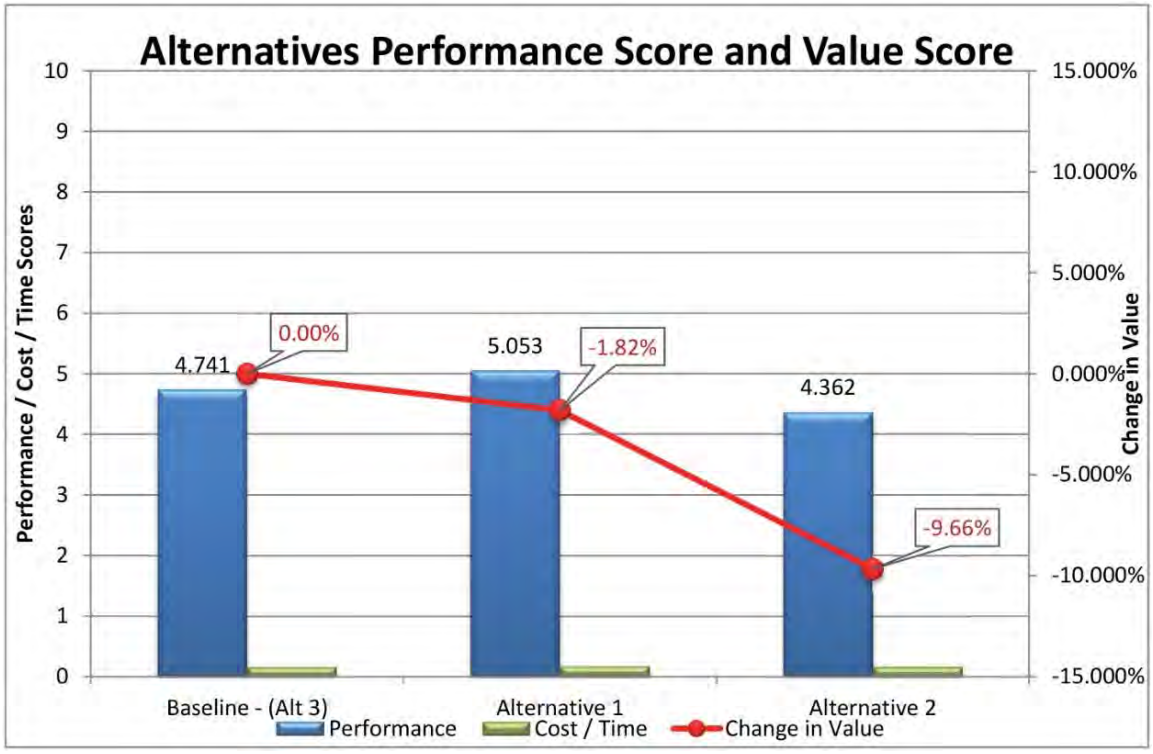
The results of the Baseline Alternative evaluation are given in Exhibit 1-5. As shown in this evaluation, the three ratings for the three alternatives are close, with Alternative 3 rating the best for mainline operations, but lower for local operations since it provides less local access. For an explanation of the ratings, see Section 4 of this report.

Exhibit 1-5. Evaluation Results

Performance Attributes	Baseline Alternative	Alternative 1	Alternative 2
	Rating		
Mainline Operations	**6**	**5**	**5**
Local Operations	**4**	**6**	**5**
Environmental Impacts	**3**	**4**	**3**
Construction Impacts	**3**	**4**	**3**
Phaseability	**6**	**6**	**6**
Land Use Compatibility	**4**	**4**	**4**

The Caltrans decision model factored in the ratings for each alternative's performance attributes to produce the results given in Exhibit 1-6.

Exhibit 1-6. Evaluation Results



Results including Cost and Schedule

When cost and schedule parameters are included, the results remain close but the Baseline Alternative scores slightly higher than Alternatives 1 and 2, which score at -2 percent and -10 percent, respectively.

The model used performance, cost, and schedule to produce the value scores. Using the Caltrans decision model, the VA Team determined that Alternative 3 would best represent the Baseline Alternative for the VA Study.

FINAL VA STUDY RESULTS

The VA Team developed four alternatives and generated three strategies. None of the VA alternatives or design strategies were accepted for implementation, resulting in zero cost savings.

A summary of the rejected VA alternatives is provided below.

REJECTED ALTERNATIVES AND DESIGN SUGGESTIONS

Alternative (Alt), Design Suggestion No.	Description	Reason For Rejection
R-1	Realign Secret Ravine, Eliminate Collector-Distributor 4 Structure	Alt R-1 is rejected due to the large added impact to the environment and to schedule constraints. This VA Alternative is heavily driven by the resource agencies and the consultation process. Permanently relocating Secret Ravine may not be acceptable in any form, and avoidance is recommended. If avoidance during the consultation process is not possible, this VA alternative may be revisited.
R-2	Replace Transfer Ramp With Loop	Alt R-2 is rejected due to operational safety concerns.
S-1	Narrow Viaduct	Alt S-1 is rejected due to design standard, operational, and safety concerns.
S-2	Transpose South SR 65/ I-80 Ramps	Alt S-2 is rejected due to poor Level of Service (LOS) in the weaving section, violating driver expectations and safety concerns.

SUMMATION OF VA ALTERNATIVE RESULTS

Four VA alternatives and three strategies were developed by the VA Team. All four VA alternatives (and strategies) were rejected and will not be implemented based on discussion in the VA Implementation Meeting held October 15, 2014 as well as subsequent analysis provided to the meeting participants.

VA Alternative No. R-1, Realign Secret Ravine, Eliminate Collector-Distributor 4 Structure

This VA Alternative is heavily driven by the resource agencies and the upcoming consultation process. Permanently relocating Secret Ravine Creek may not be acceptable in any form and avoidance is recommended. If avoidance during the consultation process is not possible, this VA alternative may be revisited.

Based upon the reviewer's notes, additional background information provided and further discussions, Alternative R-1 is rejected due to the large added impact to the environment and to schedule constraints.

VA Alternative No. R-2, Replace Transfer Ramp with Loop

This VA alternative presents the following safety challenges associated with higher accident potential of the loop configuration and the close proximity of the WN and loop ramp gores to each other. Operationally, there are weaving challenges associated with additional lane movements for the EN connector to reach the Galleria off-ramp. Additionally, this proposal gives the loop ramp from the collector-distributor system preference to the optional exit lane and not the major EN movement.

Based upon the reviewer's notes, additional background information provided and further discussions, Alternative R-2 is rejected due to operational and safety concerns.

VA Alternative No. S-1, Narrow Viaduct

This VA alternative proposed to reduce lane width, shoulder widths, and HOV buffer widths along the viaduct which present unnecessary design exception, operational and safety concerns and challenges.

Based upon the reviewer's notes, additional background information provided and further discussions, Alternative S-1 is rejected due to design standard, operational and safety concerns

VA Alternative No. S-2, Alternative Transpose South SR 65/I-80 Ramps

This VA alternative proposed to swap the SE and SW ramps along the viaduct and weaving concerns became a key issue discussed. Subsequent to the VA Implementation meeting, a weaving analysis of this segment was prepared and provided to PCTPA and Caltrans. The results of the weaving analysis showed the level of service in the weaving section as follows:

- Alternative 2 collector-distributor system – LOS D/E (AM/PM)
- VA alternative S-2 – LOS F/F

The main reason for the poor operations in the VA alternative is not due to the overall weaving distances provided, but to the added volume of weaving vehicles caused by transposing the ramps. FHWA and Caltrans' position regarding driver expectations was also revisited and there was interest in potentially sacrificing driver expectation if there was a considerable operational benefit provided. With the poor LOS results of the weaving section, it was determined that this alternative would not be acceptable.

Based upon the reviewer's notes, additional background information provided and further discussions, Alternative S-2 is rejected due to poor level of service in the weaving section, driver expectation, and safety concerns.

Since all the VA alternatives are rejected, the VA strategies are rejected as well.

VA TEAM

The VA Team members and key project contacts are listed below.

VA Study Team

Name	Organization	Title
Don Ulrich	CH2M HILL	CVS (Life) VA Team Leader
Cesar Tiscareno	CH2M HILL	VA Assistant
Nina Buelna	City of Roseville	Roadway
Matt Randall	Placer County	Structures/Bridge
Chris Angleman	CH2M HILL	Interchange Planning
Zeke Lynch	CH2M HILL	Traffic Planning/Operations
John O'Reilly	CH2M HILL	Estimating
Carl Berexa	Caltrans	Construction

Key Project Contacts

Name	Organization	Title
Luke McNeel-Caird	PCTPA	Senior Engineer/Planner
Sam Jordan	Caltrans	Project Manager
Kevin Espinoza	Caltrans	District 3 VA Coordinator
Leo Heuston	CH2M HILL	Project Manager
Chris Benson	CH2M HILL	Deputy Project Manager

2. VA ALTERNATIVES FINAL

Each VA alternative consists of a summary of the original concept, a description of the suggested change, a listing of its advantages and disadvantages, a cost comparison, the change in performance and value, and a brief narrative comparing the original design with the alternative. Sketches, calculations, and performance measure ratings are also presented. The cost comparisons reflect a comparable level of detail as in the original estimate. A life-cycle cost (LCC) is not included with the alternatives at this early conceptual design level.

A summary of the VA alternatives and strategies is provided below. Complete versions of the VA alternatives and strategies are included at the end of this section.

VA STRATEGIES

VA studies result in the development of a number of VA alternatives. While it is possible for all VA alternatives to be implemented, typically there are combinations of some alternatives that may provide the best solution for the project. This is due to the fact that some alternatives may be competing ideas or different ways to address the same issue. Some alternatives are developed to answer a question raised by a decision maker or to resolve an open issue, and are found to be not beneficial to the ultimate project. As a result of these factors, the VA Team develops a VA strategy that represents their opinion of the best combination of alternatives for the project to assist the decision makers in their evaluation of the VA alternatives. The VA strategy is based on factors that include improved performance, likelihood of implementation, least community impact, cost savings, or any combination of project performance attributes. This information is a guide and is not intended to reject the other alternatives from project stakeholder consideration.

It must be noted that the potential cost and schedule benefits identified for the VA alternatives are based on the expected value. The cost savings are cumulative, but the schedule savings are not.

The VA Team developed the following three strategies in this VA Study:

- Strategy No. VS-1 – This strategy is a combination of the Project Design Team (PDT) Alternative 3, VA Alternative S-1, and VA Alternative R-2. The implementation of this VA strategy will significantly reduce the project costs by $14,500,000. This strategy also offers potential reduction in schedule.
- Strategy No. VS-2 – This strategy is a combination of PDT Alternative 1 and VA Alternative S-1. The implementation of this VA strategy offers potential reduction in schedule and will increase project costs by $4,700,000 when compared to the Baseline Alternative.
- Strategy No. VS-3 – This strategy is a combination of PDT Alternative 2, VA Alternative S-1, and VA Alternative R-2. The implementation of this VA strategy offers potential reduction in schedule and will significantly reduce project costs by $5,500,000.

VA ALTERNATIVE SUMMARY TABLES

The following tables provide summaries of the VA alternatives and VA strategies.

VA Alternatives

Alternative No. and Description	Initial Cost Savings	LCC Savings	Change in Schedule	Performance Change	Value Change
R-1 Realign Secret Ravine, Eliminate Collector-Distributor 4 Structure	$14,690,000	$0	6 months	+4 %	+13 %
R-2 Replace Transfer Ramp With Loop	$12,600,000	$0	6 months	+10 %	+51 %
S-1 Narrow Viaduct	$1,912,500	$689,000	12 months	+2.6%	+18 %
S-2 Transpose South SR 65/ I-80 Ramps	$410,000	---	6 months	+15 %	+12 %

Note: Because the cost data depicted above represent savings*, a number in parentheses represents a cost* increase*.*

VA Strategies

Strategy Description	Initial Cost Savings	LCC Savings	Change in Schedule	Change in Performance	Value Change
Recommended VA Strategy VS-1: Alternative 3 – Taylor Road Interchange Eliminated plus S-1, R-2 Combination Alternative Nos. Alt-3, S-1, R-2	$14,500,000	$689,000	6 months	+5 %	12 %
VS-2: Alternative 1 – Taylor Road Full Access Interchange plus S-1 Combination Alternative Nos. Alt-1, S-1	($4,700,000)	$689,000	2 months	+6 %	-0.4 %
VS-3: Alternative 2 – Collector-Distributor System Ramps plus S-1, R-2 Combination Alternative Nos. Alt-2, S-1, R-2	$5,500,000	$689,000	6 months	- 5%	0%

Note: Because the cost data depicted above represent savings*, a number in parentheses represents a cost* increase*.*

OTHER CONSIDERATIONS

Idea No. NP-1 – Sunset Interchange

Description of Design Suggestion:
Replace the Taylor Road ramps with an interchange at the extension of Sunset Boulevard. Maintaining the Taylor Road ramps, to and from the west, is critical to the local agencies and therefore a critical element of the designed improvements. The current ramps provide access to the commercial/ residential developments along the south/east side of Taylor Road and to Sunset Boulevard, accessing the residential and commercial developments to the north. The three alternatives vary in the way they provide access to Taylor Road. The Taylor Road ramps are within a half-mile of the I-80/SR 65 system interchange and do not meet the required 2-mile interchange spacing.

- Alternative 1 – Enhances local access to Taylor Road by inserting a diamond interchange within the I-80/SR 65 system interchange.
- Alternative 2 – Maintains access to Taylor Road by reconstructing the eastbound loop off-ramp and the westbound on-ramp.
- Alternative 3 – Eliminates access to Taylor Road.

Description of Alternative Concept:
This alternative was evaluated but is not proposed. This alternative would extend Sunset Boulevard (approximately 1,200 feet) from its present terminus at Woodside Drive (1,000 feet south of Pacific Street [Taylor Road]) to I-80. The terminus of Sunset Boulevard is within a residential development. Sunset Boulevard would pass over I-80 with diamond ramps providing access to the mainline. The Sunset Boulevard interchange would be approximately 1 mile east of the I-80/SR 65 system interchange and would not meet the required 2-mile interchange spacing.

Advantages:
- Provides a standard interchange design.
- Provides direct access to Sunset Boulevard and the residential communities and commercial developments to the north.
- Enhances local access and circulation.
- Balances access east and west of the I-80/SR 65 system interchange.
- Minimizes out-of-direction travel along Taylor Road and Pacific Street.
- Independent of larger I-80/SR 65 Interchange Improvements project.

Disadvantages:
- Requires 15 to 20 residential acquisitions.
- Disrupts access and circulation within a residential development.
- Increases traffic and noise to residential area.
- Would require an Interchange Justification Report (Federal Highway Administration [FHWA]).
- Would require a Design Exception (Interchange Spacing).
- Would require community support.

Discussion:

The existing Taylor Road ramps have numerous design and operational issues. Maintaining them in the designed improvements adds additional design and operational constraints. The Sunset Boulevard interchange would eliminate many of the design and operational issues and would enhance access and local circulation. The development and evaluation of a Sunset Boulevard interchange is beyond the scope of this VA Study. The VA Team believes there are significant advantages with a Sunset Boulevard interchange and the project team should consider this alternative.

Exhibits 2-1 and 2-2 show the design suggestion concept sketches.

Exhibit 2-1. VA Design Suggestion Concept Sketch

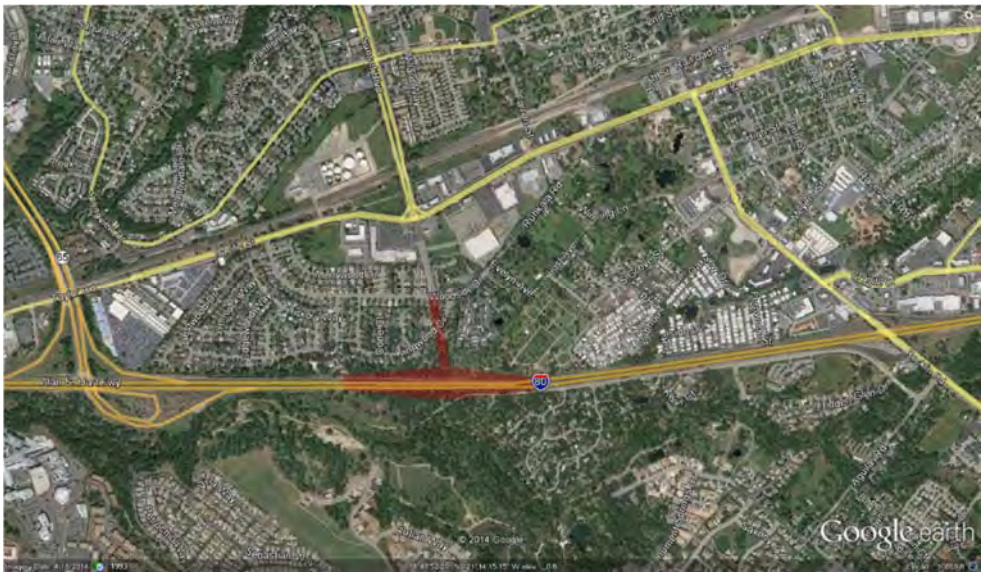


Exhibit 2-2. VA Design Suggestion Concept Sketch (2)

Idea No. NP-2 – Eliminate HOV on I-80 East of SR 65

Description of Baseline Concept:
In the current plan, the eastbound HOV lanes end just east of the SR 65 interchange. The westbound HOV lanes begin just east of the interchange and connect to the existing HOV lanes to the west of the structure. Direct HOV connections between SR 65 and I-80 are provided. This concept is the same in all three build alternatives.

Description of Design Suggestion Concept:
This alternative proposes to eliminate the I-80 HOV lanes, both eastbound and westbound, east of SR 65. This concept can be applied to all three build alternatives.

Advantages:
- Allows for smaller project footprint by eliminating a lane, tapers, and shoulders in each direction on I-80.
- In Alternative 2, it allows for a standard ramp connection for the Taylor Road westbound on-ramp, thus eliminating a required design exception.

Disadvantages:
- Prohibits contiguous HOV lanes east of the interchange on I-80.
- Potential to trap HOV vehicles in lane onto SR 65.

Discussion:
In the eastbound direction, the total width required will be reduced from 12 to 20 feet. The space savings is between the Roseville Parkway overcrossing and the SR 65 separation. This will allow the mixed flow connector to be moved closer to the centerline; for Alternatives 2 and 3, the connector-distributor lanes also can be moved in closer to the centerline. This will reduce the footprint encroachment into Miners Ravine by approximately the same amount (12 to 20 feet). In the westbound direction, the width is reduced by the same amount as the eastbound direction with approximately the same limits as eastbound. The reduced width in the westbound direction would allow the on-ramp from westbound Taylor Road to have a standard merge. Under the current concept for the westbound Taylor Road on-ramp in Alternative 2, a full standard length of merge cannot be obtained because of the proximity of the railroad tracks. Approximate cost savings are $1.5 million. A disadvantage of eliminating the HOV east of the interchange is that it will be cost-prohibitive to add at a later date after buildout of the interchange.

Technical Review Comments:
This alternative has been previously discussed by the PDT and determined to be not feasible. The reason being that widening on I-80 east of the SR 65 interchange is plausible and HOV lanes are a likely component of that widening.

SUMMARY OF PERFORMANCE IMPROVEMENTS

Summary of Proposed VA Alternative Performance Improvements

Alternative No.	*Mainline Operations*	*Local Operations*	*Environmental Impacts*	*Construction Impacts*	*Phaseability*	*Land Use Compatibility*
R-1	No Change	No Change	Improved	Improved	No Change	Improved
R-2	No Change	Slight Degradation	Improved	Improved	No Change	Improved
S-1	No Change	No Change	Improved	Improved	No Change	Improved
S-2	Slight Degradation	No Change	Improved	Improved	No Change	Improved

Completed Action Recommendation Forms

Responses prepared by: Ken Lastufka
Date: 9-17-14

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

The VA notes that "the impacts are not significantly greater than the current proposed alternative." Did the VA team conduct a detailed comparison (impacts, costs, permitting, etc.) between the current alternative and VA Alt. R-1? It may be difficult to convince the resource/permitting agencies of converting a temporary realignment for construction purposes to a permanent realigning of the creek. The agencies also may not view this alternative as the better environmental option compared to the current alternative.

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

No comment

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

No comment.

Responses prepared by: Mike Hagen, Caltrans Branch Chief Traffic Safety, District 3
Date: 9/23/14

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
The elimination of a structure will reduce simplify maintenance requirements by eliminating a structure. Safety benefits will be seen as the lack of a bridge rail can result in an improved clear recovery zone. Money saved from the structure elimination can be used to improve the new stream alignment and make it more environmentally attractive as a permanent alignment.

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
This alternative keeps the loop ramp and adds a merge from the loop to the connector. I would therefore expect this alternative to have more collisions due to the additional merge and the small radius curve. Elimination of the structure may alternatively reduce collisions through an improved clear recovery zone. I would like to see further analysis on the safety impacts from this alternative.

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
The requirement for design exceptions will necessitate further analysis. However, given the information provided in the sample cross sections I don't have too many issues with the alternative. I'm having trouble finding an exception requirement for the HOV buffer. Narrower, or even no, buffers exist on exiting HOV lane segments, so I do not see a safety impact from this reduction. The lane/shoulder width reduction is expected to have a small (6-7%) increase in collisions based on rough calcs. More analysis would be required.

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
This alternative would not meet driver expectations, and would result in more weaving activity as drivers shift to the correct side of the freeway. This would be most notable for drivers entering from Galleria Blvd, who would have to shift several lanes to take the westbound connector. This would lead to increased collisions which I feel counters any benefits the alternative may offer. As such I cannot support this alternative.

VA STRATEGY VS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
As mentioned previously, I would expect the S-1/R-2 alternatives to increase collisions due to the retention of the loop ramp, the additional merge, and the reduce lane/shoulder widths. More analysis is needed to determine the safety impacts due to this alternative combination.

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
As mentioned previously, the S-1 alternative will require further study to determine the safety impacts from the narrower lanes/shoulders.

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
As mentioned previously, I would expect the S-1/R-2 alternatives to increase collisions due to the retention of the loop ramp, the additional merge, and the reduce lane/shoulder widths. More analysis is needed to determine the safety impacts due to this alternative combination.

Responses prepared by: John Rodrigues
Date: 9/26/14

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☒ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

If permits can be obtained and environmental windows don't slow construction

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Constructability ok but concerned with traffic weave at the merge of EB 80/WB 80/EB 80 loop to 65.

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Need to compare SB 65 to EB 80 weave with SB 65 to WB 80 weave. Might be able to realign SB 65 to EB 80 connector to achieve the same environmental benefits w/o transposition

VA STRATEGYVS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

See previous comments for S-1 and R-2

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

See previous comments for S-1 and R-2

Responses prepared by: **Christine Zdunkiewicz**
Date: **10-01-2014**

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** x☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

We have concerns regarding the proposed VA study Alternative No. S-2, the transposed SB connector ramps, due to the current operational concerns that exist at Blue Oaks/SR65. On the northbound off-ramp at SR65/Blue Oaks, there is an optional lane split to the intersection and the WB flyover. There exist some driver confusion due to the non-intuitive lane designations. In addition, a revised traffic study would need to be done in order to access any resultant new weaves due to the change in lane designations for the SB ramps. Galleria on-ramp operations would have to be re-accessed as well as upstream potential weaving due to the proposed transposition of the SB ramps.

VA STRATEGY VS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Responses prepared by: W. Keith Mack (w/ input from Scott Mann, Jim Deluca, Mike Feakes)
Date: September 18, 2014

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Design defers to environmental for further study/input. We understand benefit of construction on embankment rather than structures.

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

The 3 connector ramps converging within the same area is more complex than baseline alternatives. The CD loop ramp also significantly reduces weave length for traffic on the east to north connector which needs to shift over and take the Galleria/Stanford Ranch exit.

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Design is not in support of reducing the SB 65 x-section. Did study team consider elimination of outside widening for SB 65 structure by increasing the widening along the NB 65 side of the viaduct while shifting all lanes ~6.5’ towards that side?

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☒ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Design believes there are several advantages to this alternative. We recommend further traffic operations study to determine if advantages outweigh the risks with not meeting driver expectation and switching existing traffic pattern. In the PM peak hour, there are roughly 6800 vehicles on SB 65 between the Galleria on-ramp and the connector split. One concern is that overloading of the #1-3 lanes could occur while the #4 lane may be under-utilized when it is dedicated to the minor move.

VA STRATEGY VS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Disagreement based on issues brought up with R-2 alternative.

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
Disagreement based on Alt 1 not meeting access standards/policies.

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
Disagreement base on issues brought up with R-2 alternative.

Responses prepared by: Jim Calkins
Date: 9/15/14

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

X AGREE ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

This is the best cost savings idea and it does not hurt us operational, yet it is not mentioned as an alternative design in any of the strategies (VS1, VS2, or VS3). I discusses with a CH2M Hill engineer who said the VA team felt environmental constraints prevented this alternative from moving on. However, the discussion portion of this alternative in the VA study states creek relocation is *plausible and further study is recommended*. This alternative is also contains the greatest cost savings. Please reconsider incorporating into the design process.

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** **X DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

This alternative was popular in the VA Study, but may not have taken into account forecast traffic volumes for the EB to NB movement, as well as, construction practices for freeway to freeway interchanges. Please do not incorporate into the design for the following reasons:

1. Three lanes are required for the flyover connecter to accommodate future traffic volumes (4,750 in year 2030). Two flyover lanes and a *transfer loop* would theoretically provide enough capacity, along with the HOV lane, but the loop is slow speed. The loop only holds about 1,200 vph at 25 mph.
2. The elimination of one of these lanes and the substitution with a transfer loop connecter is not a standard practice in the industry. This is new construction and should be designed as such.
3. The loop would not be as efficient and would represent a step backward, similar to our existing loop connecters.
4. Safety concerns always exist with a small radius loop and this 25 mph speed limitations.

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** **X** **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

This alternative was popular in the VA Study. It was contained in all three strategies. However, reduction of standard lane widths from 12' to 11' and reduction in shoulder widths from 10' to 8', as well as, reduction in the buffer separation width may not a practical cost savings solution for the following reasons:

1. Has D-3 Traffic Safety seen this alternative?
2. Standard roadway widths are required for all construction projects, especially on a 30' tall viaduct structure.
3. Increased collision rates and safety issues would result from the reduced lane and shoulder widths.
4. Truck traffic is high on this segment of Rt-65. This is not a location for non-standard lane and shoulder widths.
5. This structure has a minimum 30 year design life and using non-standard road widths is not advised. We cannot widen later.
6. Cost savings are only $2M (0.6% of project cost).
7. Nonstandard roadway widths were the rationale behind a recent decision not to permit lane width reductions across this viaduct, as previously requested by Placer Co.

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** **X** **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

This alternative was not popular and was not listed in any of the strategies. I agree with most of the advantages to this alternative, as well as, all of the disadvantages.

The disadvantages outweigh the advantages, in my opinion, so I marked *Disagree*.

An issue that may not have been indicated clearly in the VS Study was that merge/weave turbulence at the Galleria on-ramp to SB Rt-65 would be worsened with this alternative. Most drivers would need to traverse several lanes from the Galleria on-ramp before they could head west on I-80 in this alternative. These lane changes cause congestion. In the current existing design, most drivers from the on-ramp would enter directly into lanes toward their destination (west on I-80).

VA STRATEGY VS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** **X** **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

This strategy might be better than any existing project alternative if the following modifications were made:

1. S-1 and R-2 Alternatives eliminated.
2. The R-2 Alternative incorporated into the No Taylor Alternative (Alt 3).

Rationale for incorporating R-1 and eliminated S-1 and R-2 has already been provided. The choice to use the existing Alternative 3 with R-1 is my selection for this project development process. R-1 would still require further environmental study, before it could be included.

Also, this was nice work. Best VA Study I've ever reviewed.

Thanks, Jim

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** **X** **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

No comments.

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** **X** **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
No comment.

Responses prepared by: Eric Worrell
Date: 9/19/14

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA STRATEGY VS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Responses prepared by: Placer County Transportation Planning Agency
Date: September 22, 2014

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Would require significant coordination with regulatory agencies, resulting in delays to project. Current project approach is to avoid potential Secret Ravine impacts, which outweighs potential cost savings.

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Would increase travel distance for Eureka Road/Atlantic Street traffic, require a design exception for ramp spacing with the west to north connector from I-80 to SR 65, and shorten the weaving distance between the eastbound SR 65 off-ramp from I-80 and Galleria Boulevard/Stanford Ranch Road.

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Would require reductions in lane widths and soft barrier width (in some cases greater than 6 feet 6 inches since the width varies). Safety concerns on the Roseville Viaduct outweigh potential cost savings.

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Would not meet driver expectations for ramp connections (right to go left, left to go right), especially for a major freeway diverge.

VA STRATEGY VS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

See explanations for Alternatives S-1 and R-2.

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
See explanation for Alternative S-1.

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
See explanations for Alternatives S-1 and R-2.

Responses prepared by: Dave Palmer, City of Rocklin
Date: 9-30-14

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Could delay environmental approval.

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Keeps Taylor Rd access but lengthens CD movement to NB 65.

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Cost savings with minor impacts

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Cost savings but increased driver confusion & movements from Galleria to WB 65

VA STRATEGY VS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

No Taylor Rd access

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
Provides Taylor Rd access and savings on viaduct

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
Provides access to Taylor Rd but increases CD movement to NB 65

Responses prepared by: Scott Gandler
Date: 9/29/14

VA ALTERNATIVE R-1
Realign Secret Ravine, Eliminate CD4 Structure

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Reduces environmental impacts

VA ALTERNATIVE R-2
Replace Transfer Ramp with Loop

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Eliminates some structures

VA ALTERNATIVE S-1
Narrow Viaduct

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Reduces environmental impacts and costs

VA ALTERNATIVE S-2
Alternative Transpose South SR 65/I-80 Ramps

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Confusing to drivers – "go right to go left"

VA STRATEGY VS-1
ALTERNATIVE 3 – TAYLOR ROAD INTERCHANGE ELIMINATED PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☐ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:

Reduced access to local businesses

VA STRATEGY VS-2
ALTERNATIVE 1 – TAYLOR ROAD FULL ACCESS INTERCHANGE PLUS S-1 COMBINATION

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
Keeps Taylor Road access and reduces environmental impacts

VA STRATEGY VS-3
ALTERNATIVE 2 – COLLECTOR DISTRIBUTOR SYSTEM RAMPS PLUS S-1, R-2 COMBINATION

Disposition Recommendation: *(Select one)*

☒ **AGREE** ☐ **AGREE WITH MODIFICATIONS** ☐ **FURTHER STUDY NEEDED** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
Reduces environmental impacts and eliminates some structures.

VA IMPLEMENTATION ACTION MATRIX

VA Alt No.	Alternative/Strategy Title	Stakeholder Responses				No Recommendation	Reviewer		Rational Discussion	Final Disposition
		Agree	Agree with Mods	Further Study Needed	Disagree					
R-1	Realign Secret Ravine, Elminate CD4					✓	Ken Lastufka	CALTRANS	The VA notes that "the impacts are not significantly greater than the current proposed alternative." Did the VA team conduct a detailed comparison (impacts, costs, permitting, etc.) between the current alternative and VA Alt. R-1? It may be difficult to convince the resource/permitting agencies of converting a temporary realignment for construction purposes to a permanent realigning of the creek. The agencies also may not view this alternative as the better environmental option compared to the current alternative.	
		✓					Mike Hagen Traffic Safety	CALTRANS	The elimination of a structure will reduce simplify maintenance requirements by eliminating a structure. Safety benefits will be seen as the lack of a bridge rail can result in an improved clear recovery zone. Money saved from the structure elimination can be used to improve the new stream alignment and make it more environmentally attractive as a permanent alignment.	
			✓				John Rodriguez	CALTRANS	If permits can be obtained and environmental windows don't slow construction	
				✓			W. Keith Mack Design	CALTRANS	Design defers to environmental for further study/input. We understand benefit of construction on embankment rather than structures.	
		✓					Jim Calkins	CALTRANS	This is the best cost savings idea and it does not hurt us operational, yet it is not mentioned as an alternative design in any of the strategies (VS1, VS2, or VS3). I discusses with a CH2M Hill engineer who said the VA team felt environmental constraints prevented this alternative from moving on. However, the discussion portion of this alternative in the VA study states creek relocation is plausible and further study is recommended. This alternative is also contains the greatest cost savings. Please reconsider incorporating into the design process.	
		✓					Eric Worrell	FHWA	None.	
					✓		McNeel-Caird	PCTPA	Would require significant coordination with regulatory agencies, resulting in delays to project. Current project approach is to avoid potential Secret Ravine impacts, which outweighs potential cost savings.	
				✓			Matt Randall	Placer County DPW	This option needs further design detail and vetting from an overall project delivery point of view. More precise limits of bridge, retaining wall, fill, and creek realignment need to be determined to determine a more accurate and complete cost and environmental risk determination. The creek realignment will likely be viewed as a significant impact which would require a much greater environmental study effort and negotiation with the environmental resource agencies. Even though the construction cost savings is significant, the creek impact may be a fatal flaw from an environmental point of view.	
		✓					Dave Palmer	City of Rocklin	Could delay environmental approval	
		✓					Scott Gandler	City of Roseville	Reduces environmental impacts	

VA Alt No.	Alternative/Strategy Title	Stakeholder Responses				No Recommendation	Reviewer		Rational Discussion	Final Disposition
		Agree	Agree with Mods	Further Study Needed	Disagree					
R-2	Replace Transfer Ramp with Loop			✓			Mike Hagen Traffic Safety	CALTRANS	This alternative keeps the loop ramp and adds a merge from the loop to the connector. I would therefore expect this alternative to have more collisions due to the additional merge and the small radius curve. Elimination of the structure may alternatively reduce collisions through an improved clear recovery zone. I would like to see further analysis on the safety impacts from this alternative.	
				✓			John Rodriguez	CALTRANS	Constructability ok but concerned with traffic weave at the merge of EB 80/WB 80/EB 80 loop to 65.	
					✓		W. Keith Mack Design	CALTRANS	The 3 connector ramps converging within the same area is more complex than baseline alternatives. The CD loop ramp also significantly reduces weave length for traffic on the east to north connector which needs to shift over and take the Galleria/Stanford Ranch exit.	
					✓		Jim Calkins	CALTRANS	This alternative was popular in the VA Study, but may not have taken into account forecast traffic volumes for the EB to NB movement, as well as, construction practices for freeway to freeway interchanges. Please do not incorporate into the design for the following reasons: 1. Three lanes are required for the flyover connecter to accommodate future traffic volumes (4,750 in year 2030). Two flyover lanes and a transfer loop would theoretically provide enough capacity, along with the HOV lane, but the loop is slow speed. The loop only holds about 1,200 vph at 25 mph. 2. The elimination of one of these lanes and the substitution with a transfer loop connecter is not a standard practice in the industry. This is new construction and should be designed as such. 3. The loop would not be as efficient and would represent a step backward, similar to our existing loop connecters. 4. Safety concerns always exist with a small radius loop and this 25 mph speed limitations.	
		✓					Eric Worrell	FHWA	None.	
					✓		McNeel-Caird	PCTPA	Would increase travel distance for Eureka Road/Atlantic Street traffic, require a design exception for ramp spacing with the west to north connector from I-80 to SR 65, and shorten the weaving distance between the eastbound SR 65 off-ramp from I-80 and Galleria Boulevard/Stanford Ranch Road.	
					✓		Matt Randall	Placer County DPW	I like the idea of moving this ramp away from the creek; however, I'm not sure the environmental benefit is that much greater than the baseline concept when you consider the temporary access needed for construction of the ramp at the critical locations where the creek is closest to I80. For this reason I don't think the environmental benefits outweigh the operational costs of this option.	
		✓					Dave Palmer	City of Rocklin	Keeps Taylor Rd access but lengthens CD movement to NB 65	
		✓					Scott Gandler	City of Roseville	Eliminates some structures	

VA Alt No.	Alternative/Strategy Title	Stakeholder Responses: Agree	Agree with Mods	Further Study Needed	Disagree	No Recommendation	Reviewer		Rational Discussion	Final Disposition
S-1	Narrow Viaduct					✓	Dennis Jagoda Hydraulics	CALTRANS	If the narrowing of the shoulders results in run-off from the design event (a 25-year storm) encroaching into a high-speed lane I am opposed to a design exception allowing this. The proponents need to perform the appropriate analysis to determine spread and depth for the roadway drainage shed along this segment and determine if encroachment occurs. If it does, and interception and conveyance facilities cannot be designed and incorporated to address this, the design exception should not be granted	
				✓			Mike Hagen Traffic Safety	CALTRANS	The requirement for design exceptions will necessitate further analysis. However, given the information provided in the sample cross sections I don't have too many issues with the proposal. I'm having trouble finding an exception requirement for the HOV buffer. Narrower, or even no, buffers exist on exiting HOV lane segments, so I do not see a safety impact from this reduction. The lane/shoulder width reduction is expected to have a small (6-7%) increase in collisions based on rough calcs. More analysis would be required.	
		✓					John Rodriguez	CALTRANS	None.	
				✓			W. Keith Mack Design	CALTRANS	Design is not in support of reducing the SB 65 x-section. Did study team consider elimination of outside widening for SB 65 structure by increasing the widening along the NB 65 side of the viaduct while shifting all lanes ~6.5' towards that side?	
					✓		Jim Calkins	CALTRANS	This alternative was popular in the VA Study. It was contained in all three strategies. However, reduction of standard lane widths from 12' to 11' and reduction in shoulder widths from 10' to 8', as well as, reduction in the buffer separation width may not a practical cost savings solution for the following reasons: 1. Has D-3 Traffic Safety seen this alternative? 2. Standard roadway widths are required for all construction projects, especially on a 30' tall viaduct structure. 3. Increased collision rates and safety issues would result from the reduced lane and shoulder widths. 4. Truck traffic is high on this segment of Rt-65. This is not a location for non-standard lane and shoulder widths. 5. This structure has a minimum 30 year design life and using non-standard road widths is not advised. We cannot widen later. 6. Cost savings are only $2M (0.6% of project cost). 7. Nonstandard roadway widths were the rationale behind a recent decision not to permit lane width reductions across this viaduct, as previously requested by Placer Co.	
		✓					Eric Worrell	FHWA	None.	
					✓		McNeel-Caird	PCTPA	Would require reductions in lane widths and soft barrier width (in some cases greater than 6 feet 6 inches since the width varies). Safety concerns on the Roseville Viaduct outweigh potential cost savings.	
				✓			Matt Randall	Placer County DPW	In general the idea of eliminating the southbound widening (west widening) is a very good idea from an economical, staging, and environmental point of view. However, it seems that this could be achieved without sacrificing lane widths and by adjusting the mainline and ramp geometries. If the additional width cannot be achieved, Caltrans and the design team need to discuss and vet the operational and safety risks associated with this change.	
		✓					Dave Palmer	City of Rocklin	Cost savings with minor impacts	
		✓					Scott Gandler	City of Roseville	Reduces environmental impacts and costs	

VA Alt No.	Alternative/Strategy Title	Stakeholder Responses				No Recommendation	Reviewer		Rational Discussion	Final Disposition
		Agree	Agree with Mods	Further Study Needed	Disagree					
S-2	Alternative Transpose South SR 65/I-80 Ramps				✓		Mike Hagen Traffic Safety	CALTRANS	This alternative would not meet driver expectations, and would result in more weaving activity as drivers shift to the correct side of the freeway. This would be most notable for drivers entering from Galleria Blvd, who would have to shift several lanes to take the westbound connector. This would lead to increased collisions which I feel counters any benefits the alternative may offer. As such I cannot support this alternative.	
				✓			John Rodriguez	CALTRANS	Need to compare SB 65 to EB 80 weave with SB 65 to WB 80 weave. Might be able to realign SB 65 to EB 80 connector to achieve the same environmental benefits w/o transposition	
				✓			W. Keith Mack Design	CALTRANS	Design believes there are several advantages to this alternative. We recommend further traffic operations study to determine if advantages outweigh the risks with not meeting driver expectation and switching existing traffic pattern. In the PM peak hour, there are roughly 6800 vehicles on SB 65 between the Galleria on-ramp and the connector split. One concern is that overloading of the #1-3 lanes could occur while the #4 lane may be under-utilized when it is dedicated to the minor move.	
					✓		Jim Calkins	CALTRANS	This alternative was not popular and was not listed in any of the strategies. I agree with most of the advantages to this alternative, as well as, all of the disadvantages. The disadvantages outweigh the advantages, in my opinion, so I marked Disagree. An issue that may not have been indicated clearly in the VS Study was that merge/weave turbulence at the Galleria on-ramp to SB Rt-65 would be worsened with this alternative. Most drivers would need to traverse several lanes from the Galleria on-ramp before they could head west on I-80 in this alternative. These lane changes cause congestion. In the current existing design, most drivers from the on-ramp would enter directly into lanes toward their destination (west on I-80).	
						✓	Christine Zdunkiewicz	CALTRANS	We have concerns regarding the proposed VA study Alternative No. S-2, the transposed SB connector ramps., due to the current operational concerns that exist at Blue Oaks/SR65. On the northbound off-ramp at SR65/Blue Oaks, there is an optional lane split to the intersection and the WB flyover. There exist some driver confusion due to the non-intuitive lane designations. In addition, a revised traffic study would need to be done in order to access any resultant new weaves due to the change in lane designations for the SB ramps. Galleria on-ramp operations would have to be re-accessed as well as upstream potential weaving due to the proposed transposition of the SB ramps.	
					✓		Eric Worrell	FHWA	None.	
					✓		McNeel-Caird	PCTPA	Would not meet driver expectations for ramp connections (right to go left, left to go right), especially for a major freeway diverge.	
				✓			Matt Randall	Placer County DPW	The "left to go right" ramp configuration has been used in other situations but the proximity to Galleria Blvd could cause weaving problems for drivers traveling from Galleria to WB I80. Need additional data to determine that traffic volume and to vet any associated operational or safety issues with Caltrans. The geometrics of the ramp structure near the creek could be refined for more construction cost savings as well as less impact on the creek.	
		✓					Dave Palmer	City of Rocklin	Cost savings but increased driver confusion & movements from Galleria to WB 65	
					✓		Scott Gandler	City of Roseville	Confusing to drivers – "go right to go left"	

VA Alt No.	Alternative/Strategy Title	Stakeholder Responses				No Recommendation	Reviewer		Rational Discussion	Final Disposition
		Agree	Agree with Mods	Further Study Needed	Disagree					
VS-1	Alternative 3 - Taylor Road Interchange Eliminated Plus S-1, R-2 Combination			✓			Mike Hagen Traffic Safety	CALTRANS	As mentioned previously, I would expect the S-1/R-2 alternatives to increase collisions due to the retention of the loop ramp, the additional merge, and the reduce lane/shoulder widths. More analysis is needed to determine the safety impacts due to this alternative combination.	
				✓			John Rodriguez	CALTRANS	See previous comments for S-1 and R-2	
					✓		W. Keith Mack Design	CALTRANS	Disagreement based on issues brought up with R-2 proposal.	
			✓				Jim Calkins	CALTRANS	This strategy might be better than any existing project alternative if the following modifications were made: 1. S-1 and R-2 Alternatives eliminated. 2. The R-2 Alternative incorporated into the No Taylor Alternative (Alt 3). Rationale for incorporating R-1 and eliminated S-1 and R-2 has already been provided. The choice to use the existing Alternative 3 with R-1 is my selection for this project development process. R-1 would still require further environmental study, before it could be included. Also, this was nice work. Best VA Study I've ever reviewed. Thanks, Jim	
		✓					Eric Worrell	FHWA	None.	
					✓		McNeel-Caird	PCTPA	See explanations for Alternatives S-1 and R-2	
					✓		Matt Randall	Placer County DPW	See comments related to R-2.	
					✓		Dave Palmer	City of Rocklin	No Taylor Rd access	
					✓		Scott Gandler	City of Roseville	Reduced access to local businesses	

VA Alt No.	Alternative/Strategy Title	Stakeholder Responses				No Recommendation	Reviewer		Rational Discussion	Final Disposition
		Agree	Agree with Mods	Further Study Needed	Disagree					
VS-2	Alternative 1 - Taylor Road Full Access Interchange Plus S-1 Combination			✓			Mike Hagen Traffic Safety	CALTRANS	As mentioned previously, the S-1 alternative will require further study to determine the safety impacts from the narrower lanes/shoulders.	
		✓					John Rodriguez	CALTRANS	None.	
					✓		W. Keith Mack Design	CALTRANS	Disagreement based on Alt 1 not meeting access standards/policies.	
					✓		Jim Calkins	CALTRANS	None.	
		✓					Eric Worrell	FHWA	None.	
					✓		McNeel-Caird	PCTPA	See explanation for Alternative S-1	
				✓			Matt Randall	Placer County DPW	See comments related to S-1.	
		✓					Dave Palmer	City of Rocklin	Provides Taylor Rd access and savings on viaduct	
		✓					Scott Gandler	City of Roseville	Keeps Taylor Road access and reduces environmental impacts	
VS-3	Alternative 2 - Collector Distributor System Ramps Plus S-1, R-2 Combination			✓			Mike Hagen Traffic Safety	CALTRANS	As mentioned previously, I would expect the S-1/R-2 alternatives to increase collisions due to the retention of the loop ramp, the additional merge, and the reduce lane/shoulder widths. More analysis is needed to determine the safety impacts due to this alternative combination.	
				✓			John Rodriguez	CALTRANS	See previous comments for S-1 and R-2	
					✓		W. Keith Mack Design	CALTRANS	Disagreement base on issues brought up with R-2 proposal.	
					✓		Jim Calkins	CALTRANS	None.	
		✓					Eric Worrell	FHWA	None.	
					✓		McNeel-Caird	PCTPA	See explanations for Alternatives S-1 and R-2	
					✓		Matt Randall	Placer County DPW	See comments related to R-2.	
		✓					Dave Palmer	City of Rocklin	Provides access to Taylor Rd but increases CD movement to NB 65	
		✓					Scott Gandler	City of Roseville	Reduces environmental impacts and eliminates some structures.	

VA Alternative Documentation

VA ALTERNATIVE NO. R-1

Realign Secret Ravine, Eliminate Collector-Distributor 4 Structure

Initial Cost Savings:	$14,690,000
LCC Savings:	$0
Change in Schedule:	No Change
Performance Change:	+4 %
Value Change:	+13 %

Description of Baseline Concept: The current alternatives leave Secret Ravine in its current location. This requires the east-north connector in Alternative 1 and the collector-distributor and east-north connector in Alternatives 2 and 3 to be placed on lengthy structures with outrigger supports.

Description of Alternative Concept: Realign Secret Ravine out of the footprint of the planned I-80/SR 65 Interchange Improvements. This concept is the same in all three build alternatives. For Alternative 1, this allows a portion of the east-north connector to be placed on embankment or retained embankment. For Alternatives 2 and 3, this allows the collector-distributor connector and a portion of the east-north connector to be placed on embankment or retained embankment.

Advantages:

- Reduces structure number and length.
- Reduces construction and maintenance costs.

Disadvantages:

- Requires regulatory agency approval.
- Likely requires formal consultation with U.S. Army Corps of Engineers (USACE).
- There would be permanent loss of habitat.

Discussion: Secret Ravine borders the southern edge of the project east of Taylor Road. The current alternatives encroach into the stream. To minimize this encroachment, the alignments are placed on structures with some outrigger bents to avoid placing supports directly in the waterway. To avoid stream encroachment, longer structures are required. Construction of the current alternatives will require temporary streambed relocation or stream containment and piping. Since the impact to the stream is unavoidable and temporary realignment is likely, this VA alternative proposes to leave the temporary realignment of the creek as a permanent realignment. Placing the alignments on embankment is considerably less expensive to construct and reduces the time of construction. In Alternatives 2 and 3, the collector-distributor connector can be placed on embankment or a combination of retaining wall and embankment for a reduced footprint. The greatest cost savings is achieved by constructing alignments on fill. A portion of the east-north connector can also be placed on a combination of embankment and retained embankment resulting in a shorter-length structure.

Technical Review Comments: This alternative was briefly discussed with representatives from the Caltrans environmental branch. Their opinion is that the idea of permanent creek relocation is plausible and requires further investigation. Costs and mitigation requirements are unknown at this time. Formal consultation with USACE is likely required. A formal survey of biological resources is required. The existence of Elderberry shrubs is likely and will require further mitigation if impacted. Elderberry bushes were not addressed by the VA Study of this alternative.

VA ALTERNATIVE NO. R-1

Realign Secret Ravine, Eliminate Collector-Distributor 4 Structure

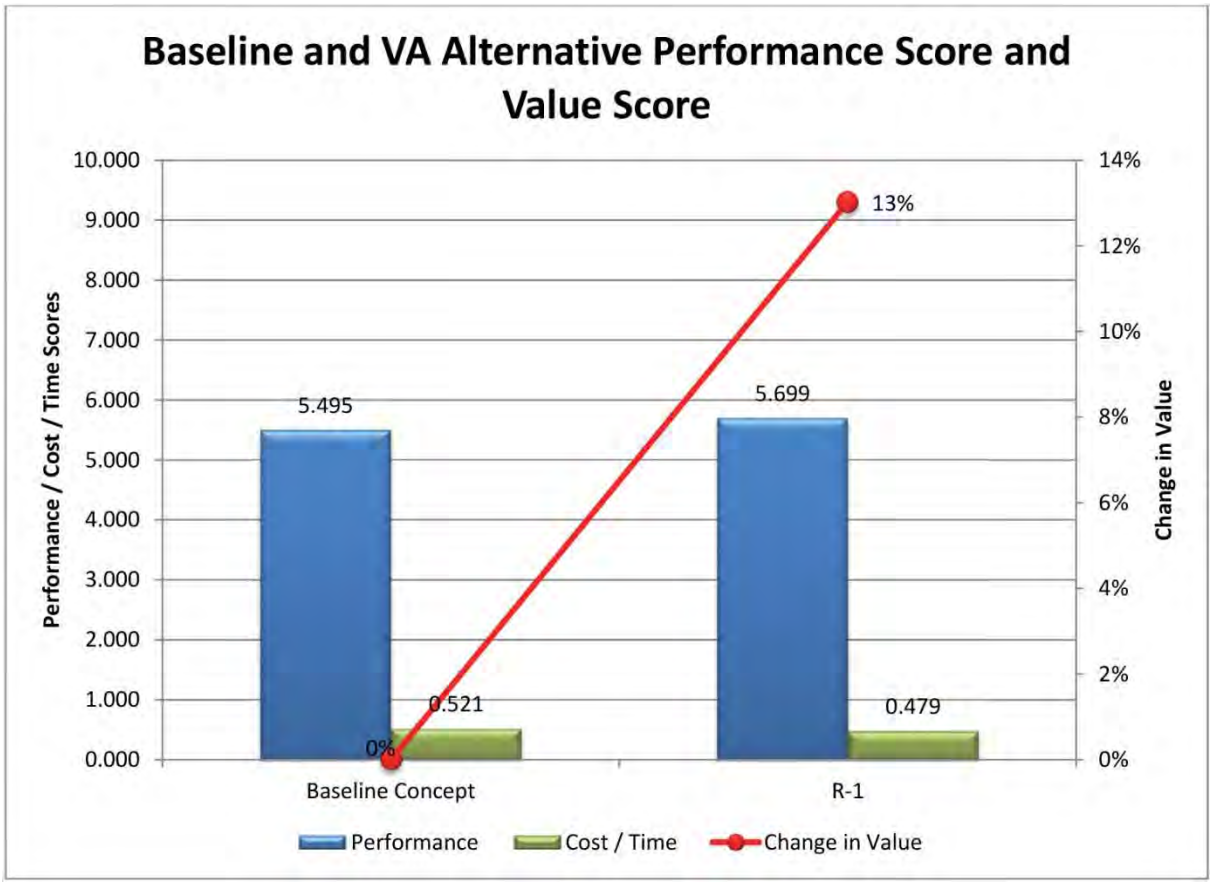
Project Management Considerations: Relocating the stream and placing embankment in the stream zone will complicate the environmental process. However, the impacts are not significantly greater than the current proposed alternatives. Consultation with regulatory agencies will be required.

Discussion of Schedule Impacts: Embankment construction is considerably faster than structure construction and could reduce the overall project construction duration. However placing embankment in the stream zone may require a longer environmental clearance process. The length of time for project development may offset the environmental clearance process.

Discussion of Risk Impacts: Moving the creek may prolong the environmental permitting process. Conversely, the VA alternative is more constructable and hence reduces construction risks.

Exhibits R-1.1 and R-1.2 illustrate the performance assessment. Exhibit R-1.3 shows the baseline concept sketch.

Exhibit R-1.1. Comparison of Performance



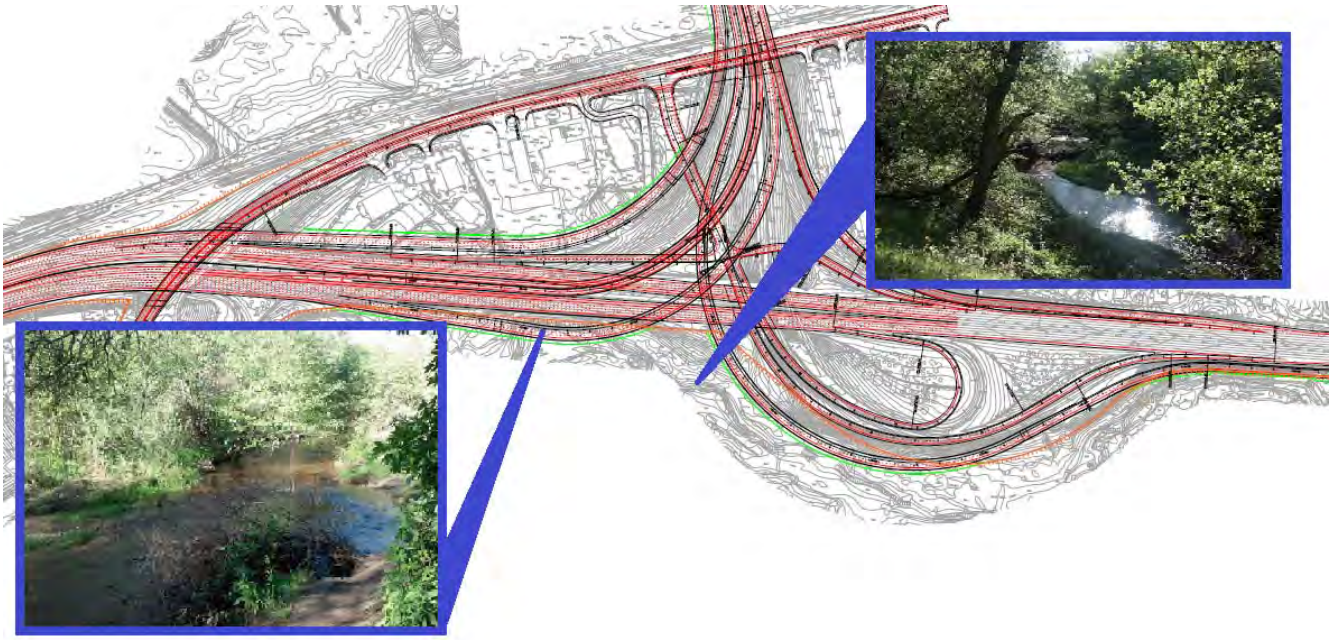
VA ALTERNATIVE NO. R-1

Realign Secret Ravine, Eliminate Collector-Distributor 4 Structure

Exhibit R-1.2. Performance Assessment

Performance Attribute	Change in Performance	Rationale for Change in Performance
Mainline Operations	No change	Nearly the same as baseline.
Local Operations	No change	Fairly neutral impact.
Environmental Impacts	Improves performance	Moves creek south further away from collector-distributor road.
Construction Impacts	Improves performance	Easier to construct.
Phaseability	No change	Project cannot be constructed in phases.
Land Use Compatibility	No change	Minimal impacts to land use.

Exhibit R-1.3. Baseline Concept Sketch



VA ALTERNATIVE NO. R-1

Realign Secret Ravine, Eliminate Collector-Distributor 4 Structure

Assumptions and Calculations:

- Roadway
  - $13 per cubic yard (CY) for excavation
  - $28.02 per square foot (SF) for structural section
  - $65 per SF for retaining walls

Exhibits R-1.4 and R-1.5 present the capital and LCC estimates for the VA alternative.

Exhibit R-1.4. Initial Cost Estimates

ROADWAY ITEMS							
Section 1 Earthwork							$ -
Excavation	CY				889.00	$ 13.00	$ 11,557
Section 2 Structural Section							$ -
Complete Structural Section	SF				194,734.00	$ 28.02	$ 5,456,447
Section 4 Specialty Items							$ -
Retaining Walls	SF				34,930.00	$ 65.00	$ 2,270,450
Section 6 Minor Item							$ -
Subtotal Sections (1-5)		$0.00	8%	$ -	$7,738,453.68	8%	$ 619,076
Section 7 Roadway Mobilization							$ -
Subtotal Sections (1-6)		$0.00	10%	$ -	$8,357,529.97	10%	$ 835,753
Section 8 Roadway Additions							$ -
Supplemental Work Sections (1-6)		$0.00	5%	$ -	$8,357,529.97	5%	$ 417,876
Contingencies Sections (1-6)		$0.00	20%	$ -	$8,357,529.97	20%	$ 1,671,506
ROADWAY SUBTOTAL				*$ -*			*$ 11,282,665*
ROADWAY MARK-UP				*$ -*			*$ -*
ROADWAY TOTAL				*$ -*			*$ 11,282,665*
STRUCTURE ITEMS							
NB SR-65 On Ramp ("CD3")	SF	8,736	$ 300.00	$ 2,620,800.00			$ -
EB I-80 On Ramp ("CD4")	SF	35,867	$ 300.00	$ 10,760,100.00			$ -
E80/N65 Connector ("EN")	SF	115,185	$ 275.00	$ 31,675,875.00	68,660	$ 275.00	$ 18,881,569
				$ -			$ -
STRUCTURE SUBTOTAL				*$ 45,056,775*			*$ 18,881,569*
STRUCTURE MARK-UP				*$ -*			*$ -*
STRUCTURE TOTAL				*$ 45,056,775*			*$ 18,881,569*
ENVIRONMENTAL MITIGATION ITEMS							
Mitigation Cost					1.38	$ 150,000.00	$ 207,000
ENVIRONMENTAL MITIGATION TOTAL				*$ -*			*$ 207,000*
TOTAL		$		45,056,775	$		30,371,234
TOTAL (Rounded)				$45,060,000			$30,370,000
						SAVINGS	**$14,690,000**

VA ALTERNATIVE NO. R-1

Realign Secret Ravine, Eliminate Collector-Distributor 4 Structure

Exhibit R-1.5. Life-Cycle Cost Estimates

LIFE-CYCLE COSTS						ALT. NO. S-1
Life-Cycle Period	30	Years	Real Discount Rate	1.50%	**BASELINE**	**ALTERNATIVE**
A. INITIAL COST						
Service Life - Baseline	30	Years	**INITIAL COST SAVINGS:**			**$ 14,690,000**
Service Life - Alternative	30	Years				
B. SUBSEQUENT ANNUAL COSTS						
1. Maintenance and Inspection (reduced maintainance)					$0	
2. Operating						
3. Energy						
Total Subsequent Annual Costs:					$0	$ -
Present Value Factor (P/A):					24.016	24.016
PRESENT VALUE OF SUBSEQUENT ANNUAL COSTS (Rounded):					**$ -**	**$ -**
C. SUBSEQUENT SINGLE COSTS	**Year**	**Amount**	**PV Factor (P/F)**		**Present Value**	**Present Value**
			1.00000		$ -	
			1.00000			$ -
			1.00000		$ -	
			1.00000			$ -
			1.00000		$ -	
			1.00000			$ -
			1.00000		$ -	
			1.00000			$ -
PRESENT VALUE OF SUBSEQUENT SINGLE COSTS (Rounded):					**$ -**	**$ -**
D. TOTAL SUBSEQUENT ANNUAL AND SINGLE COSTS (B+C)					**$ -**	**$ -**
E. TOTAL SUBSEQUENT COSTS SAVINGS:						**$ -**

An LCC estimate was not performed on this alternative because the baseline and VA alternative have essentially the same maintenance and inspection, operating, and energy costs.

VA ALTERNATIVE NO. R-2

Replace Transfer Ramp With Loop

Initial Cost Savings:	$12,600,000
LCC Savings:	$0
Change in Schedule:	Decrease
Performance Change:	+10 %
Value Change:	+51 %

Description of Baseline Concept: The current Alternative 2 improves spacing and weaving movements between interchanges on I-80 by collecting and redirecting eastbound ramp traffic onto a collector-distributor ramp system. The collector-distributor system would provide eastbound access to Taylor Road and from Eureka Road at the Atlantic Street/Eureka Road interchange. This configuration would restrict local traffic from leaving or entering the I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. The two existing Taylor Road interchange ramps would remain in their current location but would be reconfigured to accommodate the surrounding improvements.

Description of Alternative Concept: This alternative will remove the collector-distributor structure along the eastbound I-80, place an eastbound through-lane on fill to eastbound I-80, and replace the transfer ramp with a loop ramp for vehicles traveling from eastbound I-80 to northbound SR 65. One lane from the eastbound connector structure to northbound SR 65 will be removed.

Advantages:

- Reduces the project footprint.
- Eliminates structures.
- Reduces environmental impacts.
- Reduces construction schedule.
- Is cost-effective.

Disadvantages:

- Provides slower design speed for vehicles traveling from eastbound I-80 to northbound SR 65.
- Provides longer travel distance to northbound SR 65.

Discussion: This alternative minimizes the project footprint because the eastbound direction lane to eastbound I-80 is brought in closer north and will tuck under the bridge. This alternative uses the clearance provided by the northbound connector bridge. This will protect approximately 1.5 acres of an environmentally sensitive area.

This alternative eliminates approximately 85,000 SF of structure that would have been constructed in an environmentally sensitive area.

The majority of the alternative will be placed on compacted fill. The VA Team believes that permitting will be less complicated, and the construction schedule will be reduced. The VA alternative also will be more constructable.

Technical Review Comments: Although the gore is not 1,000 feet, this proposed design is acceptable and not considered an operational issue because the proposed geometry will be adding lanes.

VA ALTERNATIVE NO. R-2

Replace Transfer Ramp With Loop

The radius of the loop ramp is 175 feet. The distance between gores is 450 feet where the eastbound I-80 to northbound SR 65 connector merges.

Project Management Considerations: The alignments and profiles will need to be adjusted to make this alternative work. However, since the project is in the conceptual phase, the amount of redesign is negligible.

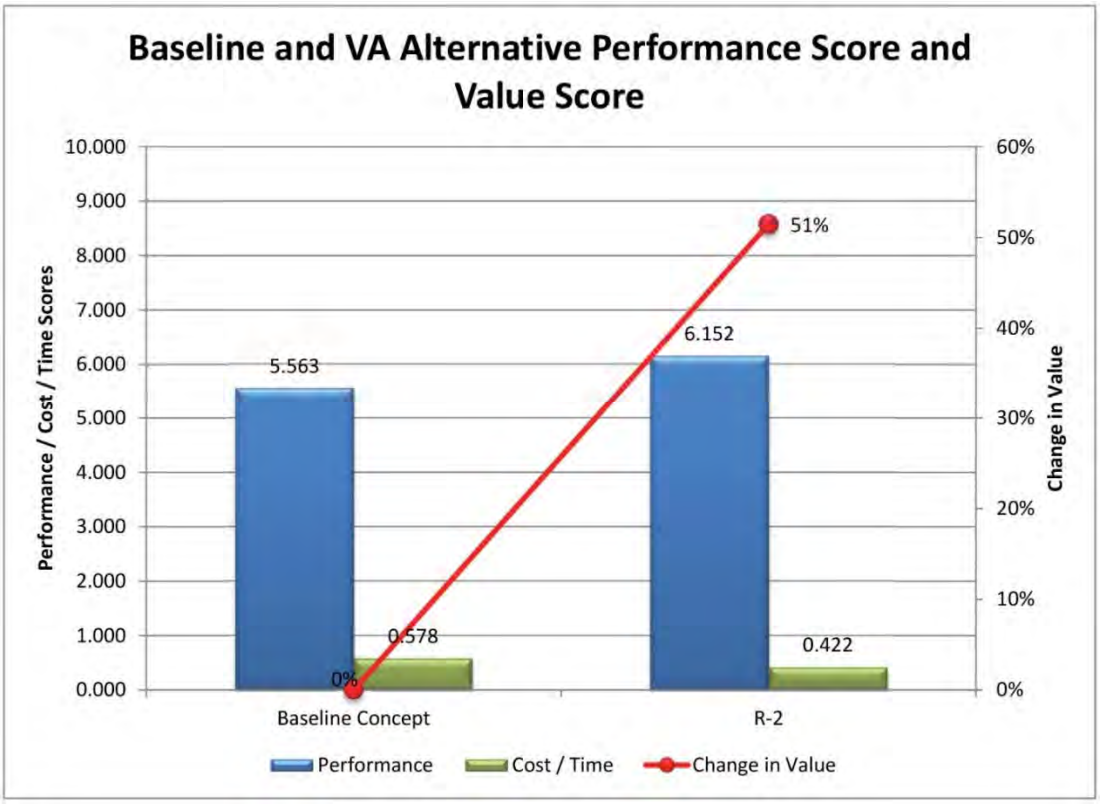
Discussion of Schedule Impacts: This alternative will benefit the project schedule. It also will protect the environmentally sensitive areas, which will help with mitigation and time required to obtain permits. This alternative will speed up construction because the lion's share of work is roadway construction versus structural. This concept would potentially reduce the schedule by 6 months.

Discussion of Risk Impacts: This concept would reduce the risk in construction delays due to the reduction in bridge work.

Performance: As shown on Exhibits R-2.1 and R-2.2, VA Alternative R-2 will increase the value of this component of the project by 51 percent. This is due to reductions in the construction schedule, less environmental impact due to moving the alignment north further away from the riparian area, and reduced cost.

The baseline concept and alternative concept are shown in Exhibits R-2.3 and R-2.4.

Exhibit R-2.1. Comparison of Performance



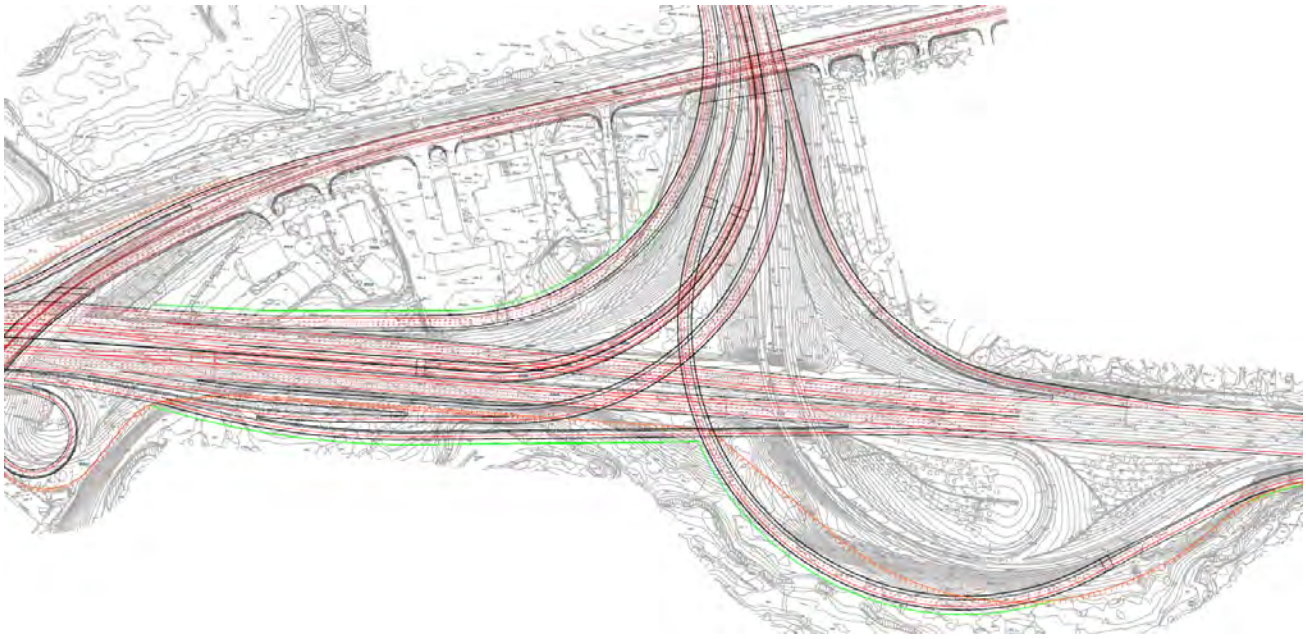
VA ALTERNATIVE NO. R-2

Replace Transfer Ramp With Loop

Exhibit R-2.2. Performance Assessment

Performance Attribute	Change in Performance	Rationale for Change in Performance
Mainline Operations	No change	The collector-distributor removes weaves in Alternative 2, but the mainline operations remain nearly the same in the R-2 concept.
Local Operations	No change	Both the R-2 concept and the Alternative 2 concept produce fairly neutral impacts.
Environmental Impacts	Improves performance	R-2 moves the collector-distributor further north away from the creek, which reduces the impacts on the creek and wetlands.
Construction Impacts	Improves performance	Alternative 2 construction occurs in a sensitive area, while R-2 is easier to construct.
Phaseability	No change	For both Alternative 2 and R-2, the project can be built in multiple phases, but the interim benefits will be limited in nature and/or significant "throwaway" work will be required.
Land Use Compatibility	No change	Both R-2 and Alternative 2 have minimal impacts to land use.

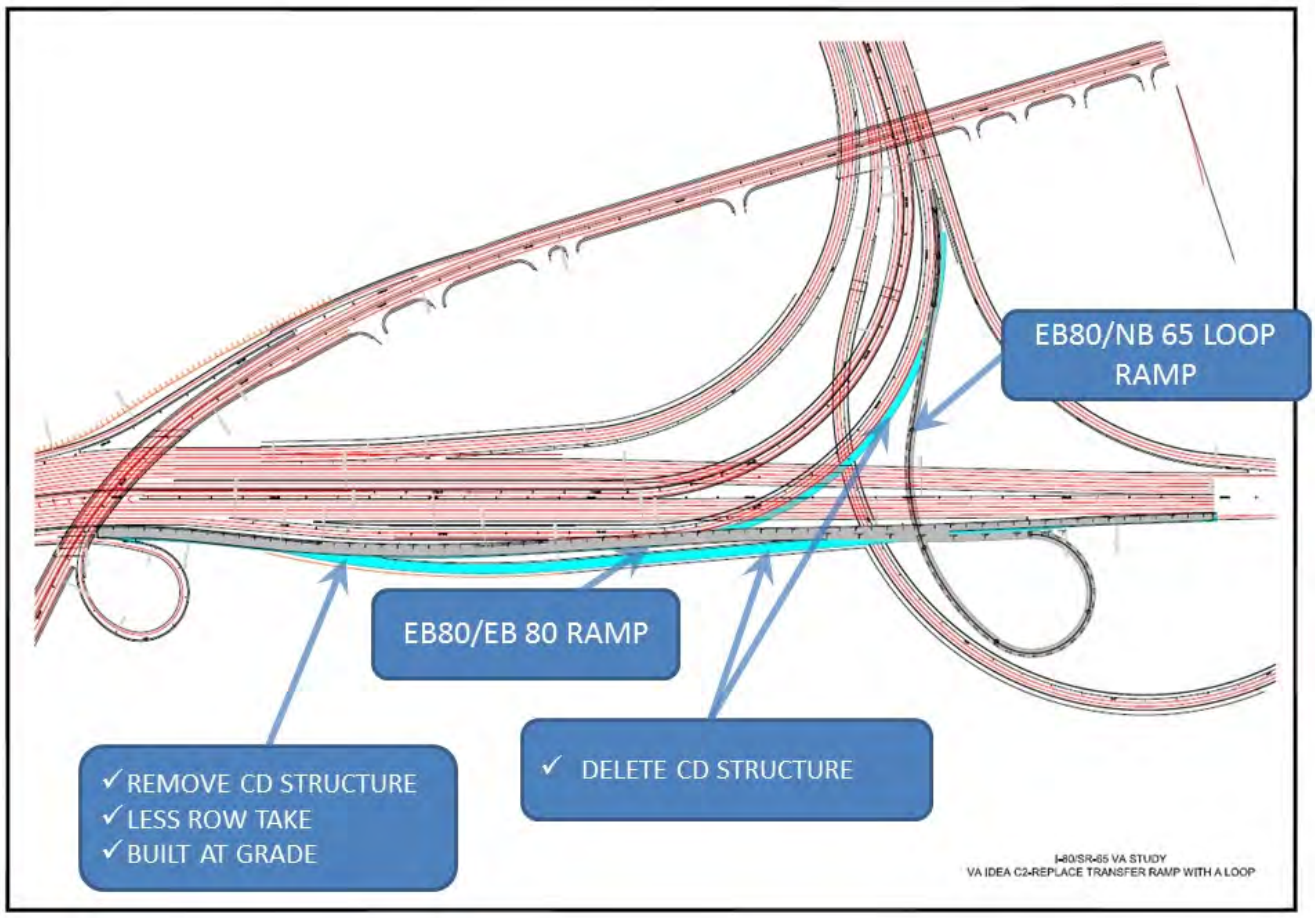
Exhibit R-2.3. Baseline Concept Sketch



VA ALTERNATIVE NO. R-2

Replace Transfer Ramp With Loop

Exhibit R-2.4. VA Alternative Concept Sketch



VA ALTERNATIVE NO. R-2

Replace Transfer Ramp With Loop

Assumptions and Calculations: ---

Cost Estimate: Exhibits R-2.5 and R-2.6 present the capital and LCC estimates for the VA alternative.

Exhibit R-2.5. Initial Cost Estimates

INITIAL COSTS								ALT. NO.
CONSTRUCTION ELEMENT		*BASELINE CONCEPT*			*ALTERNATIVE CONCEPT*			
Description	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**	
ROADWAY ITEMS								
Section 2 Structural Section								
Complete Structural Section	SF				140,400.00	$ 28.02	$ 3,934,008	
Section 4 Specialty Items							$ -	
Retaining Walls	SF				41,800.00	$ 65.00	$ 2,717,000	
Section 6 Minor Item							$ -	
Subtotal Sections (1-5)		$0.00	8%	$ -	$6,651,008.00	8%	$ 532,081	
Section 7 Roadway Mobilization							$ -	
Subtotal Sections (1-6)		$0.00	10%	$ -	$7,183,088.64	10%	$ 718,309	
Section 8 Roadway Additions							$ -	
Supplemental Work Sections (1-6)		$0.00	5%	$ -	$7,183,088.64	5%	$ 359,154	
Contingencies Sections (1-6)		$0.00	20%	$ -	$7,183,088.64	20%	$ 1,436,618	
ROADWAY SUBTOTAL				*$ -*			*$ 9,697,170*	
ROADWAY MARK-UP				*$ -*			*$ -*	
ROADWAY TOTAL				*$ -*			*$ 9,697,170*	
STRUCTURE ITEMS								
NB SR-65 On Ramp ("CD3")	SF	8,736	$ 300.00	$ 2,620,800.00			$ -	
EB I-80 On Ramp ("CD4")	SF	35,867	$ 300.00	$ 10,760,100.00			$ -	
E80/N65 Connector ("EN")	SF	115,185	$ 275.00	$ 31,675,875.00	$ 74,185.00	$ 275.00	$ 20,400,875	
Loop to I-80	SF				$ 9,450.00	$ 275.00	$ 2,598,750	
							$ -	
STRUCTURE SUBTOTAL				*$ 45,056,775*			*$ 22,999,625*	
STRUCTURE MARK-UP				*$ -*			*$ -*	
STRUCTURE TOTAL				*$ 45,056,775*			*$ 22,999,625*	
ENVIRONMENTAL MITIGATION ITEMS								
Mitigation Cost		1.62	$ 150,000.00	$ 243,000.00			$ -	
ENVIRONMENTAL MITIGATION TOTAL				*$ 243,000*			*$ -*	
TOTAL		$		45,299,775	$		32,696,795	
TOTAL (Rounded)				$45,300,000			$32,700,000	
						SAVINGS	**$12,600,000**	

VA ALTERNATIVE NO. R-2

Replace Transfer Ramp With Loop

Exhibit R-2.6. Life-Cycle Costs

LIFE-CYCLE COSTS						ALT. NO. S-1
Life-Cycle Period	30	Years	Real Discount Rate	1.50%	**BASELINE**	**ALTERNATIVE**
A. INITIAL COST						
Service Life - Baseline	30	Years	**INITIAL COST SAVINGS:**			**$ 12,600,000**
Service Life - Alternative	30	Years				
B. SUBSEQUENT ANNUAL COSTS						
1. Maintenance and Inspection (reduced maintainance)					$0	
2. Operating						
3. Energy						
Total Subsequent Annual Costs:					$ -	$ -
Present Value Factor (P/A):					24.016	24.016
PRESENT VALUE OF SUBSEQUENT ANNUAL COSTS (Rounded):					**$ -**	**$ -**
C. SUBSEQUENT SINGLE COSTS	**Year**	**Amount**	**PV Factor (P/F)**		**Present Value**	**Present Value**
			1.00000		$ -	
			1.00000			$ -
			1.00000		$ -	
			1.00000			$ -
			1.00000		$ -	
			1.00000			$ -
			1.00000		$ -	
			1.00000			$ -
PRESENT VALUE OF SUBSEQUENT SINGLE COSTS (Rounded):					**$ -**	**$ -**
D. TOTAL SUBSEQUENT ANNUAL AND SINGLE COSTS (B+C)					**$ -**	**$ -**
E. TOTAL SUBSEQUENT COSTS SAVINGS:						**$ -**

An LCC estimate was not performed on this alternative because the baseline and VA alternative have essentially the same maintenance and inspection, operating, and energy costs.

VA ALTERNATIVE NO. S-1

Narrow Viaduct

Initial Cost Savings:	$1,912,500
LCC Savings:	$689,000
Change in Schedule:	12 months
Performance Change:	2.6%
Value Change:	18%

Description of Baseline Concept: As designed, the current SR 65 (East Roseville viaduct) is widened on both sides and in the middle of the viaduct to a width of approximately 175 feet. The southbound cross section from station 115+00 to 132+00 (1,700 feet) accommodates a 2-foot median barrier, a 10-foot shoulder, a 12-foot HOV lane, a 5-foot shoulder, four 12-foot general purpose lanes, and a variable outside shoulder of approximately 10 to 11 feet. A photograph of the existing viaduct is shown in Exhibit S-1.1; the design typical section is presented in Exhibit S-1.2. Based on the design team presentation and striping plan sheets, although not shown on the bridge plans, the cross section includes an HOV buffer of approximately 5 feet. The southbound viaduct cross section dimensions used in this analysis are shown in Exhibit S-1.3.

Exhibit S-1.1. Viaduct Looking North

VA ALTERNATIVE NO. S-1

Narrow Viaduct

Exhibit S-1.2. Viaduct Typical Section (Baseline Concept Sketch)

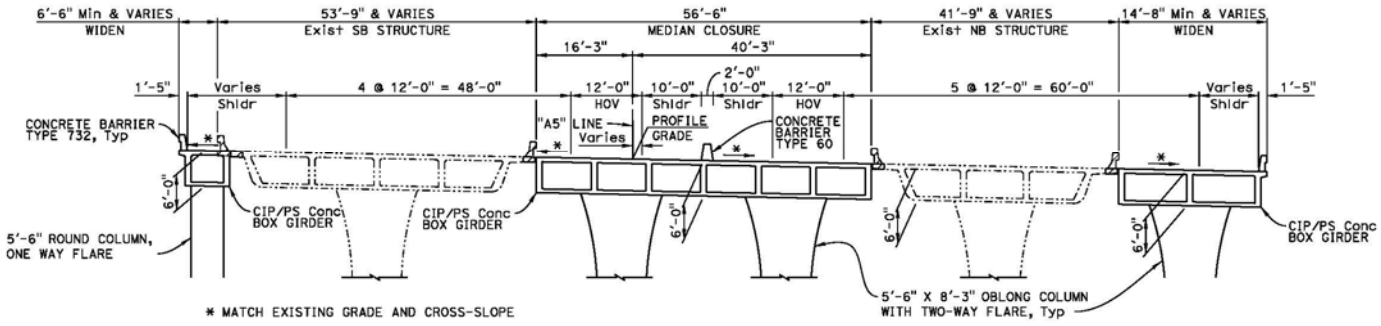
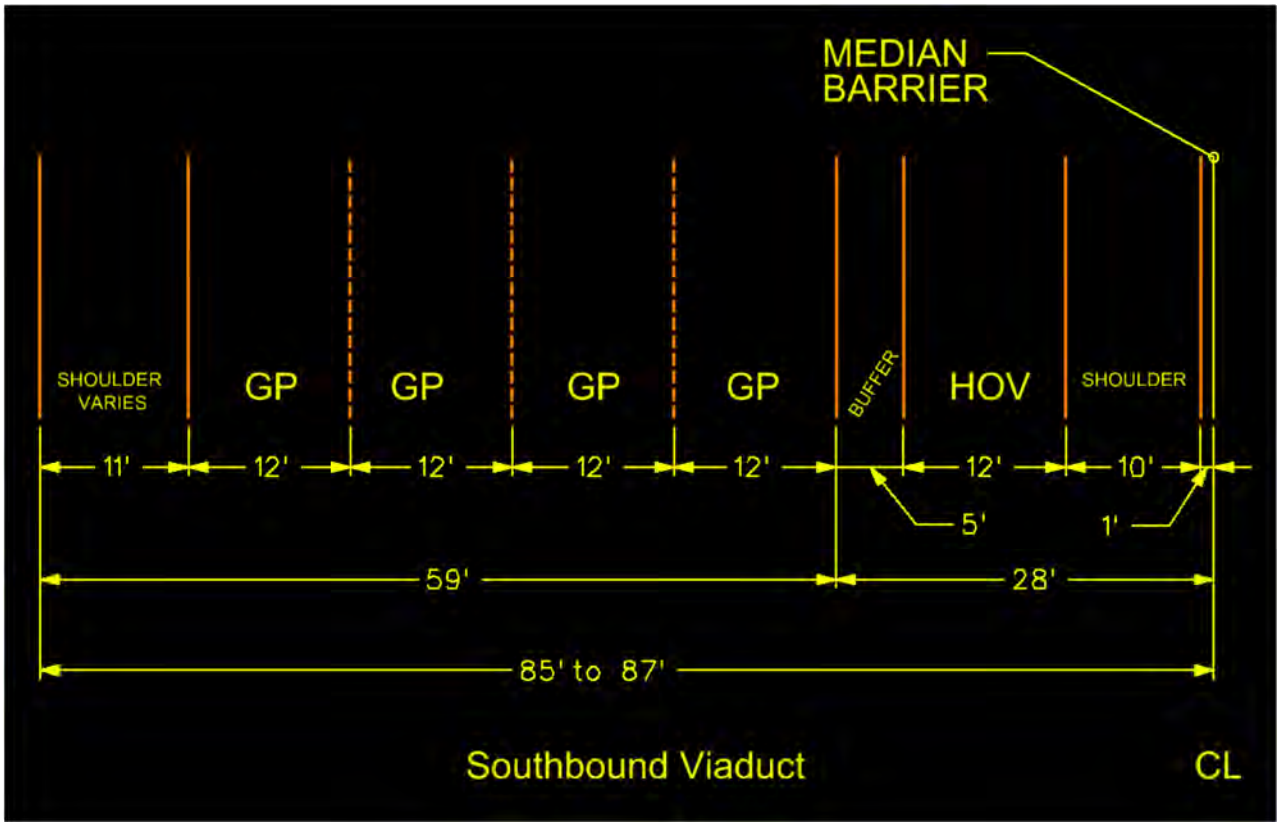


Exhibit S-1.3. Southbound Viaduct Cross Section Dimensions



VA ALTERNATIVE NO. S-1

Narrow Viaduct

Description of Alternative Concept: As shown in Exhibit S-1.4, the goal of this VA alternative is to eliminate the widening of the viaduct on the south side to avoid building a narrow (6-foot 6-inch) structure with single columns. As proposed in Exhibit S-1.5, the southbound viaduct width would be reduced by narrowing a single general purpose lane from 12 to 11 feet, changing the buffer separation from 5 feet to between 1 and 3 feet (depending on location), and constructing an 8-foot instead of 10-foot inside shoulder. As an option, one or more of the following cross section modifications could be considered in lieu of the VA alternative:

- Replace the northbound HOV barrier with a buffer/soft separation.
- Reduce lane widths from 12 feet to 11 feet.
- Reduce shoulder widths.

Exhibit S-1.4. VA Alternative Concept Sketch

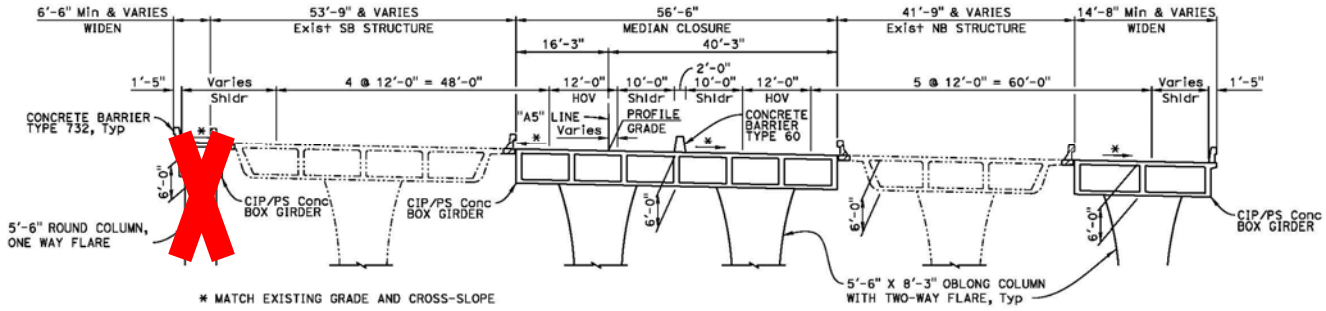
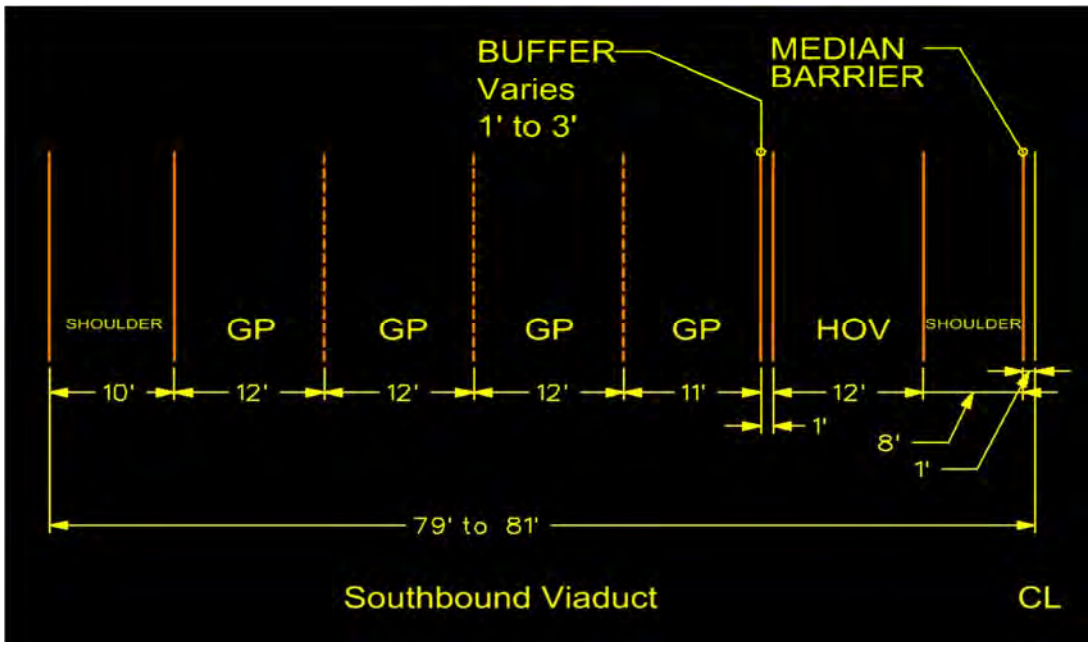


Exhibit S-1.5. Southbound Viaduct Cross Section Dimensions



VA ALTERNATIVE NO. S-1

Narrow Viaduct

Advantages:

- Reduces the viaduct width by 6 feet 6 inches.
- Eliminates the widening on the south side of the viaduct.
- Eliminates the single 5-foot 6-inch-diameter round columns.
- Does not require changing the mainline centerline.
- Maintains the desired barrier-separated northbound HOV lane between I-80 and the Galleria interchange.
- Reduces project cost.
- May reduce environmental impacts.

Disadvantages:

- Requires design exceptions.

Discussion: As designed, the south side viaduct widening is narrow, constructed on single columns, and costly. This proposed alternative concept should be implemented because it provides a cost savings of $1,912,500 and because the advantages outweigh the disadvantages. As proposed, the VA alternative reduces the viaduct width and eliminates the widening on the south side. The designed width of the southbound viaduct is approximately 85 to 87 feet. The VA alternative is narrowed by approximately 6 feet resulting in a southbound cross section width ranging from 79 to 81 feet. In addition to reducing the overall width, this VA alternative may reduce impacts to environmental resources beneath the viaduct. The main disadvantage of this VA alternative is the need for design exceptions. As shown in Exhibit S-1.6, the VA alternative requires design exceptions for a slightly narrower general purpose lane, buffer, and shoulder.

Exhibit S-1.6. Design Exceptions

Element	Standard/Typical	VA Alternative	Design Exception?
Outside shoulder	10 feet	10 feet	No
General Purpose lane	12 feet	11 feet	Yes, for the inside lane
Buffer	5 feet	1 foot to 3 feet	Yes
HOV lane	12 feet	12 feet	No
Inside shoulder	10 feet	8 feet	Yes

Technical Review Comments: Technical reviewers believe this alternative could be incorporated into their current design.

Project Management Considerations: None apparent.

Discussion of Schedule Impacts: This alternative concept would reduce the construction schedule by 12 months.

Discussion of Risk Impacts: None apparent.

VA ALTERNATIVE NO. S-1

Narrow Viaduct

Performance: The alternative performance ratings and assessment are shown in Exhibits S-1.7 and S-1.8, respectively.

Exhibit S-1.7. Comparison of Alternative Performance Ratings

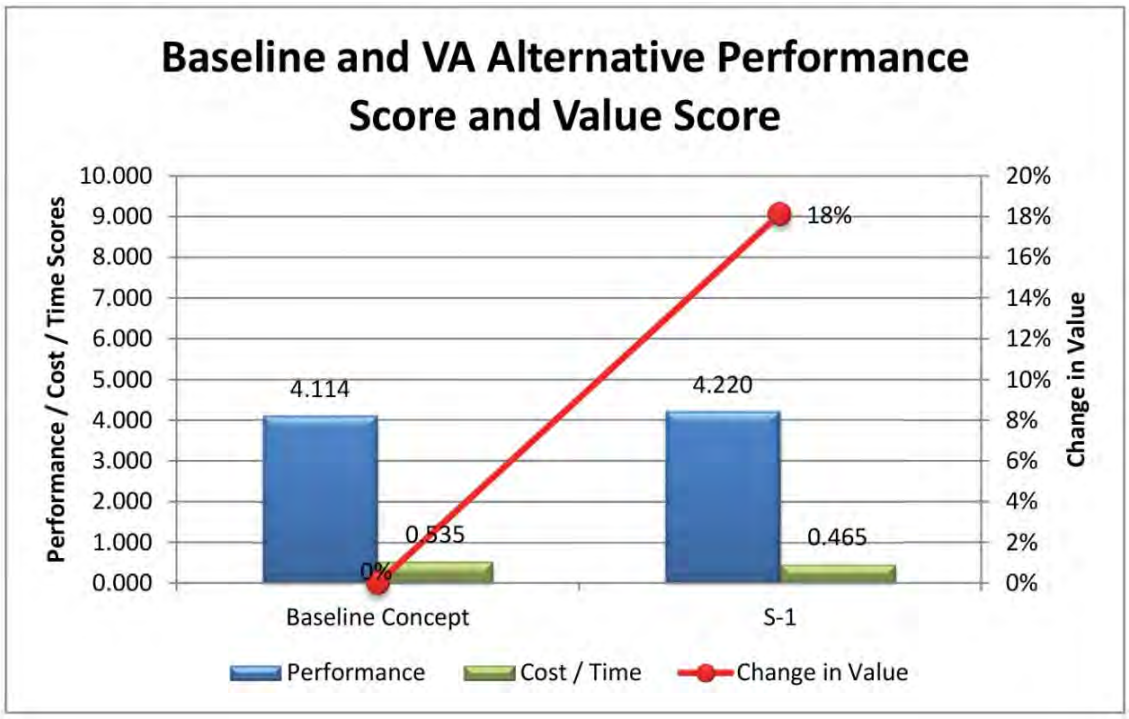


Exhibit S-1.8. Performance Assessment

Performance Attribute	Change in Performance	Rationale for Change in Performance
Mainline Operations	Minor impacts on performance	Requires minor design exceptions for lane, shoulder, and buffer width.
Local Operations	No change	Neutral to no impact.
Environmental Impacts	Improves performance	Affects homes only to the north.
Construction Impacts	Improves performance	Fewer maintenance of traffic (MOT) impacts due to two structures.
Phaseability	No change	No change in performance; project cannot be constructed in phases.
Land Use Compatibility	Improves performance	Affects residential land use only on the north side.

VA ALTERNATIVE NO. S-1

Narrow Viaduct

Assumptions and Calculations: The south side viaduct widening occurs between Stations 115+00 and 132+00 or 1,700 linear feet. The width of the widening accommodates between 3 and 6 feet of cross section width. Assuming an average width of 4.5 feet, the total area is approximately 7,650 SF of viaduct. As presented in Exhibit S-1.9, the VA alternative results in a cost savings of just over $1.9 million.

Cost Estimate: Exhibits S-1.9 and S-1.10 present the capital and LCC estimates for the VA alternative.

Exhibit S-1.9. Initial Cost Estimates

INITIAL COSTS							ALT. NO. S-1
CONSTRUCTION ELEMENT		*BASELINE CONCEPT*			*ALTERNATIVE CONCEPT*		
Description	**Unit**	**Qty**	**Cost/Unit**	**Total**	**Qty**	**Cost/Unit**	**Total**
ROADWAY ITEMS							
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
ROADWAY SUBTOTAL				*$ -*			*$ -*
ROADWAY MARK-UP				*$ -*			*$ -*
ROADWAY TOTAL				*$ -*			*$ -*
STRUCTURE ITEMS							
Viaduct				$ -			$ -
Average width removed = 4.5'				$ -			$ -
Length = 1,700'				$ -			$ -
Total Area = 7,650 SF	SF	258,416	$ 250	$ 64,604,000	250,766	$ 250	$ 62,691,500
				$ -			$ -
STRUCTURE SUBTOTAL				*$ 64,604,000*			*$ 62,691,500*
STRUCTURE MARK-UP				*$ -*			*$ -*
STRUCTURE TOTAL				*$ 64,604,000*			*$ 62,691,500*
RIGHT-OF-WAY ITEMS							
Right-of-Way Acquisition				$ -			$ -
Utility Relocation				$ -			$ -
Relocation Assistance				$ -			$ -
Demolition				$ -			$ -
Title and Escrow Fees				$ -			$ -
RIGHT-OF-WAY TOTAL				*$ -*			*$ -*
ENVIRONMENTAL MITIGATION ITEMS							
				$ -			$ -
				$ -			$ -
CAPITAL OUTLAY SUPPORT ITEMS							
Reengineering and Redesign				$ -			$ -
Project Engineering				$ -			$ -
TOTAL				$64,604,000			$62,691,500
TOTAL (Rounded)				$64,604,000			$62,691,500
						SAVINGS	**$1,912,500**

VA ALTERNATIVE NO. S-1

Narrow Viaduct

Exhibit S-1.10. Life-Cycle Cost Estimates

LIFE-CYCLE COSTS						ALT. NO. S-1
Life-Cycle Period	30	Years		Real Discount Rate	1.50%	**BASELINE**	**ALTERNATIVE**
A. INITIAL COST							
Service Life - Baseline	30	Years		**INITIAL COST SAVINGS:**			**$ 1,912,500**
Service Life - Alternative	30	Years					
B. SUBSEQUENT ANNUAL COSTS							
1. Maintenance and Inspection (reduced maintainance)						$ 28,688	
2. Operating							
3. Energy							
Total Subsequent Annual Costs:						$ 28,688	$ -
Present Value Factor (P/A):						24.016	24.016
PRESENT VALUE OF SUBSEQUENT ANNUAL COSTS (Rounded):						**$ 689,000**	**$ -**
C. SUBSEQUENT SINGLE COSTS		**Year**	**Amount**	**PV Factor (P/F)**		**Present Value**	**Present Value**
				1.00000		$ -	
				1.00000			$ -
				1.00000		$ -	
				1.00000			$ -
				1.00000		$ -	
				1.00000			$ -
				1.00000		$ -	
				1.00000			$ -
PRESENT VALUE OF SUBSEQUENT SINGLE COSTS (Rounded):						**$ -**	**$ -**
D. TOTAL SUBSEQUENT ANNUAL AND SINGLE COSTS (B+C)						**$ 689,000**	**$ -**
E. TOTAL SUBSEQUENT COSTS SAVINGS:							**$ 689,000**

VA ALTERNATIVE NO. S-2

TRANSPOSE SOUTH SR 65/I-80 RAMPS

Initial Cost Savings:	$410,000
LCC Savings:	---
Change in Schedule:	6 months
Performance Change:	+3 %
Value Change:	+12%

Description of Baseline Concept: The original concept provides southbound ramps from SR 65 to I-80 arranged so that westbound I-80 traffic exits right and eastbound I-80 traffic exits left. In this configuration, the exit movements match driver expectation. The right-hand, westbound I-80 ramp includes three lanes and shoulders aligned on a single right-hand horizontal curve at-grade. The left-hand, eastbound I-80 ramp includes two lanes and shoulders aligned on reversing horizontal curves, traveling on a 2,648-foot-long bridge at the top level of the interchange, crossing over the I-80/SR 65 HOV connector bridge and the eastbound I-80 to northbound SR 65 connector bridge.

Description of Alternative Concept: The VA concept transposes the southbound ramps from SR 65 to I-80 so that the westbound I-80 traffic exits left and eastbound I-80 traffic exits right. Both ramps provide the same lane and shoulder configuration as proposed by the design team. The left-hand, westbound I-80 ramp is aligned on a single right-hand horizontal curve at-grade after the East Roseville Viaduct; in this option, the ramp uses the existing viaduct without the need for removal or reconstruction of the structure. The right-hand, eastbound I-80 ramp diverges prior to the ramp proposed by the design team and is aligned on tangent and left-hand horizontal curves on a 3,100-foot bridge between the existing eastbound ramp and the proposed ramp structure. The ramp structure for the eastbound ramp begins at the first hinge between frames 1 and 2 on a widened portion of the East Roseville Viaduct and travels over the existing UPRR railroad tracks, Taylor Road, southbound SR 65 to westbound I-80, the I-80/SR 65 HOV connector bridge, and the eastbound I-80 to northbound SR 65 connector bridge, and all lanes of I-80.

Advantages:

- Traffic volumes more closely match ramp movements (70 percent westbound and 30 percent eastbound in the a.m. peak; 60 percent westbound and 40 percent eastbound in the p.m. peak).
- There are geometric benefits on the eastbound I-80 ramp by eliminating reversing horizontal curves, providing greater tangent length for superelevation transitions, and providing a larger radius on the primary horizontal curve.
- Reduces environmental footprint compared to the proposed design; provides a greater buffer from Secret Ravine; and a greater portion of the ramp stays within the existing interchange footprint. Potentially would have a reduced environmental clearance schedule for this portion of the project.
- Constructability advantages because removal and reconstruction of the East Roseville Viaduct is not required for the westbound I-80 ramp; estimated schedule savings of 6 months.
- More modest climbing grades are necessary because the eastbound I-80 ramp begins further away from vertical clearance constraints at other proposed ramps resulting in a lower overall profile grade.

VA ALTERNATIVE NO. S-2

TRANSPOSE SOUTH SR 65/I-80 RAMPS

- Greater phasing flexibility because the eastbound and westbound I-80 ramps may be constructed separately.
- Reduces the amount of ROW take needed for the eastbound I-80 ramp on the south side of the interchange.

Disadvantages:

- The transposed exits do not meet driver expectation (left to go left and right to go right).
- A longer structure is required.
- Some additional ROW may be needed adjacent to the East Roseville Viaduct for the eastbound ramp take-off.
- Additional movements may be necessary for traffic traveling from Galleria Boulevard to westbound I-80.

Discussion: The geometrics of the system interchange ramps from SR 65 to I-80 are constrained by the proximity of the south end of the East Roseville Viaduct. Maintaining a true split for eastbound and westbound traffic with this constraint results in less favorable vertical and horizontal geometrics for the eastbound ramp, including reversing horizontal curves and relatively steep grades required for vertical clearance over the other interchange ramps. The true split also requires reconstruction of a significant portion of one frame of the East Roseville Viaduct to achieve appropriate vertical clearance. Furthermore, a small amount of space between the viaduct and ramps is available to balance other geometric requirements, which results in a wide horizontal swing of the eastbound connector into Secret Ravine.

A right-hand exit for the eastbound ramp movement makes sense because the majority of the traffic volume traveling southbound on SR 65 travels westbound on I-80 toward Sacramento. Approximately 70 percent of traffic travels westbound and 30 percent travels eastbound in the a.m. peak, and 60 percent of the traffic travels westbound and 40 percent travels eastbound in the p.m. peak, which represents a minor eastbound movement compared to westbound, similar to a local exit ramp more appropriately located on the right. This ramp arrangement would be similar to the I-80/Business-80 “split” interchange located west of the proposed project in Sacramento County.

Allowing the eastbound ramp to exit to the right allows the greater volume, westbound movement to utilize the existing bridge within the inside lanes without reconstruction and widening. The eastbound ramp may diverge from the existing bridge at the hinge between frame 1 and frame 2, which is approximately 300 feet sooner than the proposed design that is constrained by the existing abutment. In this configuration, the eastbound and westbound ramps may be constructed separately with greater staging flexibility. Additional length is available for the vertical alignment of the eastbound connector to climb to the elevation needed to achieve the critical vertical clearance at the HOV connector and the westbound I-80/northbound SR 65 connector structures, resulting in a lower-profile grade and shorter structures. Other geometric benefits include the ability to provide longer tangent lengths for superelevation transitions and a larger, higher-speed radius on the primary left-hand horizontal curve. The primary horizontal curve and the corresponding approaches may be aligned to avoid Secret Ravine to a greater extent, resulting in less environmental disturbance, less permanent ROW take, and a narrower project footprint.

VA ALTERNATIVE NO. S-2

TRANSPOSE SOUTH SR 65/I-80 RAMPS

Technical Review Comments: None.

Project Management Considerations: This option would require special approval from Caltrans, which could require significant technical effort to sufficiently vet the geometric and operational benefits in the context of other project constraints. However, lowering the profile grade and minimizing the disturbance and ROW take near Secret Ravine could lead to significant schedule and construction cost savings.

Discussion of Schedule Impacts: A 6- to 12-month consultation with state and federal environmental regulatory agencies may not be needed for this portion of the project since the ramp is not aligned within Secret Ravine. This option provides ROW and construction schedule benefits; however, the exact schedule benefit cannot be determined until after environmental clearance and the project design has been developed in greater detail.

Discussion of Risk Impacts: This option avoids work near Secret Ravine, which would reduce or negate the risks associated with: (1) schedule risk associated with lengthy regulatory agency reviews of ramp structure impacts, (2) scope risk associated with changes to the design to accommodate regulatory agency comments, (3) unforeseen mitigation costs associated with ramp structure impacts to Secret Ravine, and (4) risk associated with the negotiation and acquisition of ROW near Secret Ravine (which may be City of Roseville conservation easement). However, the design team may invest a significant effort and cost to vet the pros and cons of this option to find that the existing ramp arrangement provides the best value.

Performance: The alternative performance ratings and assessment are shown in Exhibits S-2.1 and S-2.2 respectively. Exhibit S-2.3 shows the alternative concept sketch.

VA ALTERNATIVE NO. S-2

TRANSPOSE SOUTH SR 65/I-80 RAMPS

Exhibit S-2.1. Comparison of Performance

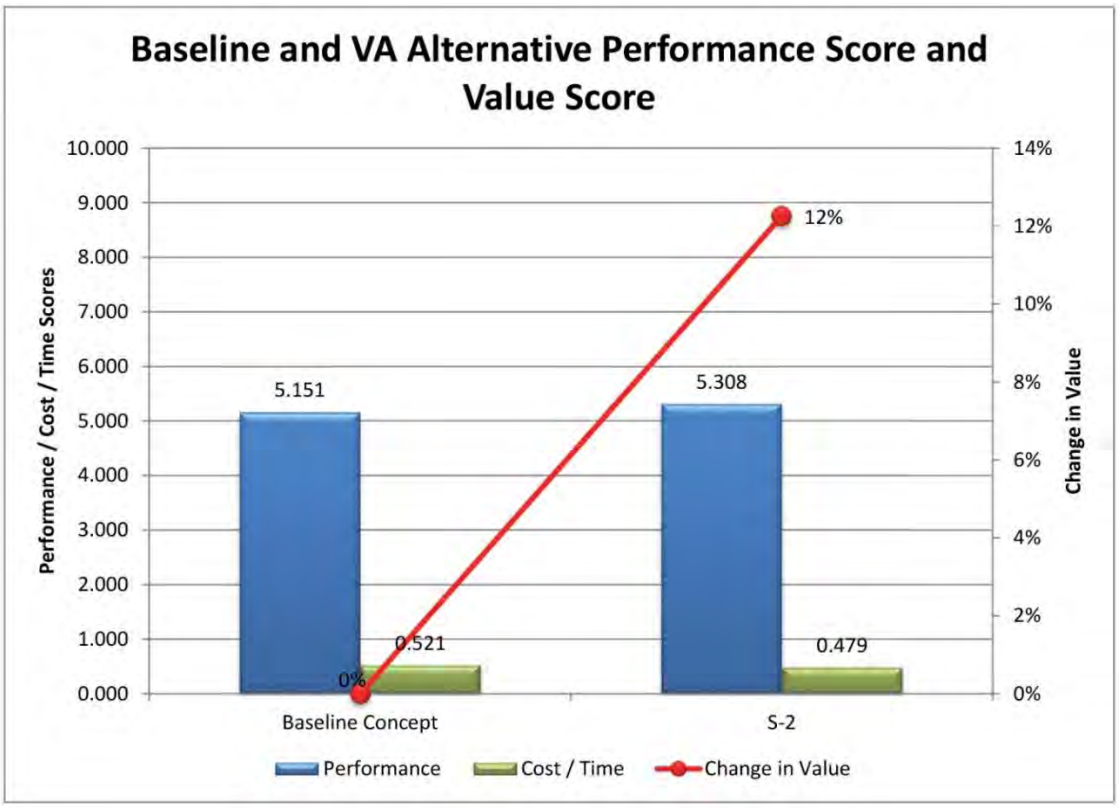


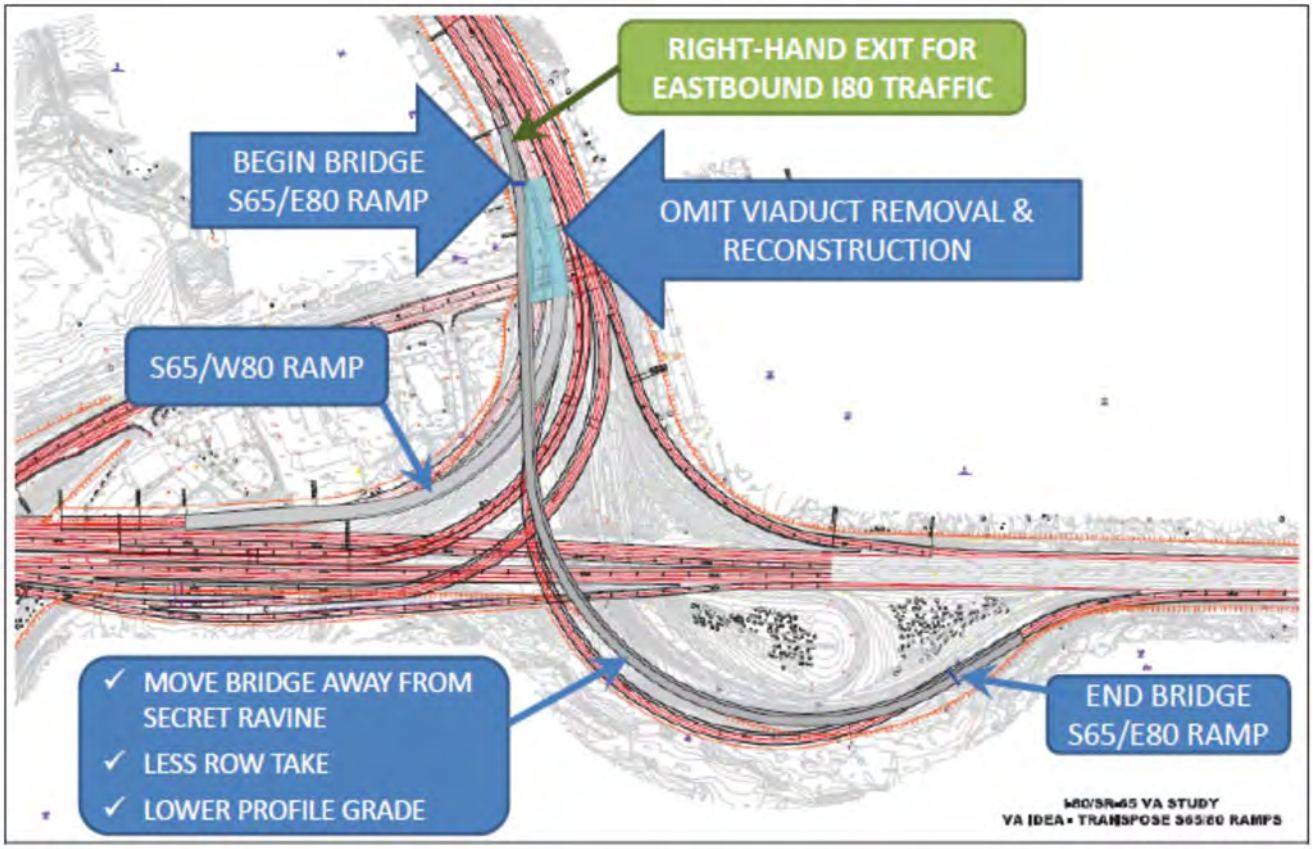
Exhibit S-2.2. Performance Assessment

Performance Attribute	Change in Performance	Rationale for Change in Performance
Mainline Operations	Worsens Performance	Mainline operations for the baseline and S-2 alternatives are the same except that the transposed exits may require additional movements for traffic traveling from Galleria Boulevard to westbound I-80, and do not meet driver expectation (left to go left and right to go right), which results in less favorable operations.
Local Operations	No change	The baseline and S-2 alternatives are the same.
Environmental Impacts	Improves performance	Avoids work within Secret Ravine and reduces the overall construction footprint.
Construction Impacts	Improves performance	Viaduct removal and reconstruction is not necessary; avoids work within Secret Ravine.
Phaseability	Improves performance	Eastbound and westbound ramps may be constructed separately with greater staging flexibility.
Land Use Compatibility	No change	The baseline and S-2 alternatives are the same.

VA ALTERNATIVE NO. S-2

TRANSPOSE SOUTH SR 65/I-80 RAMPS

Exhibit S-2.3. Baseline Concept Sketch with Superimposed VA Alterative Concept Sketch



VA ALTERNATIVE NO. S-2

TRANSPOSE SOUTH SR 65/I-80 RAMPS

Assumptions and Calculations: ---

Cost Estimate: Exhibit S-2.4 presents the capital estimates for the VA alternative.

Exhibit S-2.4. Initial Cost Estimates

INITIAL COSTS							ALT. NO.
							S-2
CONSTRUCTION ELEMENT		*BASELINE CONCEPT*			*ALTERNATIVE CONCEPT*		
Description	Unit	Qty	Cost/Unit	Total	Qty	Cost/Unit	Total
ROADWAY ITEMS							
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
ROADWAY SUBTOTAL				*$ -*			*$ -*
ROADWAY MARK-UP				*$ -*			*$ -*
ROADWAY TOTAL				*$ -*			*$ -*
STRUCTURE ITEMS							
E. RSVL VIADUCT (FM 1)	SF	20,187	$ 250	$ 5,046,750	0	$ 250	$ -
E. RSVL VIADUCT (REMOVAL)	SF	36,893	$ 15	$ 553,395	0	$ 15	$ -
S65/E80 CONNECTOR	SF	130,581	$ 275	$ 35,909,775	150,885	$ 275	$ 41,493,293
S65/E80 CONNECTOR (REMOVAL)	SF	9,222	$ 15	$ 138,330	9,222	$ 15	$ 138,330
				$ -			$ -
STRUCTURE SUBTOTAL				*$ 41,648,250*			*$ 41,631,623*
STRUCTURE MARK-UP				*$ -*			*$ -*
STRUCTURE TOTAL				*$ 41,648,250*			*$ 41,631,623*
RIGHT-OF-WAY ITEMS							
Right-of-Way Acquisition	SF	100,000	$ 3	$ 300,000	36,250	$ 3	$ 108,750
Utility Relocation				$ -			$ -
Relocation Assistance				$ -			$ -
Demolition				$ -			$ -
Title and Escrow Fees				$ -			$ -
RIGHT-OF-WAY TOTAL				*$ 300,000*			*$ 108,750*
ENVIRONMENTAL MITIGATION ITEMS							
S65/E80 CONN @ SECRET RAVINE	AC	1.38	$ 150,000	$ 206,612	0	$ 150,000	$ -
				$ -			$ -
CAPITAL OUTLAY SUPPORT ITEMS							
Reengineering and Redesign				$ -			$ -
Project Engineering				$ -			$ -
TOTAL				$42,154,862			$41,740,373
TOTAL (Rounded)				$42,150,000			$41,740,000
						SAVINGS	**$410,000**

An LCC estimate was not performed on this alternative because the baseline and VA alternative have essentially the same maintenance and inspection, operating, and energy costs.

VA STRATEGY NO. VS-1

Alternative 3 – Taylor Road Interchange Eliminated plus S-1, R-2 Combination

Initial Cost Savings:	$14,500,000
LCC Savings:	$690,000
Change in Schedule:	6 months
Performance Change:	+5 %
Value Change:	+12 %

Description of Baseline Concept: The current Alternative 3 improves spacing and weaving movements between interchanges on I-80 by collecting and redirecting eastbound ramp traffic. Weaving on I-80 would be significantly improved because ramp traffic would be redirected to a ramp braid system and restricted from entering and exiting the I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. The two existing Taylor Road interchange ramps would be eliminated, and access to the Taylor Road area would be accommodated by the adjacent local interchanges at the Atlantic Street/Eureka Road, Rocklin Road, and Galleria Boulevard/Stanford Ranch Road interchanges. As designed, the current SR 65 (East Roseville Viaduct) is widened on both sides and in the middle of the viaduct to a width of approximately 175 feet. The southbound cross section from Station 115+00 to 132+00 (1,700 feet) accommodates a 2-foot median barrier, a 10-foot shoulder, a 12-foot HOV lane, a 5-foot shoulder, four 12-foot general purpose lanes, and a variable outside shoulder of approximately 10 to 11 feet. A photograph of the existing viaduct is shown in Exhibit S-1.1; the design typical section is presented in Exhibit S-1.2. Based on the design team presentation and striping plan sheets, although not shown on the bridge plans, the cross section includes an HOV buffer of approximately 5 feet. The southbound viaduct cross section dimensions used in this analysis are shown in Exhibit S-1.3. (Exhibits S-1.1 through S-1.3 are provided above in the VA Alternative Documentation for VA Alternative No. S-1 Narrow Viaduct).

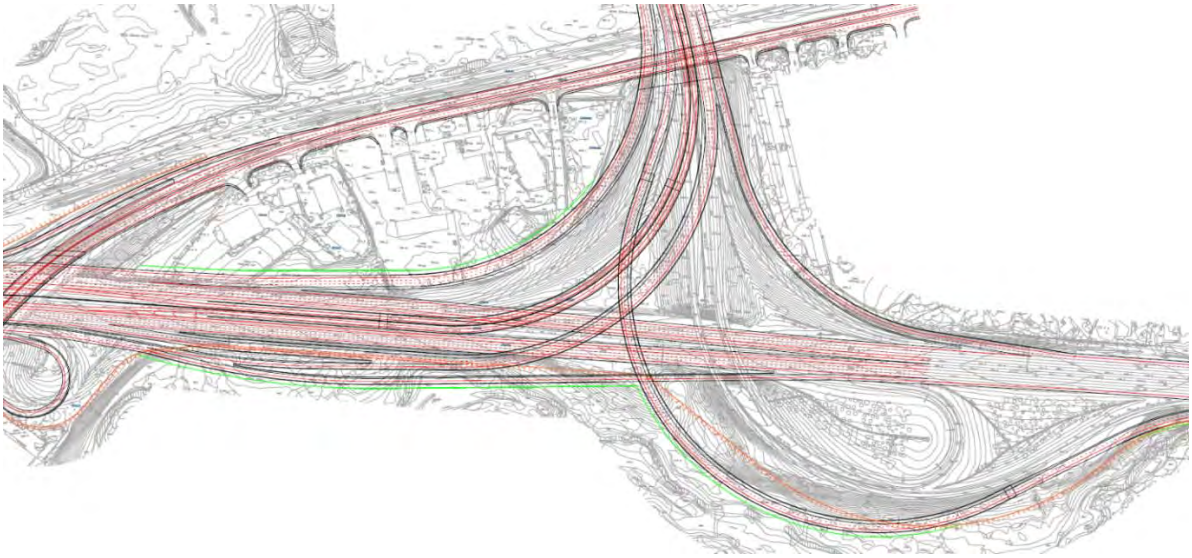
In the opinion of the VA Team, Alternative 3 performs the best of the three concepts prepared by the design team. Alternative 3 is estimated to cost $339.7 million.

Description of VA Strategy Concept: This value strategy combines Alternative 3 with the VA Alternative S-1 – Narrow Viaduct, and R-2 – Replace the Transfer Ramp with a Loop. The intent of adding the VA Alternatives is to reduce impacts, schedule, and cost while maintaining the same functionality. Exhibit VS-1.1 shows the baseline concept sketch.

VA STRATEGY NO. VS-1

Alternative 3 – Taylor Road Interchange Eliminated plus S-1, R-2 Combination

Exhibit VS-1.1. Alternative 3 (Baseline Concept Sketch)



Advantages:

- Reduces the viaduct width by 6 feet 6 inches.
- Eliminates the widening on the south side of the viaduct and attendant impacts to the adjoining residents.
- Eliminates the single 5-foot 6-inch-diameter round columns.
- Does not require changing the mainline centerline.
- Maintains the desired barrier-separated northbound HOV lane between I-80 and the Galleria interchange.
- Has favorable cost and schedule impacts.
- May reduce environmental impacts.
- Reduces the project footprint.

Disadvantages:

- Requires design exceptions for the S-1 element.
- Provides slower design speed for vehicles traveling from eastbound I-80 to northbound SR 65 via the proposed loop.
- Provides slightly longer travel distance to northbound SR 65.

Discussion: As documented earlier, Alternative 3 performs the best of the three alternatives presented to the VA Team by the design team. The intent of this strategy is to improve the performance of the best alternative (Alternative 3) by combining it with the applicable VA alternatives (S-1 and R-2). VA Alternative S-1 will obviate the widening of the Roseville Viaduct to the south, essentially eliminating the widening of the structure by as much as 6 feet. This would reduce MOT requirements thereby improving driver convenience, would save as much as 12 months from the construction schedule, would avoid impacts to residences south of the viaduct, and would save $1.9 million.

VA STRATEGY NO. VS-1

Alternative 3 – Taylor Road Interchange Eliminated plus S-1, R-2 Combination

VA Alternative R-2 is included because it will reduce environmental impacts by pulling project construction north and away from the riparian area of Secret Ravine, will simplify construction, will shorten the construction schedule and would save $12.6 million dollars. The savings are a result of replacing structure with roadway at grade on sections of fill slope and retained fill.

The team felt that adding these two VA alternatives to the best performing build alternative (Alternative 3) would add value to the project.

Technical Review Comments: As mentioned earlier, design exceptions, associated with S-2 will likely be required to implement this concept.

Project Management Considerations: The alignments and profiles will need to be adjusted to make this loop ramp concept work. These changes can be accommodated with a minimum of redesign work due to the conceptual nature of the work completed to date.

Discussion of Schedule Impacts: This alternative concept would reduce the construction schedule by 12 months, mainly due to the inclusion of VA Alternative S-1.

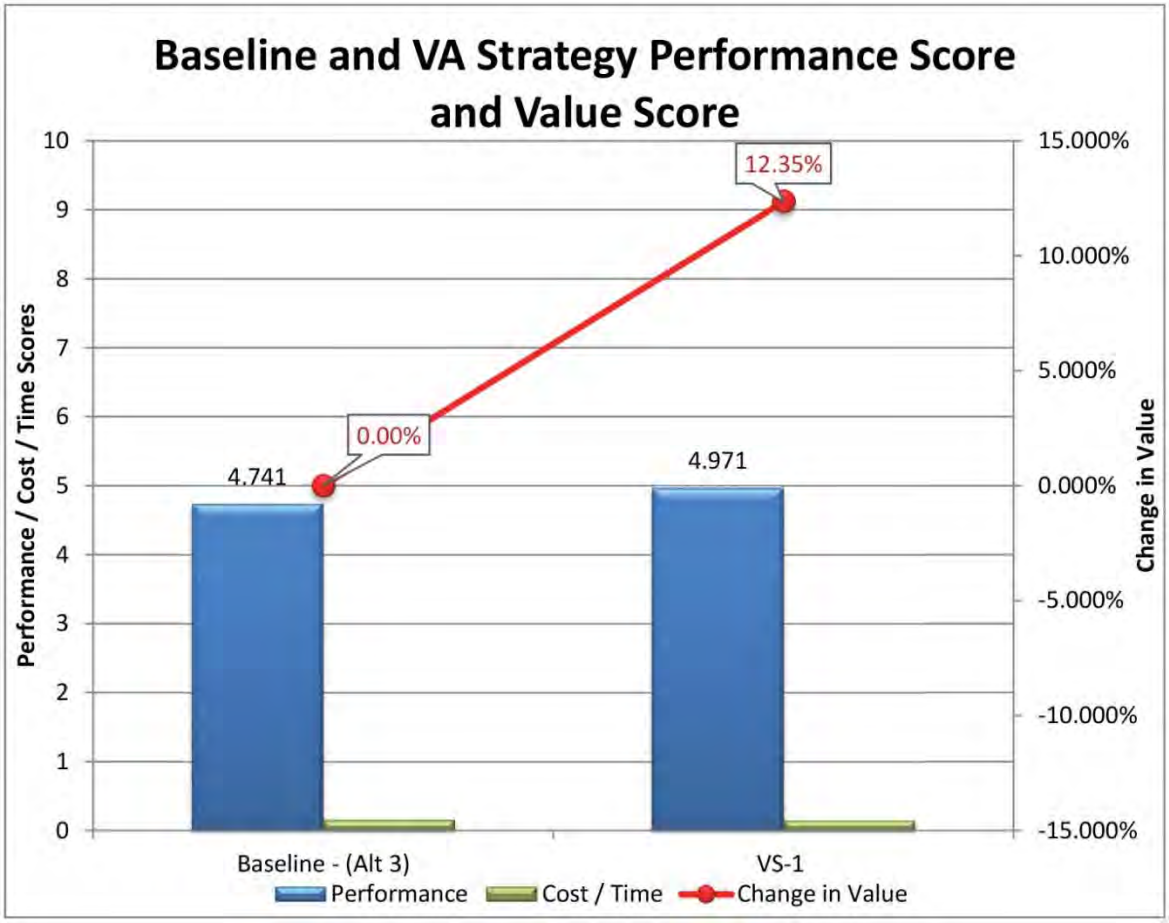
Discussion of Risk Impacts: Project “requirements” risks may be slightly less since impacts to residents south of the viaduct will be mitigated. Requirements risks associated with environmental permitting in Secret Ravine also may be less due to an anticipated reduction in construction impacts.

Performance: As shown in Exhibit VS-1.2, this value strategy will increase the value of the best performing alternative (Alternative 3) by approximately 12 percent. Exhibit VS-1.3 shows the performance assessment.

VA STRATEGY NO. VS-1

Alternative 3 – Taylor Road Interchange Eliminated plus S-1, R-2 Combination

Exhibit VS-1.2. Comparison of Alternative Performance Ratings



VA STRATEGY NO. VS-1

Alternative 3 – Taylor Road Interchange Eliminated plus S-1, R-2 Combination

Exhibit VS-1.3. Performance Assessment

Performance Attribute	Change in Performance	Rationale for Change in Performance
Mainline Operations	No change	This strategy provides nearly ideal mainline capacity, eliminates most weaving, and provides merge/diverge ramp operations. It also provides good ramp spacing.
Local Operations	Minor impact	Neutral to no impact. Does not provide much local access and eliminates Taylor Road ramps.
Environmental Impacts	Improves performance	This concept avoids impact to the homes south of the Roseville Viaduct (from S-1) and reduces impacts to Miners Ravine.
Construction Impacts	Improves performance	This concept provides fewer MOT impacts due to the elimination of one of three structures to be built at the Roseville Viaduct. Further, both construction and environmental impacts in Secret Ravine will be mitigated since the roadway is pulled north and away from the sensitive riparian area.
Phaseability	No change	The project can be built in multiple phases while providing some interim benefits; however, moderate “throwaway” work will be required.
Land Use Compatibility	Improves performance	The S-1 element will reduce residential land use conflicts on the south side of the Roseville Viaduct. Movement of the highway facilities north and away from Secret Ravine would improve land use compatibility.

Assumptions and Calculations: Reference back to VA Alternatives S-1 and R-2 indicates cost savings of $1.9 million and $12.6 million, respectively. These savings have simply been reduced from the estimated cost of Alternative 3, which is $339.7 million, for an adjusted cost of $315.2 million. As a result of the S-1 component, VS-1 will also save approximately $690,000 in future maintenance costs. This is based on the assumption that savings will equal 1.5 percent of capital value per year, which is a conservative assumption.

VA STRATEGY NO. VS-2

Alternative 1 – Taylor Road Full Access Interchange plus S-1 Combination

Initial Cost Savings:	($4,700,000)
LCC Savings:	$690,000
Change in Schedule:	2 months
Performance Change:	+6 %
Value Change:	-0.4 %

Description of Baseline Concept: Alternative 1 would improve spacing and weaving movements between interchanges on I-80. The two existing Taylor Road interchange ramps would be relocated to the east and reconstructed in a Type L-1/L-12 interchange configuration, providing two additional ramp connections and improving access between the local streets and freeway system. The interchange would be positioned within the I-80/SR 65 interchange footprint and use portions of the existing eastbound I-80 to northbound SR 65 loop connector, as well as the existing southbound SR 65 to eastbound I-80 connector. The existing Taylor Road interchange ramps would be removed and the area would be regraded.

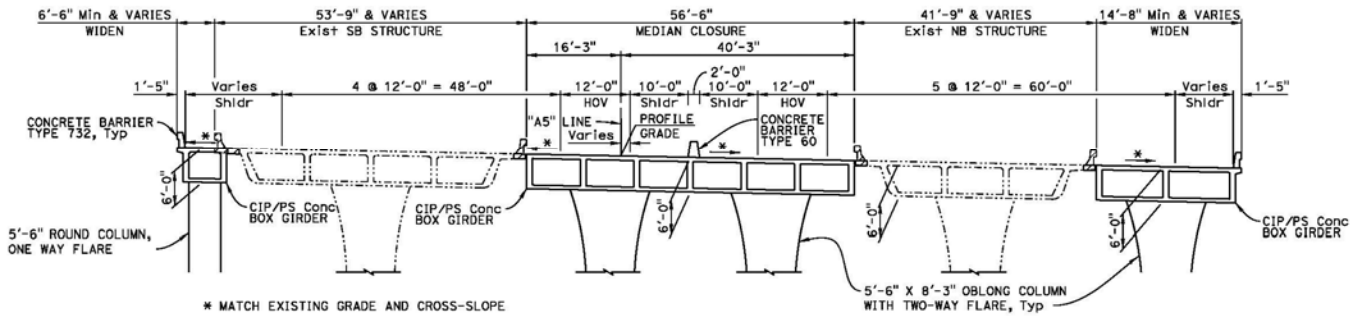
As designed, the current SR 65 (East Roseville Viaduct) is widened on both sides and in the middle of the viaduct to a width of approximately 175 feet. The southbound cross section from Station 115+00 to 132+00 (1,700 feet) accommodates a 2-foot median barrier, a 10-foot shoulder, a 12-foot HOV lane, a 5-foot shoulder, four 12-foot general purpose lanes, and a variable outside shoulder of approximately 10 to 11 feet. Based on the design team presentation and striping plan sheets, although not shown on the bridge plans, the cross section includes an HOV buffer of approximately 5 feet.

The existing concept is estimated to cost $346.4 million.

Description of VA Strategy Concept: This VA strategy would combine Alternative 1 and S-1; the details are summarized here. The goal of this VA strategy is to eliminate the widening of the southbound viaduct on the south side to avoid building a narrow structure with single columns. Exhibits VS-2.1 and VS-2.2 show the baseline and strategy concept sketches.

The southbound viaduct width would be reduced by narrowing a single general purpose lane from 12 feet to 11 feet, changing the buffer separation from 5 feet to between 1 and 3 feet (depending on location), and constructing an 8-foot instead of 10-foot inside shoulder.

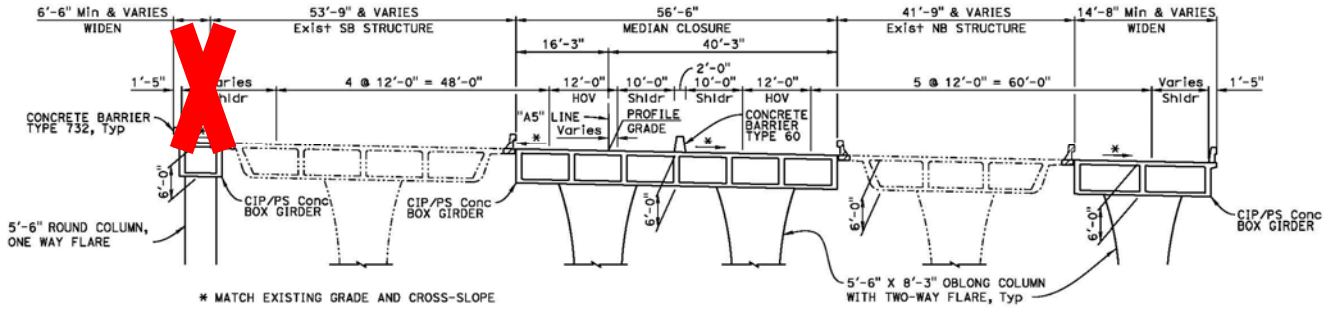
Exhibit VS-2.1. Viaduct Typical Section (Baseline Concept Sketch)



VA STRATEGY NO. VS-2

Alternative 1 – Taylor Road Full Access Interchange plus S-1 Combination

Exhibit VS-2.2. Viaduct Typical Section (VA Strategy Concept Sketch)



Advantages:

- Reduces the southbound viaduct width by 6 feet 6 inches.
- Eliminates the widening on the south side of the southbound viaduct.
- Eliminates the single 5-foot 6-inch-diameter round columns.
- Does not require changing the mainline centerline.
- Maintains the desired barrier-separated northbound HOV lane between I-80 and the Galleria interchange.
- Reduces project cost.
- Eliminates a construction stage in the widening of the southbound viaduct.
- Reduces environmental, construction, and land use impacts south of the Roseville Viaduct.

Disadvantages:

- Requires design exceptions.

Discussion: This option results in a slight modification to the original Alternative 1 – Taylor Road Full Access Interchange. While the cost savings are modest, at $1.9 million in capital, the advantages are strong as highlighted above. The potential to save as much as 12 months from the construction of the Roseville Viaduct is considered significant in the opinion of the VA Team.

Technical Review Comments: As mentioned earlier, design exceptions, associated with S-2, will likely be required to implement this concept.

Project Management Considerations: These changes can be accommodated with a minimum of redesign work due to the conceptual nature of the work completed to date.

Discussion of Schedule Impacts: This alternative concept would reduce the construction schedule by 2 months, mainly due to the inclusion of VA Alternative S-1.

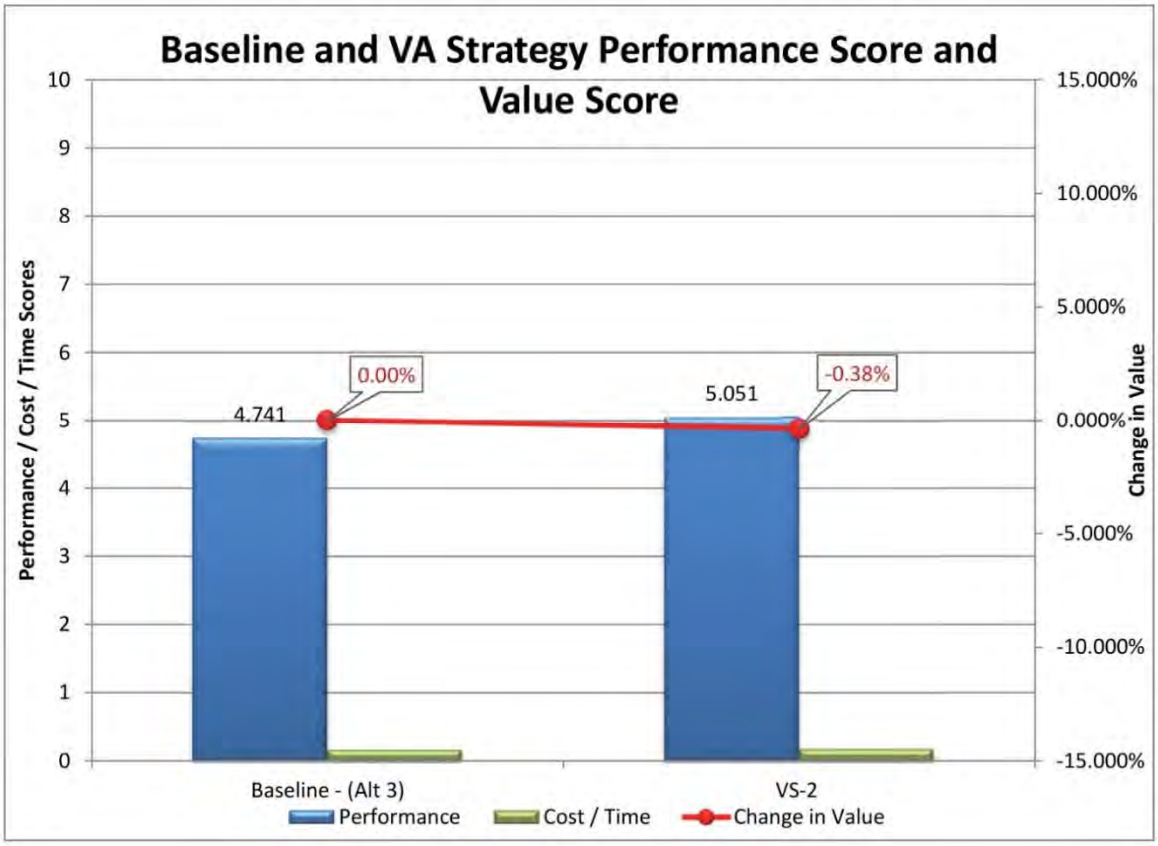
Discussion of Risk Impacts: Project "requirements" risks may be slightly less, since impacts to residents south of the viaduct will be mitigated.

VA STRATEGY NO. VS-2

Alternative 1 – Taylor Road Full Access Interchange plus S-1 Combination

Performance: This value strategy has no impact on project performance as shown in Exhibit VS-2.3. The performance assessment is summarized in Exhibit VS-2.4.

Exhibit VS-2.3. Comparison of Alternative Performance Ratings



VA STRATEGY NO. VS-2

Alternative 1 – Taylor Road Full Access Interchange plus S-1 Combination

Exhibit VS-2.4. Performance Assessment

Performance Attribute	Change in Performance	Rationale for Change in Performance
Mainline Operations	Reduces performance	This strategy requires minor design exceptions for lane, shoulder, and buffer width.
Local Operations	Improves performance	This concept provides local operations equivalent to LOS D during peak hour, and a fair level of traffic operations. It somewhat impacts existing local access. This concept may require some design exceptions, but it also provides a full interchange at Taylor Road.
Environmental Impacts	Improves performance	This strategy would avoid impacts to the south of the Roseville Viaduct. Impacts to the Secret Ravine are comparable to the original Alternative 1.
Construction Impacts	Improves performance	This concept eliminates a stage of construction on the southbound viaduct, reducing impacts to the traveling public.
Phaseability	No change	This concept provides little change from the original Alternative 1.
Land Use Compatibility	Improves performance	Land use compatibility is improved south of the Roseville Viaduct.

Assumptions and Calculations: Reference back to VA Alternative S-1 indicates a capital cost savings of $1.9 million. This savings has simply been reduced from the estimated cost of Alternative 1, $346.4 million, for an adjusted cost of $344.5 million. As a result of the S-1 component, VS-2 will also save approximately $690,000 in future maintenance costs. This is based on the assumption that savings will equal 1.5 percent of capital value per year, which is a conservative assumption.

VA STRATEGY NO. VS-3

Alternative 2 – Collector-Distributor System Ramps plus S-1, R-2 Combination

Initial Cost Savings:	$14,500,000
LCC Savings:	---
Change in Schedule:	6 months
Performance Change:	+5 %
Value Change:	-5 %

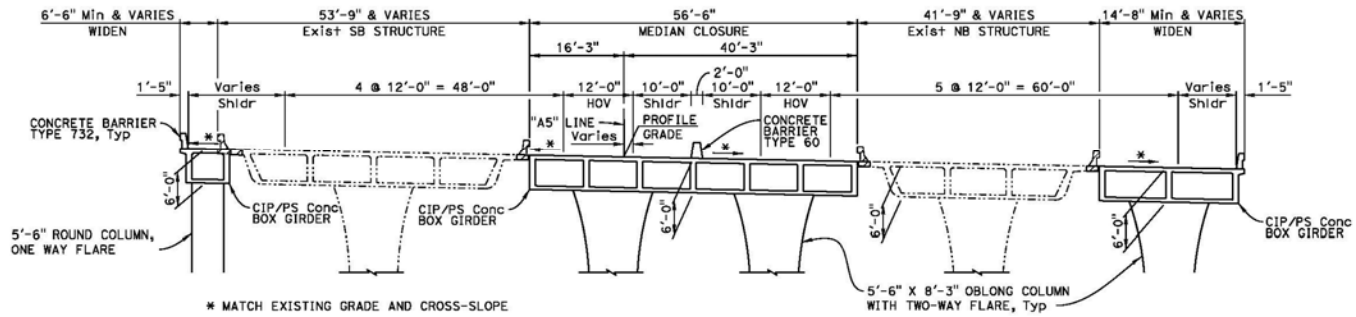
Description of Baseline Concept: As designed, the current SR 65 (East Roseville Viaduct) is widened on both sides and in the middle of the viaduct to a width of approximately 175 feet. The southbound cross section from Station 115+00 to 132+00 (1,700 feet) accommodates a 2-foot median barrier, a 10-foot shoulder, a 12-foot HOV lane, a 5-foot shoulder, four 12-foot general purpose lanes, and a variable outside shoulder of approximately 10 to 11 feet. A photograph of the existing viaduct is shown in Exhibit S-1.1; the design typical section is presented in Exhibit S-1.2. Based on the design team presentation and striping plan sheets, although not shown on the bridge plans, the cross section includes an HOV buffer of approximately 5 feet. The southbound viaduct cross section dimensions used in this analysis are shown in Exhibit S-1.3. (Exhibits S-1.1 through S-1.3 are provided above in the VA Alternative Documentation for VA Alternative No. S-1 Narrow Viaduct).

Alternative 2 improves spacing and weaving movements between interchanges on I-80 by collecting and redirecting eastbound ramp traffic onto a collector-distributor ramp system. The collector-distributor system would provide eastbound access to Taylor Road and from Eureka Road at the Atlantic Street/Eureka Road interchange, and would restrict local traffic from leaving or entering the I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. The two existing Taylor Road interchange ramps would remain in their current location, but would be reconfigured to accommodate the surrounding improvements.

Description of VA Strategy Concept: This value strategy combines Alternative 2 – Collector-Distributor System Ramps with VA Alternatives S-1- Narrow Viaduct and R-2- Replace the Transfer Ramp with a Loop. The intent of adding the VA alternatives is to reduce impacts, schedule, and cost while maintaining the same functionality. This strategy is also considered a compromise to VS-1 because it may better address the local concern for improved local access. The concept sketches are shown in Exhibits VS-3.1 through VS-3.3.

This alternative is estimated to cost $348.7 million.

Exhibit VS-3.1. Viaduct Typical Section (Baseline Concept Sketch)



VA STRATEGY NO. VS-3

Alternative 2 – Collector-Distributor System Ramps plus S-1, R-2 Combination

Exhibit VS-3.2. Viaduct Typical Section (VA Strategy Concept Sketch)

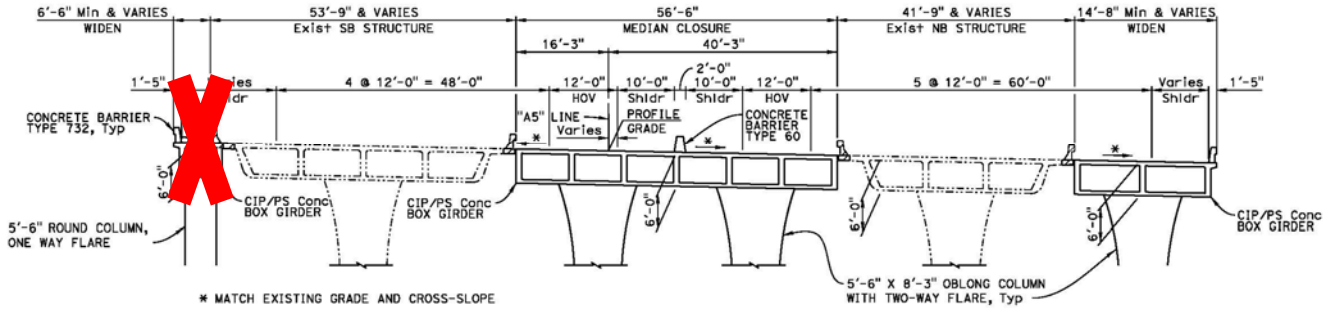
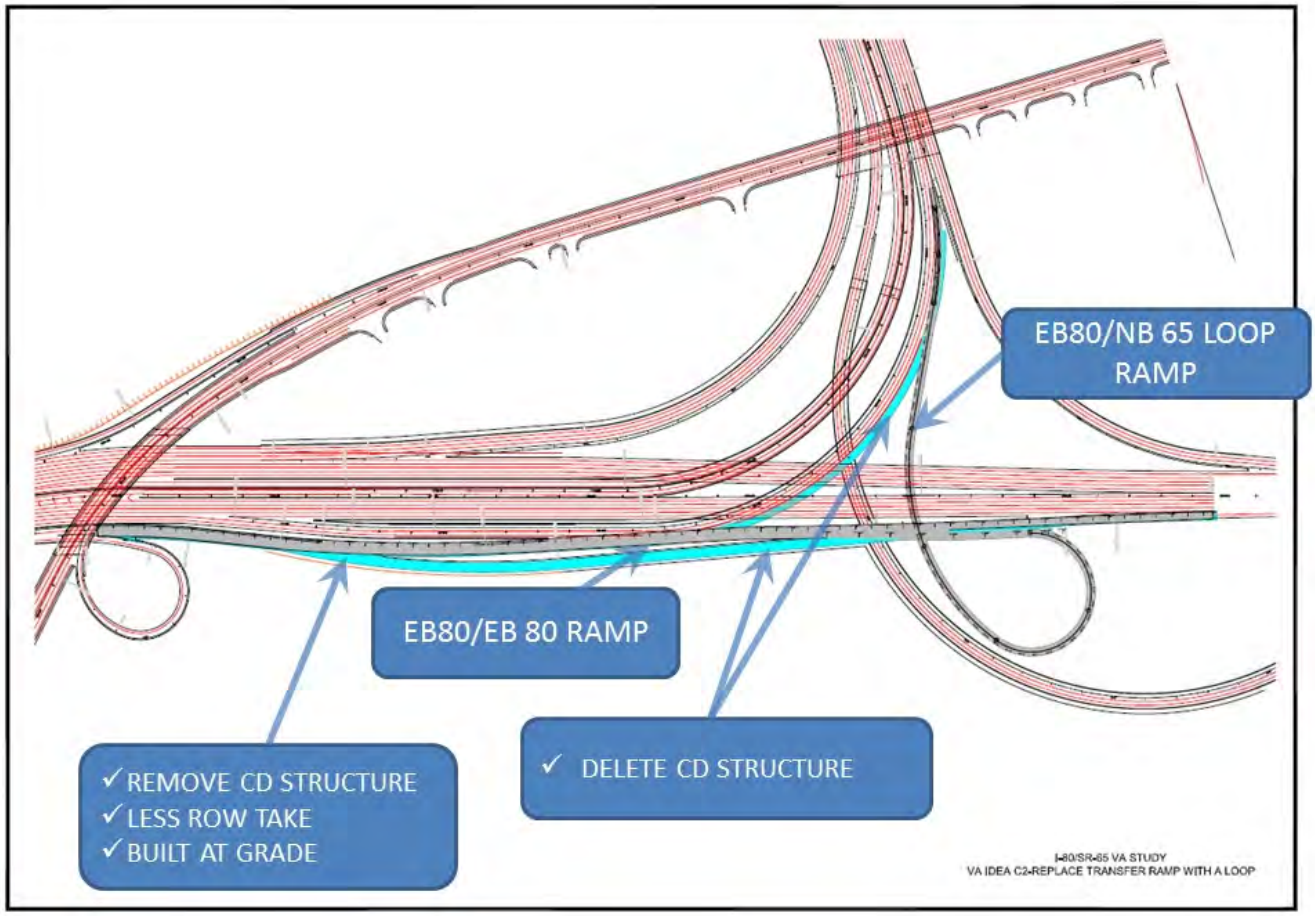


Exhibit VS-3.3. Loop Ramp Alignment VA Strategy Concept Sketch



VA STRATEGY NO. VS-3

Alternative 2 – Collector-Distributor System Ramps plus S-1, R-2 Combination

Advantages:

- Reduces the viaduct width by 6 feet 6 inches.
- Eliminates the widening on the south side of the southbound viaduct.
- Eliminates the single 5-foot 6-inch-diameter round columns.
- Does not require changing the mainline centerline.
- Maintains the desired barrier-separated northbound HOV lane between I-80 and the Galleria interchange.
- Has favorable cost and schedule impacts.
- May reduce environmental impacts.
- Reduces the project footprint within Secret Ravine.
- Eliminates bridges and shortens bridge lengths.

Disadvantages:

- Requires design exceptions.
- Provides slower design speed for vehicles traveling from Atlantic Street/Eureka Road interchange to northbound SR 65.
- Provides slightly longer travel distance to northbound SR 65 from Atlantic Street/Eureka Road interchange.
- Requires relocation/realignment of Secret Ravine.

Discussion: Alternative 2 – Collector-Distributor System Ramps functions as a compromise between Alternatives 1 and 3. As such, it is felt to provide better local access than Alternative 3 and perhaps slightly less than Alternative 1. The intent of this strategy is to improve the performance of Alternative 2 by combining it with the applicable VA Alternatives S-1 and R-2. VA Alternative S-1 will obviate the widening of the Roseville Viaduct to the south, essentially eliminating the widening of the structure by as much as 6 feet. This will reduce MOT requirements thereby improving driver convenience, would avoid impacts to residences south of the viaduct, and would save $1.9 million. Refer to Exhibit VS-3.1.

VA Alternative R-2 is included because it will reduce environmental impacts by pulling project construction north and away from the riparian area of Secret Ravine, will simplify construction, will shorten the construction schedule, and would save $12.6 million dollars. The savings are a result of relocating/realigning Secret Ravine and replacing structure with roadway at grade on sections of fill slope and retained fill.

The team felt that the addition of these two VA Alternatives to Alternative 2 would increase its value, especially when compared to the original Alternative 2.

Technical Review Comments: As mentioned earlier, design exceptions, associated with S-2, will likely be required to implement this concept. Additional environmental documents may be required to relocate/realign Secret Ravine.

VA STRATEGY NO. VS-3

Alternative 2 – Collector-Distributor System Ramps plus S-1, R-2 Combination

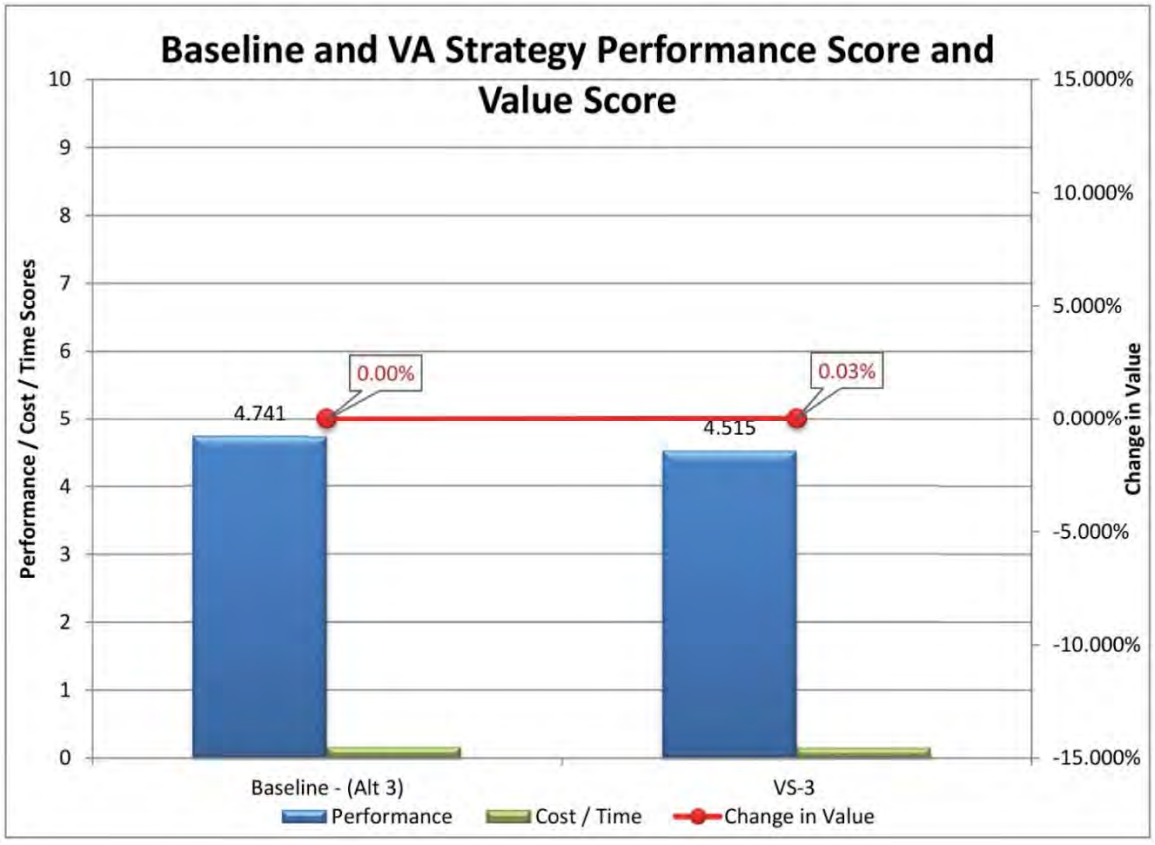
Project Management Considerations: The alignments and profiles will need to be adjusted to make this loop ramp concept work. These changes can be accommodated with a minimum of redesign work due to the conceptual nature of the work completed to date.

Discussion of Schedule Impacts: This alternative concept would reduce the construction schedule by 6 months, mainly due to the inclusion of VA Alternative S-1.

Discussion of Risk Impacts: Project "requirements" risks may be slightly less, since impacts to residents south of the viaduct will be mitigated. Requirements risks associated with environmental permitting in Secret Ravine may also be less due to an anticipated reduction in construction impacts.

Performance: As shown below, VS-3 performs about equal to the original Baseline Alternative (Alternative 3). However, without the addition of VA Alternatives S-1 and R-2, the original Alternative 2 performs 10 percent lower than the Baseline Alternative (Alternative 3). Thus, the addition of VA Alternatives S-1 and R-2 has actually improved the performance of the original Alternative 2 by 10 percent when comparing the original three build alternatives. Exhibits VS-3.4 and VS-3.5 show the performance ratings and performance assessment.

Exhibit VS-3.4. Comparison of Strategy Performance Ratings



VA STRATEGY NO. VS-3

Alternative 2 – Collector-Distributor System Ramps plus S-1, R-2 Combination

Exhibit VS-3.5. Performance Assessment

Performance Attribute	Change in Performance	Rationale for Change in Performance
Mainline Operations	Reduces performance	This strategy provides ideal mainline capacity, eliminates most weaving, and provides merge/diverge ramp operations. It also provides good ramp spacing. The performance reduction is due to lower design speed of the collector-distributor loop ramp and additional travel distance.
Local Operations	Improves performance	This concept provides local operations equivalent to LOS D during peak hour, and a fair level of traffic operations. It somewhat impacts existing local access.
Environmental impacts	Improves performance	This concept avoids impact to the homes south of the Roseville Viaduct (from S-1) and reduces impacts to Miners Ravine.
Construction Impacts	Improves performance	This concept provides fewer MOT impacts due to the elimination of one of three structures to be built at the Roseville Viaduct. Further, both construction and environmental impacts in Secret Ravine will be mitigated since the roadway is pulled north and away from the sensitive riparian area. This concept eliminates a stage of construction on the southbound viaduct widening, reducing impacts to the traveling public. This strategy eliminates structures and reduces bridge lengths along eastbound I-80.
Phaseability	No change	The project can be built in multiple phases while providing some interim benefits; however, moderate “throwaway” work will be required.
Land Use Compatibility	Improves performance	The S-1 element will reduce residential land use conflicts on the south side of the Roseville Viaduct. Movement of the highway facilities north and away from Secret Ravine would improve land use compatibility.

Assumptions and Calculations: Reference back to VA Alternatives S-1 and R-2 indicates cost savings of $1.9 million and $12.6 million, respectively. These savings have simply been reduced from the estimated cost of Alternative 2, $348.7 million, for an adjusted cost of $332.2 million. As a result of the S-1 component, VS-3 will also save approximately $690,000 in future maintenance costs. This is based on the assumption that savings will equal 1.5 percent of capital value per year, which is a conservative assumption.

3. PROJECT INFORMATION FINAL

BACKGROUND

I-80 is the principal east-west route in Northern and Central California, providing all-weather access across the Sierra Nevada for the movement of goods into and out of the Sacramento and Bay Areas. The interstate accommodates high commute, interregional, and recreational traffic volumes, as well as high levels of truck freight traffic within the greater Sacramento Region.

Within Placer County, I-80 begins at the Sacramento/Placer County Line in Roseville as a 10-lane freeway, including one HOV lane in both directions; it extends east through the Riverside Boulevard interchange where it narrows to nine lanes (five eastbound and four westbound). At the Douglas Boulevard interchange, I-80 changes to a 10-lane facility crossing the Rocky Ridge/Lead Hill Boulevard overcrossing, the Atlantic Street/Eureka Road interchange, the Roseville Parkway overcrossing, and the Taylor Road interchange, and extends past the SR 65 junction interchange. At this location, I-80 narrows to six lanes to the east and the HOV lanes end.

SR 65 begins at the I-80 junction and is an important interregional route that serves both local and regional traffic. The route serves as a major connector for both automobile and truck traffic originating from the I-80 corridor (in the Roseville/Rocklin area) and the SR 70/99 corridor (in the Marysville/Yuba City area). SR 65 is a vital economic link from residential areas to shopping and employment centers in southern Placer County. It is also an important route for the transport of aggregate, lumber, and other commodities.

The existing I-80/SR 65 system interchange is a type freeway-to-freeway interchange and was constructed in 1985.

In 2009, Caltrans completed a Project Study Report (PSR) for upgrading the system interchange to improve the existing operational issues caused by high peak-period traffic volumes and less-efficient geometry. The PSR consisted of three build alternatives, which proposed to add various elements of the following improvements:

- Construct an HOV direct connector between I-80 west and SR 65 north, one lane in each direction of travel.
- Realign and widen the I-80/SR 65 east-to-north (EN) loop connector ramp with a three-lane flyover.
- Widen the southbound SR 65 on-ramp from Galleria Boulevard to two lanes.
- Construct a southbound SR 65 auxiliary lane from Galleria Boulevard to the I-80/SR 65 interchange.
- Construct a northbound SR 65 auxiliary lane from the I-80/SR 65 interchange to the Galleria Boulevard interchange.
- Widen the I-80/SR 65 west-to-north (WN) ramp connector to two lanes.
- Realign and widen the I-80/SR 65 south-to-east (SE) connector ramp to a two-lane flyover.
- Realign and widen the I-80/SR 65 south-to-west (SW) connector ramp to three lanes.

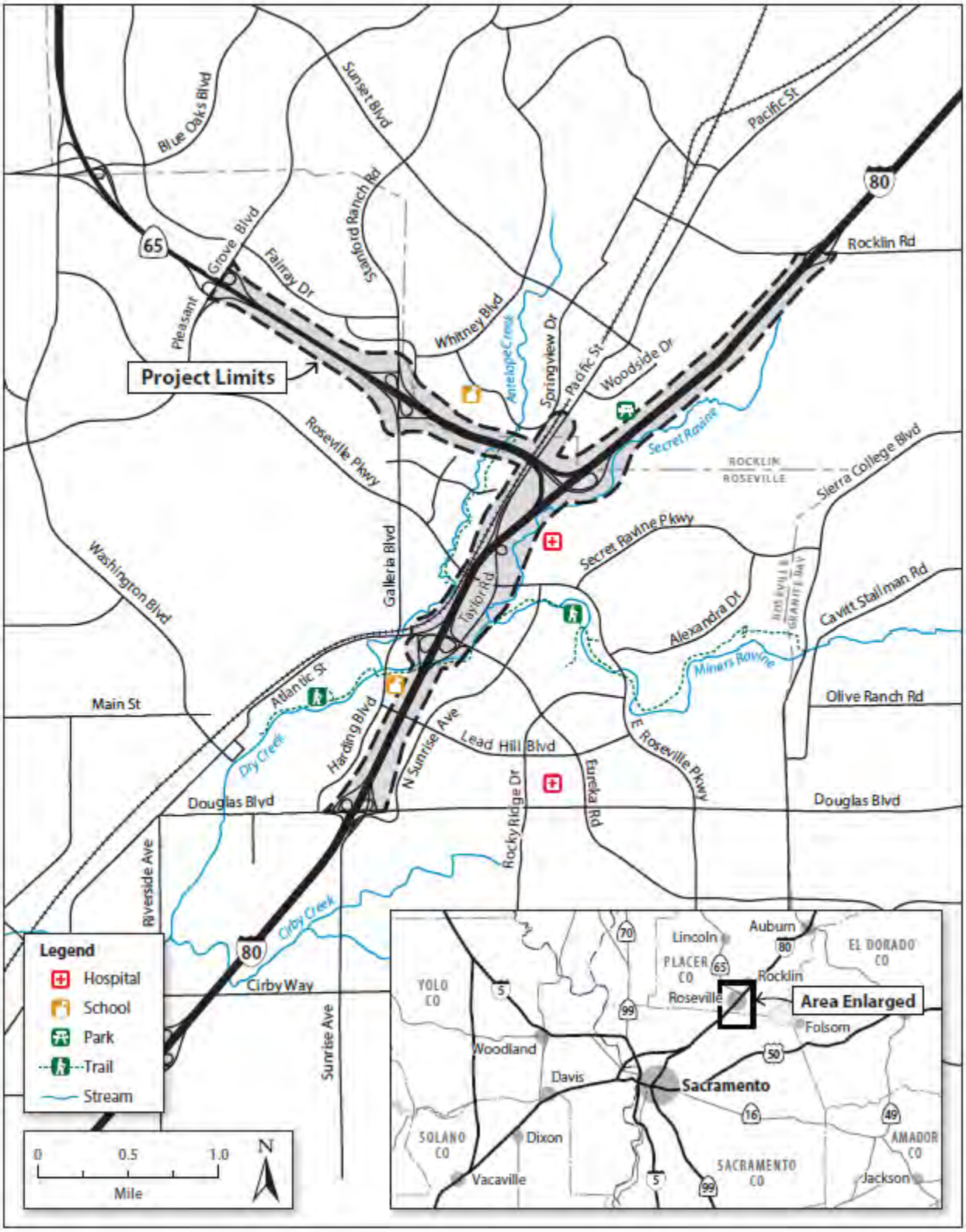
- Widen I-80 and SR 65 with Eureka Road, Taylor Road, and Galleria Boulevard ramp realignments.
- Widen the East Roseville Viaduct (SR 65 over Antelope Creek).
- Replace the Taylor Road overcrossing for widening I-80 with the HOV direct connector.
- Construct HOV lanes on SR 65 from the I-80/SR 65 interchange to north of the Galleria Boulevard interchange.
- Install ramp metering at all nonsystem interchange on-ramps.

The three alternatives presented in the PSR were similar, with Alternative 3 proposing all of the improvements listed above. Alternative 1 omitted the replacement of the eastbound I-80 to northbound SR 65 loop ramp. Alternative 2 omitted the HOV direct connector. All three maintained the existing local interchange connections while adding the freeway improvements. The PSR did not address the Taylor Road interchange and its impact on the freeway, the interchanges, and local roadway operations. This decision was deferred to the Project Approval and Environmental Document (PA&ED) phase.

PROJECT DESCRIPTION

The project area lies within the cities of Rocklin and Roseville and consists of I-80 from the Riverside Avenue interchange to the Rocklin Road interchange, and SR 65 from the junction with I-80 to the Pleasant Grove Boulevard interchange. Various local roads are also part of the study area including portions of Galleria Boulevard/Stanford Ranch Road, Pleasant Grove Boulevard, Eureka Road/Atlantic Street, East Roseville Parkway, Rocklin Road, and Taylor Road. See Exhibit 3-1.

Exhibit 3-1. Project Area



Adjacent Projects

There are projects in the planning, design, or construction phase that are within or adjacent to the interchange project limits. These have been considered as part of the planning of the interchange project. They include the following.

I-80 Bottleneck Project:

Caltrans completed the I-80 Bottleneck Project to improve traffic congestion along the I-80 corridor. The project was built in three phases:

- Phase 1 – A 1-mile segment for an eastbound auxiliary lane between Riverside Boulevard/Auburn Boulevard and Douglas Boulevard interchanges. Construction cost: $9.5 million. Completed in August 2007.
- Phase 2 – A 2.8-mile segment for HOV and auxiliary lanes in both directions from the Placer/Sacramento County line to Eureka Road. Construction cost: $31.2 million. Completed in summer 2011.
- Phase 3 – A 2.2-mile segment for auxiliary and HOV lanes in both directions from Eureka Road to about 1 mile east of SR 65. Construction cost: $45.3 million. Completed in summer 2011.

I-80/Eureka Road Interchange Improvements:

The City of Roseville is the project lead for the improvements to Eureka Road, including the Taylor Road, Sunrise Boulevard, and I-80 on- and off-ramp intersections. Construction cost: $9 million. The project was completed in late summer 2013.

I-80/Rocklin Road PSR:

The City of Rocklin is proposing improvements to Rocklin Road and the on- and off-ramps at the I-80 interchange. The PSR-Project Development Support has been completed for the project. The PA&ED phase has started.

SR 65 HOV Lanes PSR:

Caltrans and PCTPA are proposing improvements to SR 65 north of the I-80/SR 65 interchange project to Lincoln Boulevard. The proposed project will extend improvements that include a combination of HOV, mixed-flow, or auxiliary lanes through the project limits. The PSR was completed in January 2013. The PA&ED began in the summer of 2013.

SR 65 Lincoln Bypass:

This is an 11.7-mile, four-lane facility west of the existing highway from Industrial Avenue to Sheridan Road. Project phasing is as follows:

- Phase 1 – A 3.5-mile segment of four lanes between Industrial Avenue and Nelson Lane, and two lanes from Nelson Lane to Sheridan Road. Construction cost: $290 million. It was opened to traffic in October 2012.
- Phase 2A – Extend the four-lanes 4.5 miles from Nelson Lane to north of West Wise Road. Construction cost: $23 million. Construction is anticipated to be completed in 2014.
- Phase 2B – Extend the four-lanes 3.7 miles from north of West Wise Road to Sheridan Road (this phase is currently unfunded).

Placer Parkway Project:
Placer County and PCTPA are proposing to construct a 15-mile-long expressway that would connect SR 65 in Roseville to Highway 99 near the Sacramento International Airport. The parkway would traverse through portions of Sacramento County, Sutter County, and Placer County. The Tier 1 Environmental Impact Statement/Environmental Impact Report was completed by PCTPA in 2009; the PA&ED phase of the first segment is underway.

PROJECT DESIGN EXCEPTIONS

Mandatory Design Exceptions

- To be completed.

Advisory Design Exceptions

- To be completed.

INFORMATION PROVIDED TO THE VA TEAM

The following project documents were provided to the VA Team for their use during the VA Study. Copies of these documents are provided in Appendix A.

- Pre-VA Study Coordination Meeting Minutes (April 23, 2013)
- Draft VA Study Agenda (July 24, 2014)
- VA Briefing Presentation (July 24, 2014)
- Structure Advance Planning Studies (July 24, 2014)
- Traffic Analysis Report (May 6, 2014)
- PSR Risk Register (May 19, 2009)

PROJECT DRAWINGS

The following project drawings were provided to the VA Team for their use during the study:

- Alternative 1 – Taylor Road Full Access Interchange (Strip Plot)
- Alternative 2 – Collector-Distributor System Ramps (Strip Plot)
- Alternative 3 – Taylor Road Interchange Eliminated (Strip Plot)

PROJECT COST ESTIMATE

The project cost estimate that was used as the baseline for the VA Study is the original cost estimate in the Draft Project Report. The cost models are shown in the Project Analysis (Section 4) of this VA Study Report.

4. PROJECT ANALYSIS FINAL

SUMMARY OF ANALYSIS

The following analysis tools were used to study the project:

- Key Project Factors
- Cost Model
- Function Analysis
- Value Metrics
- Risk Analysis

KEY PROJECT FACTORS

The first day of the VA Study typically includes meetings with the project stakeholders and a site visit. Summarized below are the key project issues and site visit observations identified during these sessions.

Project Issues (Stakeholders)

- Recurring morning and evening peak-period demand exceeds current design capacity of the I-80/SR 65 interchange and adjacent transportation facilities, creating traffic operations and safety issues. These issues result in high delays, wasted fuel, and excessive air pollution and greenhouse gas emissions, all of which will be exacerbated by traffic from future population and employment growth.

- Interchange design features do not comply with current Caltrans design standards for safe and efficient traffic operations and limit existing community access to nearby land uses.

- Travel choices are limited in the project area because the transportation network does not include facilities for all modes and users consistent with the complete streets policies of Caltrans and local agencies.

VA Team Project Issues and/or Site Visit Observations

Site Visit Observation

- The existing Secret Creek would be disturbed during construction of any of the PDT alternatives.

- The UPRR corridor runs parallel to I-80 and Taylor Road.

COST MODEL

The VA Team leader prepared a cost model from the cost estimate in the Draft Project Report. The model is organized to identify major construction elements, the current estimated cost, and the percent of total project cost for significant cost items.

The cost model clearly showed the cost drivers for the project and was used to guide the VA Team during the VA Study.

The following conclusions were noted by the VA Team regarding project costs:

- The cost estimate is very general and contains many high-level cost placeholders for various project items.
- Construction may be a large factor but has not been estimated at this phase of the project.
- Structure items are the major driver for Alternatives 1, 2, and 3.

Estimated project costs are shown in Exhibits 4-1 through 4-3.

Exhibit 4-1

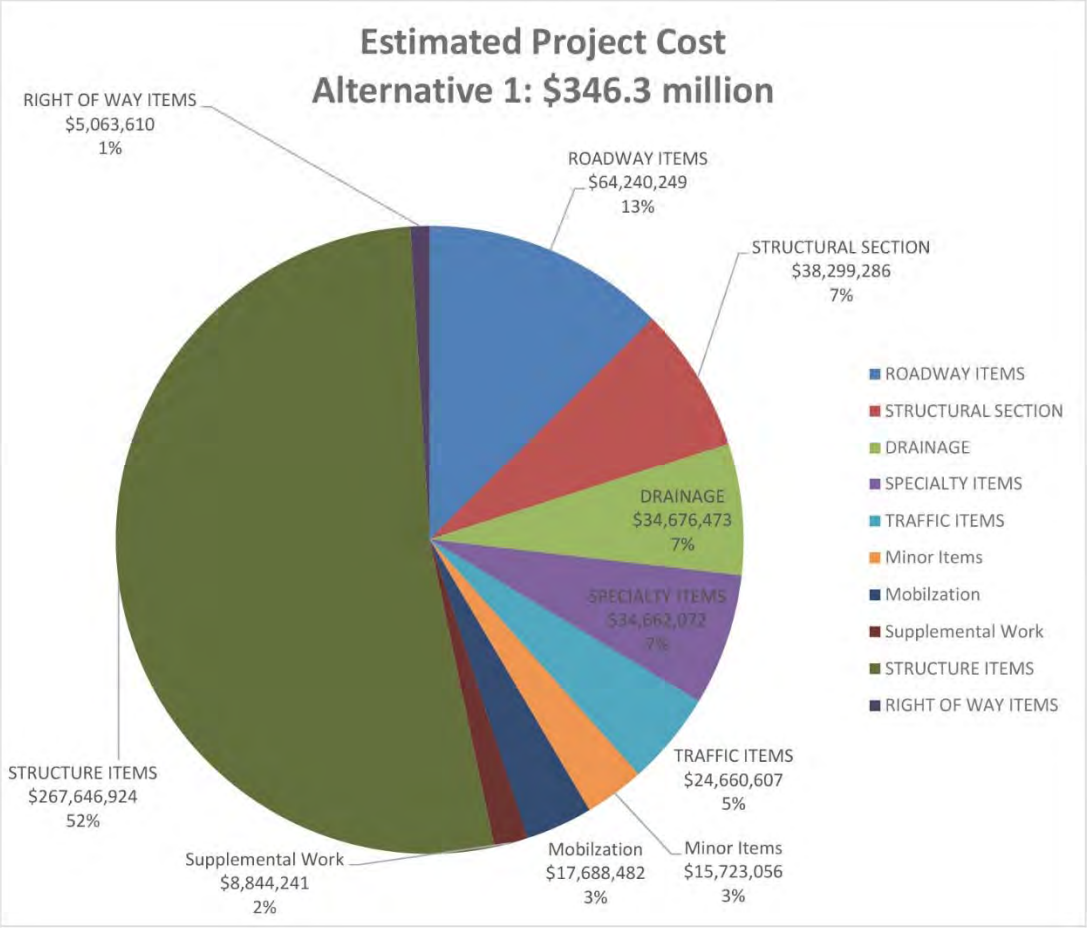


Exhibit 4-2

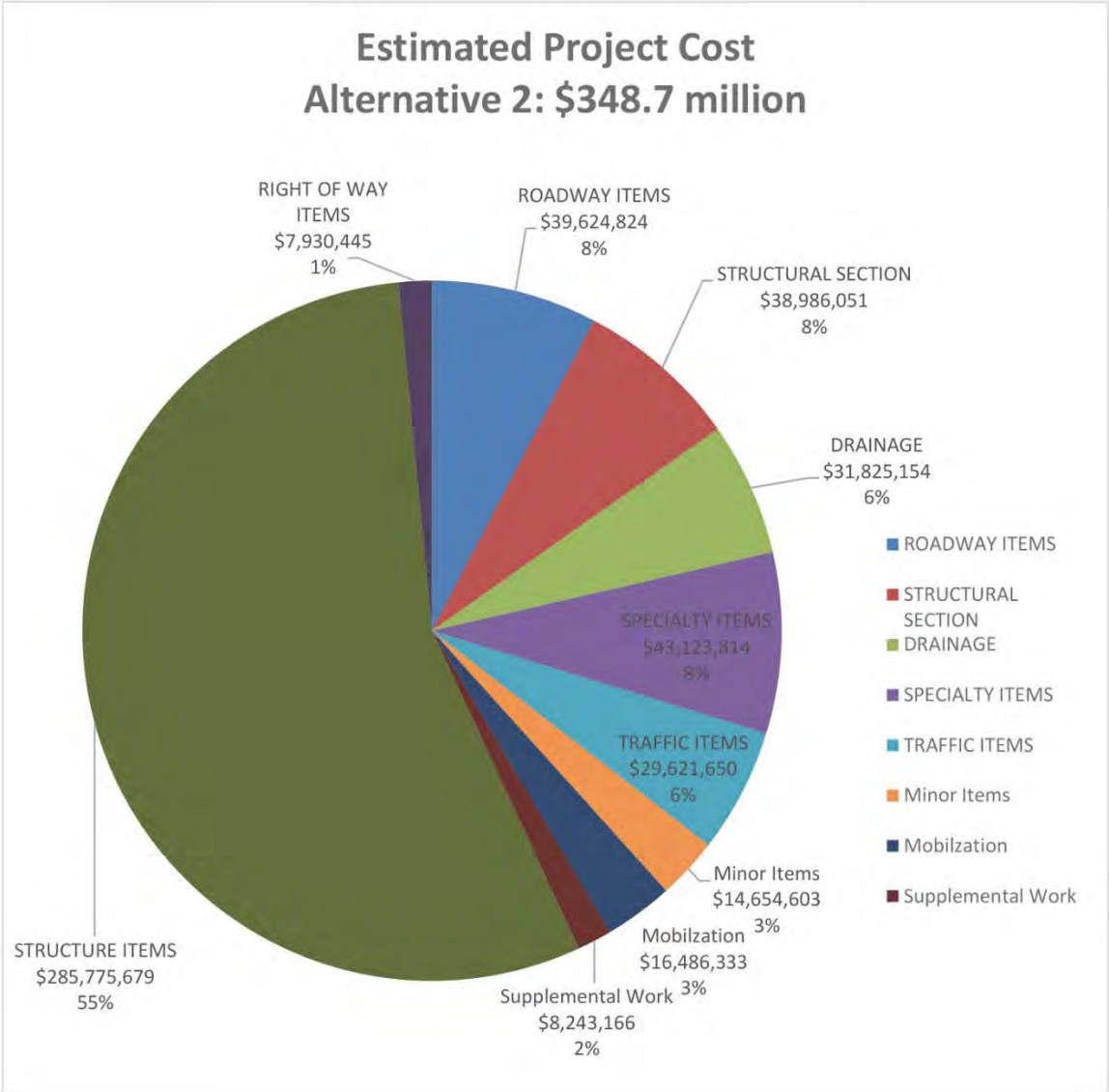
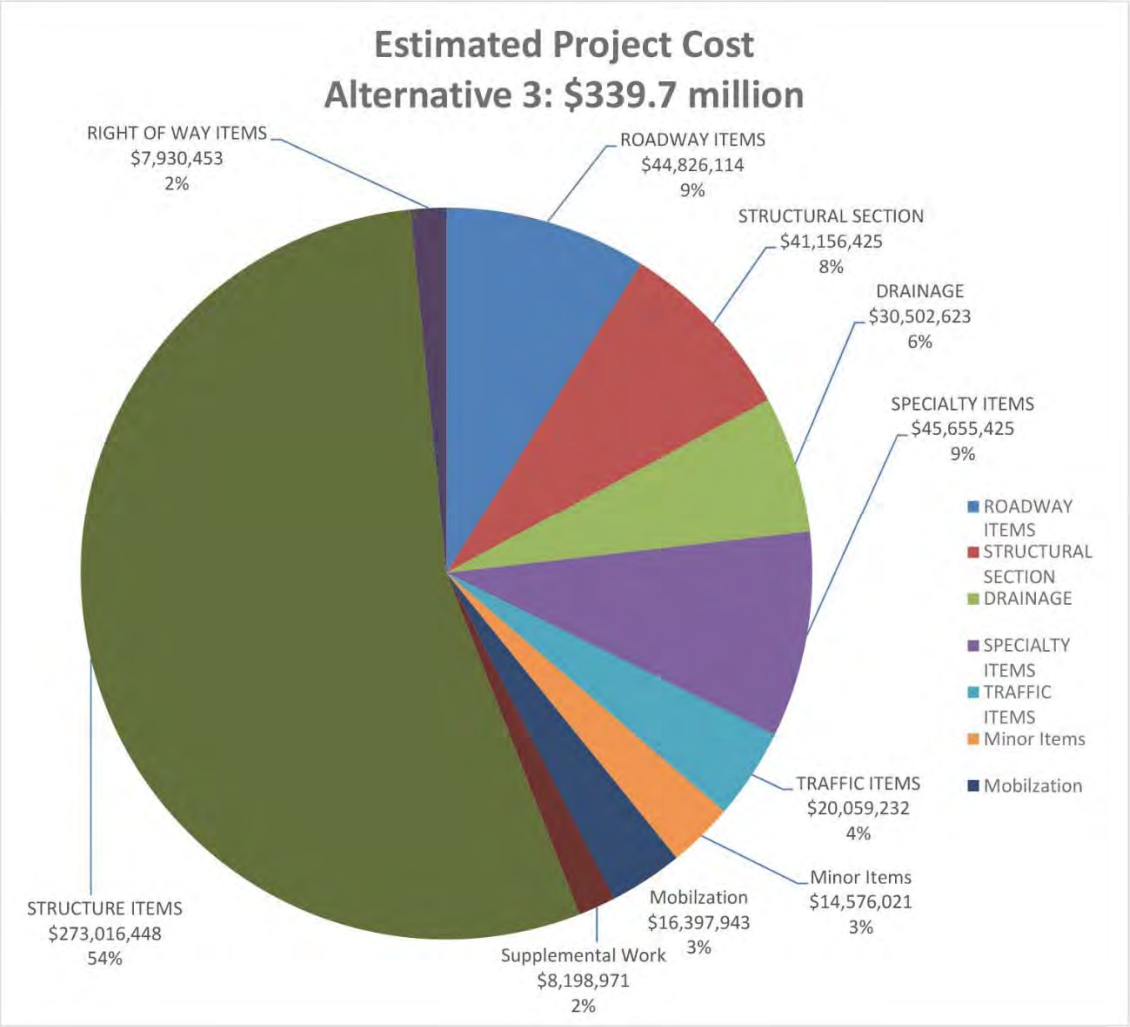

Estimated Project Cost
Alternative 2: $348.7 million
RIGHT OF WAY ITEMS $7,930,445 1%
ROADWAY ITEMS $39,624,824 8%
STRUCTURAL SECTION $38,986,051 8%
DRAINAGE $31,825,154 6%
SPECIALTY ITEMS $43,123,814 8%
TRAFFIC ITEMS $29,621,650 6%
Minor Items $14,654,603 3%
Mobilzation $16,486,333 3%
Supplemental Work $8,243,166 2%
STRUCTURE ITEMS $285,775,679 55%
ROADWAY ITEMS
STRUCTURAL SECTION
DRAINAGE
SPECIALTY ITEMS
TRAFFIC ITEMS
Minor Items
Mobilzation
Supplemental Work

Exhibit 4-3



FUNCTION ANALYSIS

During the Function Analysis phase, the VA Team identified functions for each of the major project components of the I-80/SR 65 Interchange Improvements project. This exercise is helpful in bringing the VA Team to a more complete level of understanding of the project goals, drivers, and purpose.

Functions are described in simple verb-noun definitions (along with occasional adjectives and descriptive statements), and are intended to help clarify the scope of the project for the purposes of VA analysis. Functions of a project can be categorized as Higher-Order (H) functions, Basic (B) functions, Secondary (S) functions, and All-the-Time (A) functions.

Higher-Order (H) functions describe the overall purpose of the project, but are not viewed to be within the specific scope of the VA Study. These are the high-ideals of the project, which all basic functions of the I-80/SR 65 Interchange Improvements project are intended to support. The Basic (B) and Secondary (S) functions themselves are within the purview of the VA Team to review for possible alternatives representing an economy to the project. Basic (B) functions describe the most important elements of the project. Secondary (S) functions describe meaningful, yet secondary, elements of the

project that need to be accommodated to deliver the project, but do not themselves represent a primary purpose for implementing the project. In many projects, the costs devoted to accomplishing Secondary functions are often higher than they really need to be; therefore, Secondary functions receive much scrutiny in a VA Study along with Basic functions. All-the-Time (A) functions describe meaningful objectives that a project should strive to meet.

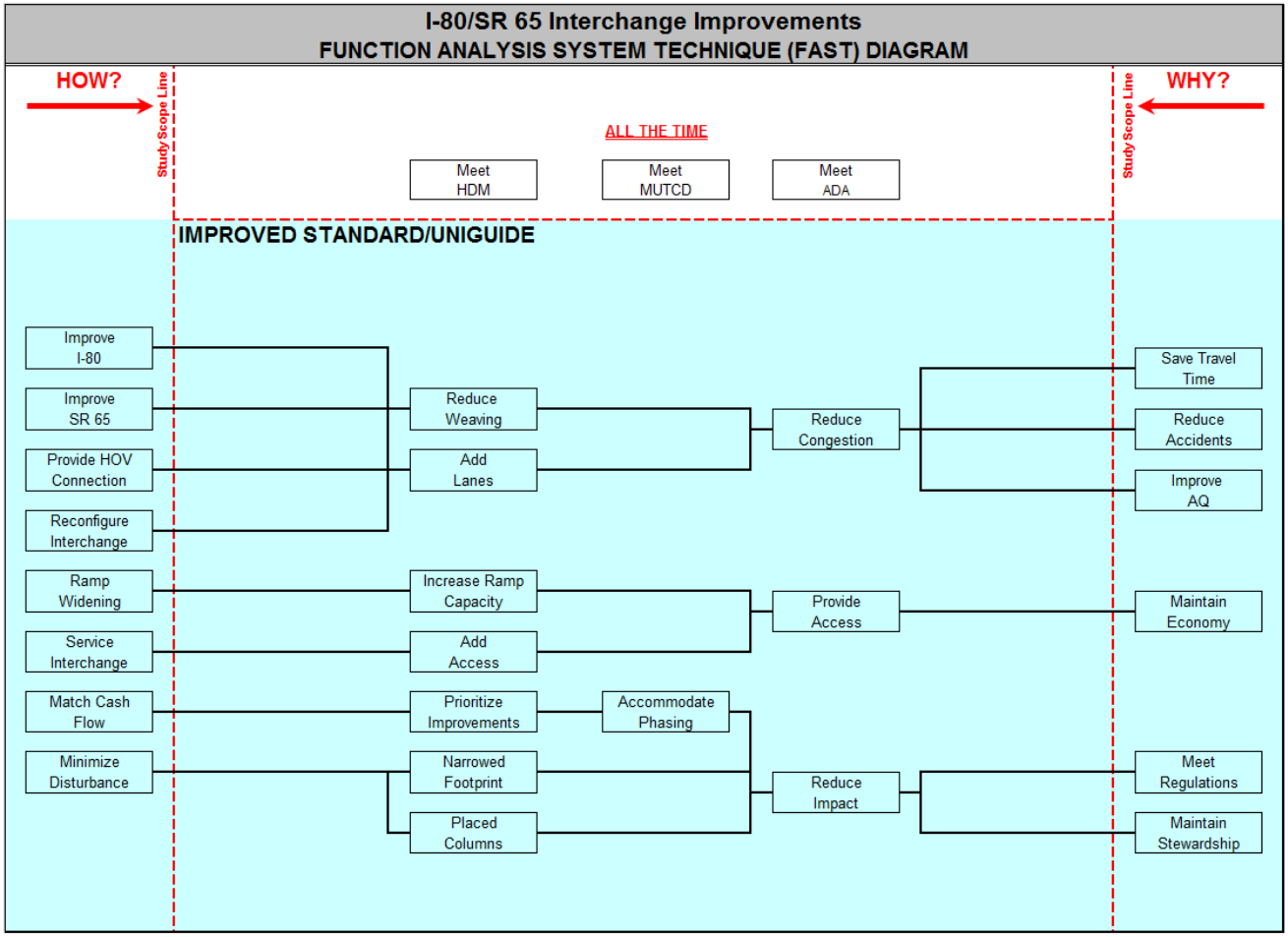
High-cost areas of the project, where opportunities for VA savings exist, can be found primarily in Basic and Secondary functions. That is why the VA Team spends time identifying project functions. Alternatives are evaluated that can meet the intended function without compromise to quality or the function itself. For example, if a lot of money is being spent on the Secondary function “Reuse Material” (meaning full-depth reclamation), then it is incumbent on the VA Team to explore other technically feasible and lower-cost alternatives to this function.

The functions generated by the VA Team are identified below, along with the designators as to the type of function they represent.

FAST Diagram

The VA Team arranged the functions into a "Function Analysis System Technique" (FAST) diagram. The FAST diagram (Exhibit 4-4) links the Basic and Higher-Order functions into "How-Why" relationships for the I-80/SR 65 Interchange Improvements project.

Exhibit 4-4. FAST Diagram



VALUE METRICS

The Value Metrics process is an integral part of the Caltrans VA process. This process provides the cornerstone of the VA process by providing a systematic and structured means of considering the relationship of a project's performance and cost as they relate to value. Project performance must be properly defined and agreed upon by the stakeholders at the beginning of the VA Study. The performance attributes and requirements developed are then used throughout the study to identify, evaluate, and document VA alternatives.

Define Performance Requirements

Performance requirements represent essential, nondiscretionary aspects of project performance. Any concept developed during the project design process or during the course of the VA Study that

fails to meet the basic objectives of the project, therefore, cannot be considered as a valid solution. For example, a concept that did not meet a performance requirement for a key project milestone could not be considered further as an acceptable design solution. Concepts that do not meet a performance requirement cannot be considered further in the Value Metrics process unless such shortcomings are addressed through the VA process in the form of VA alternatives. It should be noted that in some cases, performance requirements may also represent the minimum acceptable level of a performance attribute. (Performance attributes are discussed in depth in the following section.)

The following performance requirements were selected for this project:

Performance Requirement	Definition
Highway Design Standards	Any deviation from the Caltrans Highway Design Manual must be approvable by the District's Design Reviewer.
Structural Design Standards	Any structure on the project must comply with current seismic design standards and meet the Load Resistance Design Factor.
Environmental Review Process	Any concept or design modification considered must comply with state and federal environmental law and be compatible with the environmental review process.
Reduce Congestion on Freeway System	This includes facility miles operating at LOS F1 or worse, facility miles operating at LOS E or F0, and vehicle miles traveled (VMT) on congested freeway segments.

Define Performance Attributes and Scales

The following performance attributes were identified by the VA Team as being of critical importance in meeting the project's need and purpose. The following scales were used to evaluate the performance of the alternative concepts relative to the baseline concept.

Mainline Operations

This performance attribute involves an assessment of traffic operations and safety on the mainline facility(ies), including off-ramps and collector-distributor roads. Operational considerations include LOS relative to the 20-year traffic projections, and geometric considerations such as design speed, sight distance, lane widths, and shoulder widths.

Rating	Label	Description
0.0	Unacceptable	Mainline operations equivalent to LOS F during peak hour. Very poor level of traffic operations. May require multiple design exceptions.
2.0	Poor	Mainline operations equivalent to LOS E during peak hour. Poor level of traffic operations. May require multiple design exceptions.
4.0	Fair	Mainline operations equivalent to LOS D during peak hour. Fair level of traffic operations. May require some design exceptions.

Rating	Label	Description
6.0	Good	Mainline operations equivalent to LOS C during peak hour. Good level of traffic operations. Meets all or most design standards.
8.0	Very Good	Mainline operations equivalent to LOS B during peak hour. High level of traffic operations. Meets all mandatory design standards. Meets all or most advisory design standards.
10.0	Ideal	Provides no congestion.

Local Operations

This performance attribute involves an assessment of traffic operations and safety on the local roadway infrastructure, including on-ramps and frontage roads. Operational considerations include LOS relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, and lane widths; and bicycle and pedestrian operations and access.

Rating	Label	Description
0.0	Unacceptable	Local operations equivalent to LOS F during peak hour. Very poor level of traffic operations. Severely impacts existing local access. May require multiple design exceptions.
2.0	Poor	Local operations equivalent to LOS E during peak hour. Poor level of traffic operations. Significantly impacts existing local access. May require multiple design exceptions.
4.0	Fair	Local operations equivalent to LOS D during peak hour. Fair level of traffic operations. Somewhat impacts existing local access. May require some design exceptions.
6.0	Good	Local operations equivalent to LOS C during peak hour. Good level of traffic operations. Maintains existing local access. Meets all or most design standards.
8.0	Very Good	Local operations equivalent to LOS B during peak hour. High level of traffic operations. Maintains or improves existing local access. Meets all mandatory design standards. Meets all or most advisory design standards.
10.0	Ideal	Local operations equivalent to LOS A during peak hour. Highest level of traffic operations. Significantly maintains or improves upon existing local access. Meets or exceeds all design standards.

Environmental Impacts

This performance attribute involves an assessment of the permanent impacts to the environment, including ecological impacts (flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (environmental justice); and impacts to cultural, recreational, and historic resources. Also considered under this attribute are drainage and hydraulic issues.

Rating	Label	Description
0.0	Unacceptable	The environmental impacts are severe and the project does not comply with state and/or federal environmental laws.
2.0	Poor	The project introduces environmental impacts that are both significant in number and require extensive mitigation.
4.0	Fair	The project introduces many new environmental impacts that will require extensive mitigation.
6.0	Good	The project introduces some new environmental impacts that can be addressed through standard and accepted mitigation approaches.
8.0	Very Good	The project introduces no new environmental impacts.
10.0	Ideal	The project improves upon the existing environmental conditions while introducing no new environmental impacts.

Construction Impacts

This performance attribute involves an assessment of the temporary impacts to the public during construction related to traffic disruptions, detours, and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust, and construction traffic; and environmental impacts related to water quality, air quality, soil erosion, and local flora and fauna.

Rating	Label	Description
0.0	Unacceptable	Temporary traffic and/or environmental impacts will be severe and create impacts that are unacceptable to the public.
2.0	Poor	Temporary traffic impacts will be extensive, lengthy, and very disruptive. Temporary environmental impacts will require extraordinary mitigation measures and create major inconveniences to the public.
4.0	Fair	Temporary traffic impacts will be significant and much greater than what would normally be anticipated for similar projects. Temporary environmental impacts will be more significant in nature and require greater mitigation measures and/or inconveniences to the public.
6.0	Good	There will be some nighttime lane closures and/or temporary ramp closures. There will be some minor to moderate temporary environmental impacts. Impacts will be fairly “typical” for this type of project and can be handled through normal processes and procedures.
8.0	Very Good	There will be some minor temporary traffic and/or environmental impacts expected during construction. Impacts will be less than typical.
10.0	Ideal	There will be no temporary traffic or environmental impacts during construction.

Phaseability

This performance attribute involves the effectiveness of phases; that is, an assessment of the project's ability to phase for construction. Phaseability considerations include the overall longevity of construction stages, the order of construction phases, and traffic access to existing facilities during construction.

Rating	Label	Description
0.0	Unacceptable	It is not possible for the project to be built in phases.
2.0	Poor	Constructing the project in multiple phases is possible, but faces severe challenges. Interim benefits may be negligible.
4.0	Fair	The project can be built in multiple phases; however, the interim benefits will be limited in nature and/or significant "throwaway" work will be required.
6.0	Good	The project can be built in multiple phases while providing some interim benefits; however, moderate "throwaway" work will be required.
8.0	Very Good	The project can be built in multiple phases while providing interim benefits that will require some "throwaway" work.
10.0	Ideal	The project can be easily built in multiple phases while providing interim benefits that will require little or no "throwaway" work.

Land Use Compatibility

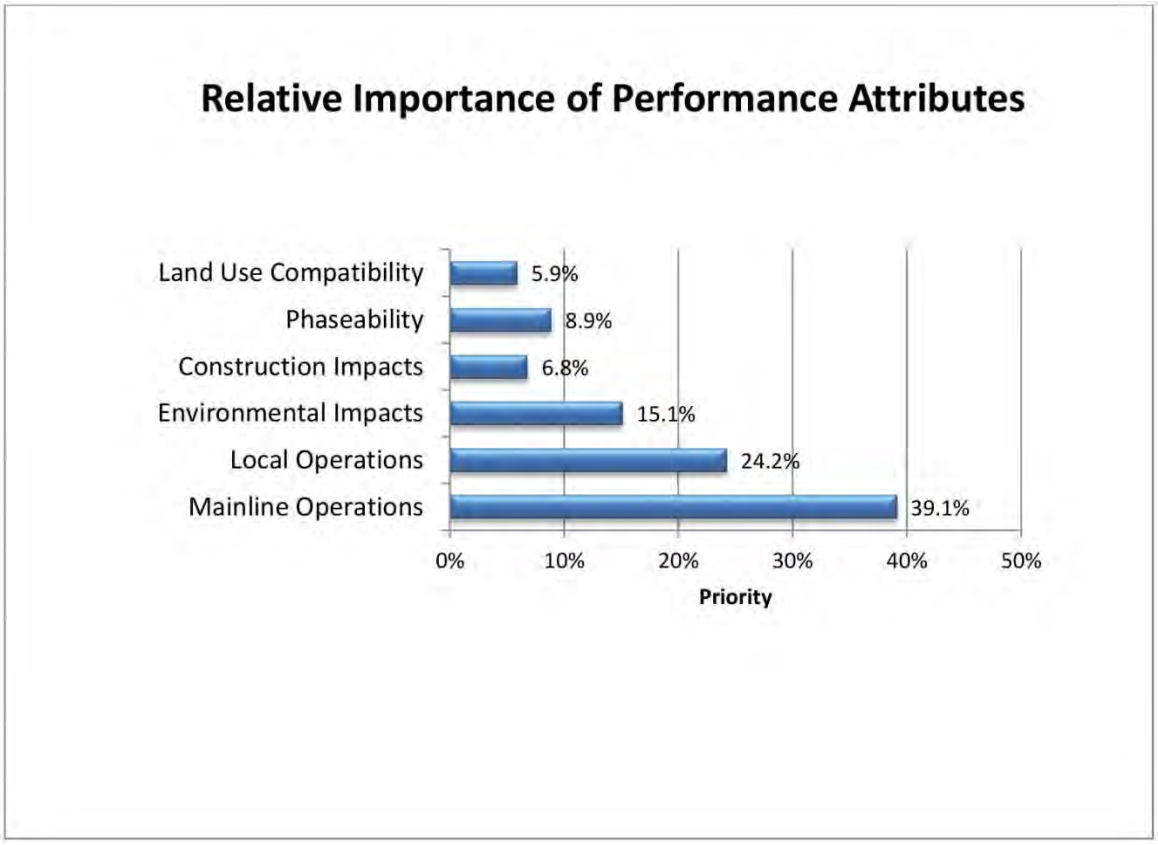
This performance attribute involves an assessment of how the facility will directly affect the quality of land uses around it.

Rating	Label	Description
0.0	Unacceptable	The project is completely incompatible with both existing and planned land uses and is unacceptable to project stakeholders.
2.0	Poor	The project is highly incompatible with both existing and planned land uses but would still be acceptable to project stakeholders.
4.0	Fair	The highway facility is only partially compatible with existing and/or planned land uses.
6.0	Good	The project provides a satisfactory level of compatibility with both existing and planned land uses.
8.0	Very Good	The project is highly compatible with both existing and planned land uses.
10.0	Ideal	The project provides the highest possible level of compatibility with both existing and planned land uses.

Prioritize Performance Attributes

The VA Team systematically prioritized the performance attributes to determine their relative importance in meeting the need and purpose of the project. Exhibit 4-5 illustrates the prioritization of performance attributes.

Exhibit 4-5. Performance Attribute Prioritization



Measure Performance of Baseline Concept – Alternative 3

Mainline Operations

Rating: **6**

Rationale: The baseline concept provides ideal mainline capacity, eliminates most weaving, provides merge/diverge ramp operations, and provides good ramp spacing. This baseline concept also eliminates weave/merge conflicts at the westbound Taylor Road on-ramp.

Local Operations

Rating: **4**

Rationale: The baseline concept does not provide much local access. It also eliminates Taylor Road ramps.

Environmental Impacts

Rating: **3**

Rationale: Significant mitigation will be required for Miners Ravine.

Construction Impacts

Rating: **3**

Rationale: Temporary traffic impacts will be significant and much greater than what would normally be anticipated for similar projects. Temporary environmental impacts will be more significant in nature and require greater mitigation measures and/or inconveniences to the public. High expected ROW impacts. I-80 widening ravine impacts.

Phaseability

Rating: **6**

Rationale: The project can be built in multiple phases while providing some interim benefits; however, moderate "throwaway" work will be required.

Land Use Compatibility

Rating: **4**

Rationale: The highway facility is only partially compatible with existing and/or planned land uses.

Measure Performance of Design Option – Alternative 1

Mainline Operations

Rating: **5**

Rationale: The Alternative 1 concept provides ideal mainline capacity, eliminates most weaving, provides merge/diverge ramp operations, and provides good ramp spacing. Alternative 1 also provides close spacing of service/system ramps and complex signing.

Local Operations

Rating: **6**

Rationale: The Alternative 1 concept provides local operation equivalent to LOS D during peak hour. This alternative also provides a fair level of traffic operations. It somewhat impacts existing local access, and may require some design exceptions. A full interchange is provided at Taylor Road.

Environmental Impacts

Rating: **4**

Rationale: Alternative 1 provides the least impact to the ravine area but will still impact it. Mitigation will be required for Miners Ravine.

Construction Impacts

Rating: **4**

Rationale: Temporary traffic impacts will be significant and much greater than what would normally be anticipated for similar projects. Temporary environmental impacts will be more significant in nature and require greater mitigation measures and/or inconveniences to the public. ROW impacts are the lowest of the three alternatives. This alternative minimizes eastbound I-80 widening, but would be difficult to stage for construction.

Phaseability

Rating: **6**

Rationale: The project can be built in multiple phases while providing some interim benefits; however, moderate "throwaway" work will be required.

Land Use Compatibility

Rating: **4**

Rationale: The highway facility is only partially compatible with existing and/or planned land uses.

Measure Performance of Design Option – Alternative 2

Mainline Operations

Rating: **4.5**

Rationale: The Alternative 2 concept provides ideal mainline capacity, eliminates most weaving, provides merge/diverge ramp operations, and provides good ramp spacing. Alternative 2 also provides close spacing of service/system ramps and complex signing. The merge and westbound Taylor Road ramp impacts the collector-distributor road operations.

Local Operations

Rating: **5**

Rationale: Alternative 2 provides local operations equivalent to LOS D during peak hour. This alternative also provides a fair level of traffic operations, but somewhat impacts existing local access. This alternative may require some design exceptions. This alternative maintains existing ramps at Taylor Road.

Environmental Impacts

Rating: **3**

Rationale: Significant mitigation will be required for Miners Ravine.

Construction Impacts

Rating: **2.5**

Rationale: Temporary traffic impacts will be significant and much greater than what would normally be anticipated for similar projects. Temporary environmental impacts will be more significant in nature and require greater mitigation measures and/or inconveniences to the

public. ROW impacts are expected to be high, and construction at Atlantic Street/Eureka Road is expected to be difficult.

Phaseability

Rating: **6**

Rationale: The project can be built in multiple phases while providing some interim benefits; however, moderate "throwaway" work will be required.

Land Use Compatibility

Rating: **4**

Rationale: The highway facility is only partially compatible with existing and/or planned land uses.

Measure Performance of VA Alternatives

The rationale for any change in performance as compared to the Baseline Concept was recorded. Please refer to the individual performance assessments for each VA alternative as presented in Section 2 of this VA Study Report.

Define VA Strategies

Summary of VA Strategies

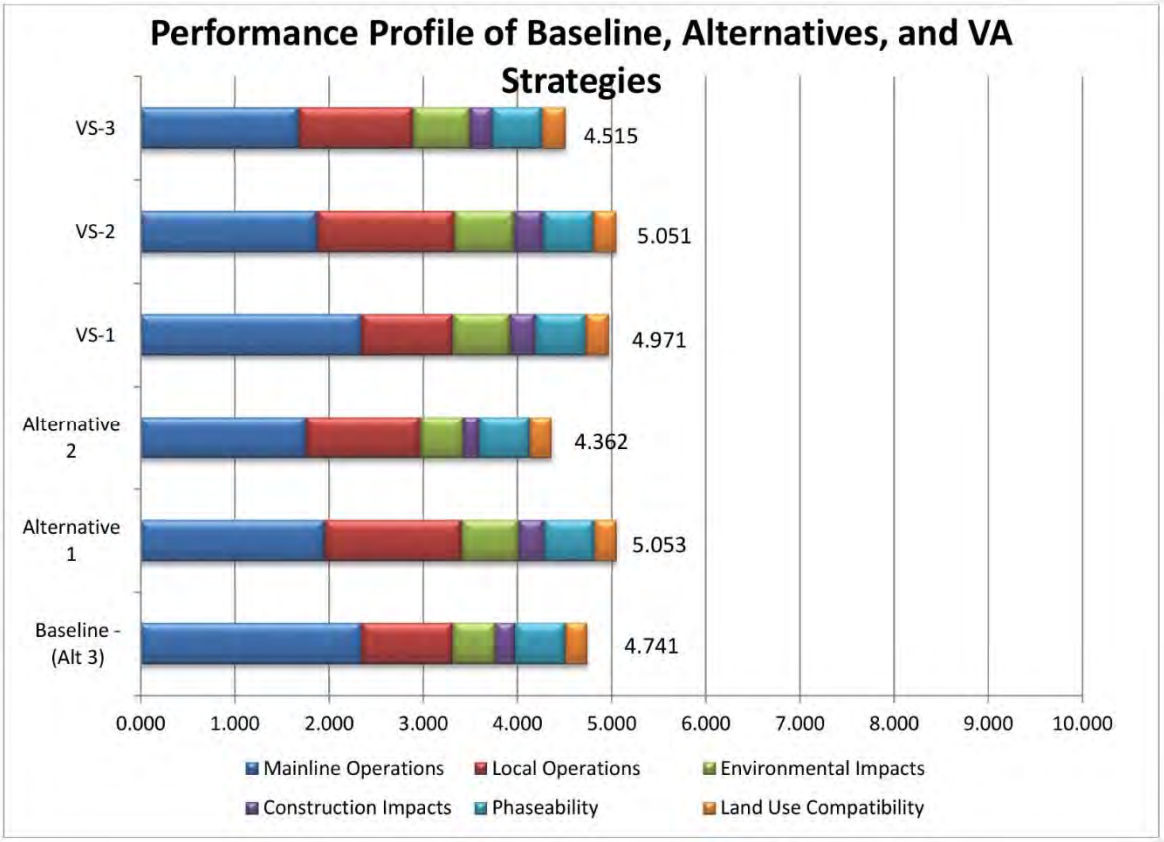
Strategy Description	Initial Cost Savings	LCC Savings	Change in Schedule	Change in Performance	Value Change
Recommended VA Strategy VS-1: Alt-3, S-1, R-2 Alternative Nos. Alt-3, S-1, R-2	$14,500,000	---	6 months	+5 %	12 %
VS-2: Alt 1, S-1 Alternative Nos. Alt-1, S-1	($4,700,000)	---	2 months	+7 %	-0.4 %
VS-3: Alt-2, S-1, R-2 Alternative Nos. Alt-2, S-1, R-2	$5,500,000	---	6 months	- 5%	0%

Note: Because the cost data depicted above represent savings*, a number in parentheses represents a cost* increase*.*

Compare Performance – Baseline Concept and VA Strategies

Exhibit 4-6 illustrates the performance comparison.

Exhibit 4-6. Comparison of Performance



Rating Rationale for VA Strategies

VS-1 – Alternative 3, S-1, R-2 Combination

Mainline Operations

Rating: **6**

Rationale: This strategy provides nearly ideal mainline capacity, eliminates most weaving, and provides merge/diverge ramp operations. This strategy also provides good ramp spacing, although it provides close spacing of service/system ramps and complex signing.

Local Operations

Rating: **4**

Rationale: This strategy does not provide much local access and it eliminates Taylor Road ramps.

Environmental Impacts

Rating: **4**

Rationale: This alternative reduces impacts to Miners Ravine (area of impact).

Construction Impacts

Rating: **4**

Rationale: Temporary traffic impacts will be significant and much greater than what would normally be anticipated for similar projects. Temporary environmental impacts will be more significant in nature and require greater mitigation measures and/or inconveniences to the public. This strategy reduces time and simplifies construction. It reduces ravine construction. High ROW impacts would be expected.

Phaseability

Rating: **6**

Rationale: The project can be built in multiple phases while providing some interim benefits; however, moderate "throwaway" work will be required.

Land Use Compatibility

Rating: **4.2**

Rationale: This strategy affects residential land use on the north and south sides.

VS-2 – Alternative 1, S-1 Combination

Mainline Operations

Rating: **4.8**

Rationale: This strategy provides ideal mainline capacity, eliminates most weaving, and provides merge/diverge ramp operations. This strategy also provides good ramp spacing, although it has a reduction in rating due to the lower design speed of the collector-distributor loop ramp and additional travel distance.

Local Operations

Rating: **6**

Rationale: This strategy provides local operations equivalent to LOS D during peak hour, and a fair level of traffic operations. This strategy somewhat impacts existing local access and may require some design exceptions. This strategy provides a full interchange at Taylor Road.

Environmental Impacts

Rating: **4.2**

Rationale: This alternative reduces impacts to Miners Ravine but will still impact the ravine. Mitigation will be required for Miners Ravine. This strategy would avoid impacts to the south of Roseville Viaduct.

Construction Impacts

Rating: **4.5**

Rationale: Temporary traffic impacts will be significant and much greater than what would normally be anticipated for similar projects. Temporary environmental impacts will be more significant in nature and require greater mitigation measures and/or inconveniences to the public. ROW impacts are the lowest of the three alternatives. This strategy eliminates the southside viaduct widening stage.

Phaseability

Rating: **6**

Rationale: The project can be built in multiple phases while providing some interim benefits; however, moderate "throwaway" work will be required.

Land Use Compatibility

Rating: **4.2**

Rationale: The highway facility is only partially compatible with existing and/or planned land uses.

VS-3 – Alternative 2, S-1, R-2 Combination

Mainline Operations

Rating: **4.3**

Rationale: This strategy provides ideal mainline capacity, eliminates most weaving, and provides merge/diverge ramp operations. This strategy also provides good ramp spacing, although it provides lower design speed of the collector-distributor loop ramp and additional travel distance.

Local Operations

Rating: **5**

Rationale: This strategy provides local operations equivalent to LOS D during peak hour, and a fair level of traffic operations. This strategy somewhat impacts existing local access and may require some design exceptions. This strategy maintains existing ramps at Taylor Road.

Environmental Impacts

Rating: **4**

Rationale: Significant mitigation will be required for Miners Ravine.

Construction Impacts

Rating: **3.5**

Rationale: Temporary traffic impacts will be significant and much greater than what would normally be anticipated for similar projects. Temporary environmental impacts will be more significant in nature and require greater mitigation measures and/or inconveniences to the

public. This strategy reduces time and simplifies construction. It reduces ravine construction. High ROW impacts would be expected.

Phaseability

Rating: **6**

Rationale: The project can be built in multiple phases while providing some interim benefits; however, moderate "throwaway" work will be required.

Land Use Compatibility

Rating: **4.2**

Rationale: The highway facility is only partially compatible with existing and/or planned land uses.

Compare Value

The following table shows the normalized cost scores for the Baseline Concept, Design Options, and VA strategies.

Strategies	Cost	Score
Baseline Concept – Alternative 3	$339.7 million	0.347
Alternative 1	$346.4 million	0.353
Alternative 2	$348.7 million	0.355
VA Strategy VS-1	$331.9 million	0.342
VA Strategy VS-2	$346.6 million	0.352
VA Strategy VS-3	$325.2 million	0.342
TOTAL	**$2.0 billion**	**2.091**

The following table shows normalized time scores for the Baseline Concept, Design Options, and VA strategies.

Strategies	Time	Score
Baseline Concept – Alternative 3	---	0.133
Alternative 1	(12 months)	0.167
Alternative 2	0 months	0.150
VA Strategy 1	6 months	0.140
VA Strategy 2	2 months	0.038
VA Strategy 3	6 months	0.140
TOTAL	**2 months**	**0.768**

Relative Importance	
Cost	**70 %**
Time	**30 %**

Value Matrix – Baseline Concept and VA Strategies

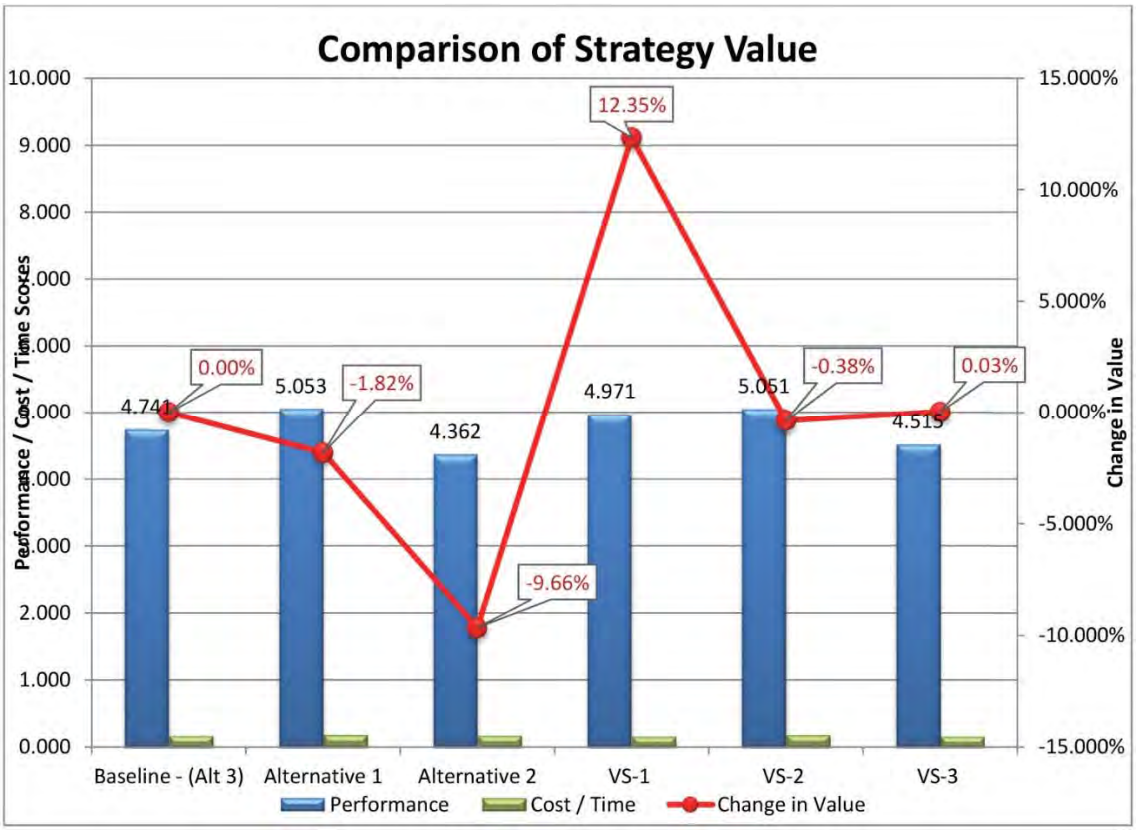
The following table shows performance scores and change in value for the VA alternatives and strategies.

Strategies	Performance Score	Change in Performance	Cost/Time Score	Value Index	Change in Value
Baseline Concept – Alternative 3	4.741	---	0.518	9.159	---
Alternative 1	5.053	+6%	0.520	9.723	-1%
Alternative 2	4.362	-8%	0.505	8.646	-10%
VA Strategy VS-1	4.971	+5%	0.482	10.305	+12%
VA Strategy VS-2	5.051	+6%	0.390	12.942	-0.4%
VA Strategy VS-3	4.515	-5%	0.482	9.359	0%

Comparison of Value - Baseline Concept and VA Strategies

Exhibit 4-7 illustrates the comparison of value.

Exhibit 4-7. Comparison of Value - Baseline Concept and VA Strategies



RISK ANALYSIS

The VA Team identified the top 10 risks, but no formal risk analysis was performed because it was outside of the scope of the VA Study.

PERFORMANCE ATTRIBUTES

The following key performance attributes for this project were used to assist the VA Team in evaluating the ideas:

- Mainline Operations
- Local Operations
- Environmental Impacts
- Construction Impacts
- Phaseability
- Land Use Compatibility

EVALUATION PROCESS

The VA Team, as a group, generated and evaluated ideas on how to perform the various functions. The idea list was grouped by function or major project element. The VA Team, as a group, evaluates each idea with respect to the functional requirements of the project. Each idea is evaluated against specific criteria established by the VA Team and stakeholders. Advantages and disadvantages of each idea are recorded. The potential impact on project cost is established last, and a relative impact is noted.

IDEA SUMMARY

All of the ideas generated during the creative phase using brainstorming techniques were recorded on the Idea Evaluation Summary Table (see Table 5-1). These ideas were discussed with Caltrans and the design team during the middle of the first week of the VA Study to determine which ideas should be pursued by the VA Team and which should be failed.

The following ideas were developed during the brainstorming of the three project alternatives on the first and second day of the workshop. These ideas were rated using the following criteria:

Rating	Description
7	Major Value Improvement
6	Moderate Value Improvement
5	Minor Value Improvement
4	Possible Value Improvement
3	Minor Degradation
2	Moderate Degradation
1	Major Degradation

Table 5-1. Idea Evaluation Summary Table

	Idea	Evaluation Notes[1]	Value Rating
Viaduct/SR 65			
1.	Combine the flyover with the HOV ramp (a left-hand exit).	F	3
	a. Requires alternative connection from Eureka to northbound SR 65 to eliminate the weaving concern.		
	b. Does not meet current design criteria that cites all exits should be to the right.		
	c. Is not the dominant movement, thus not justifying rejection of design standards.		
2.	Look at how we barrier-separate traffic. Look into other possible solutions. a. Reduce cross sectional width b. Reduce drainage requirement c. Smaller footprint, less cost and impact d. Needs to address the safety issue e. Consistency between I-80 and the Viaduct barrier treatments?	P	6
3.	Eliminate the Taylor ramps by enhancing the Eureka interchange.	p	6
4.	Issue of constructability of widening the viaduct in Alternative 1. (Look into widening in the center and the sides.)	NTD	NA
5.	Relocate the stream.	P, Combine	4
6.	Look at different structure types to minimize structure depth to minimize environmental impacts and traffic impacts (not including Roseville Viaduct).	NTD	NA
7.	Look at reducing number of stages/phases for construction.	NTD	NA
8.	Southbound SR 65 flip the split. Southbound to eastbound as a right-hand exit instead of a split.	P	5
9.	Reduce footprint by moving lanes away from ravine as much as possible.	P, Combine	6
10.	Stack the lanes.	P, Combine	4
11.	Reduce the footprint of the project. Avoid ravine.	P, Combine	6
12.	Reduce lanes to 11 feet and reduce shoulders to reduce widening on major structures.	P	6
13.	Relocate the stream and reduce the amount of elevated structure.	P, Combine	4
14.	Run southbound SR 65 to eastbound I-80 under Taylor Road.	F	2
15.	Look at the southbound viaduct bridge removal limits. Combined.	F	2
16.	Only do the work on structures on the outside, but not the middle. Combined.	F	2

Table 5-1. Idea Evaluation Summary Table

	Idea	Evaluation Notes[1]	Value Rating
17.	Look at widening with cantilever designs rather than using piles.	F	2
18.	Use shafts rather than piles. This may be driven by the order of bridge construction.	NTD	NA
19.	Businesses at Taylor Road will be impacted by Alternatives 1 and 2. Get rid of driveways on Taylor Road from Eureka to overpass to make more of an expressway.	F	2
Viaduct ROW			
1.	Note to Designer – might push out the westbound-to-northbound to the north to improve geometrics. This is more of an irritant. (The ramp meets design standards for a system exit. You have poor deceleration into the curve. Come off I-80 at a flatter angle. Point of Curve right at the gore is not something you would typically like to see.) Note to Designer.	NTD	NA
2.	Southbound-to-eastbound is a force fit in current design. Will look into making right-to-left and left-to-right from SR 65 to I-80. Get the ramp out of the trees.	P, Combine	6
3.	Combine HOV lanes with general purpose lanes to lower costs of structures. This goes with providing left lane ramp to SR 65. Duplicate.	F	1
4.	Consider high-occupancy toll (HOT) in place of HOV lanes.	F	2
5.	Leave eastbound traffic on I-80 on the collector-distributor road to the trumpet to connect to SR 65.	F	2
6.	Note to Designer – might push out the westbound-to-northbound to the north to improve geometrics. This is more of an irritant. (The ramp meets design standards for a system exit. You have poor deceleration into the curve. Come off I-80 at a flatter angle. Point of Curvature right at the gore is not something you would typically like to see.) Note to Designer.	NTD	NA
7.	Combine HOV lanes with general purpose lanes to lower costs of structures. This goes with providing left lane ramp to SR 65.	F	2
8.	Consider HOT in place of HOV lanes.	F	2
9.	Leave eastbound traffic on I-80 on the collector-distributor road to trumpet to connect to SR 65.	F	
Basic Function: Add Capacity (Viaduct)			
1.	Do not tie the structures together.	F	2
2.	Widen the viaduct to the middle and north and eliminate the south widening.	P	7
3.	Use directional HOV.	F	1

Table 5-1. Idea Evaluation Summary Table

	Idea	Evaluation Notes[1]	Value Rating
4.	Soft separation rather than concrete barrier.	P	6
5.	Reduce shoulder to get rid of the south side SR 65 widening.	Combine with # 2 above, P	7
6.	Reduce the lane widths and modest reduction in shoulder. Pull 6 feet out to cut down cost of current design.	Combine with # 2 above, P	7
Basic Function: Provide Access – Alternative 1			
1.	Loop ramp at Eureka. VA validates the design as shown. Note to Designer.	NTD	NA
2.	Nonstandard widening on eastbound I-80 near the water park because of two existing transmission towers. Note: they have already done a value study and design exception saves more money than moving the towers. Note to Designer.	NTD	NA
Basic Function: Accommodate widening at Taylor Bridge – Alternative 1			
1.	Shift the I-80 alignment south to fit under the existing Taylor Road Bridge.	F	2
Basic Function: Increase Capacity – I-80 Mainline			
1.	Note: VA Team validates PDT has done everything they can do for I-80 near Taylor.	NTD	NA
2.	Design cross section of I-80 for LOS E to reduce one lane in either direction.	F	1
3.	Eliminate HOV east of SR 65.	P	7
Basic Function: Improve Local Access			
1.	Note: More of a regional issue than providing access to residential/business. Alternative 1 is paying dearly for local access with construction and maintenance. Note to Designer	NTD	NA
2.	Extend Sunset to I-80 to construct new interchange at Sunset and eliminate Taylor. Paying to get traffic on Taylor to get them to Sunset. Paying a lot of money for what you do not have the right infrastructure for.	P	4
Basic Function: Add Capacity/Construct Collector-Distributor Road – Alternative 2			
1.	Note to Designer: Will the tunnel at Atlantic require mitigation of displaced tie-backs?	NTD	NA
2.	Note to Designer: VA Team suggests designer remove ramp meters, eliminate HOV bypass lane, and investigate crest vertical curve for sight distance to the merge.	NTD	NA
3.	Eliminate the loop access at Taylor. Eliminate the ramp to access the collector-distributor road from Atlantic, similar to Alternative 3.	P	4
4.	Combine collector-distributor road structures from eastbound I-80 to northbound SR 65, build on fill rather than structure, and move creek south onto the dirt bike track. This may result in a more extensive biological study. One	P	4

Table 5-1. Idea Evaluation Summary Table

	Idea	Evaluation Notes[1]	Value Rating
	solution is that you protect it in place with corrugated metal pipe (CMP) culverts and possibly relocate the creek.		
5.	Eliminate the slip from collector-distributor road to SR 65 ramp and build a loop or flyover within the infield of the existing loop.	P	6
6.	Make Taylor Road loop a trap lane rather than an option lane. Collector-distributor road will drop from two lanes to one lane, but advisory design requirement of two lanes for ramp over 1,000-foot length may not allow it without a design exception.	P	4
7.	Note to Designer: Tip of the ramp should be 50:1 merge from Taylor to westbound I-80. Design does not show 50:1 merge because of railroad. Meet the standard but maximize the merge lane.	NTD	NA
Basic Function: Prevent Weave			
1.	Provide one lane vs. two for collector-distributor road/on-ramp from Atlantic.	Combine	7
2.	Look at nonstandard design for collector-distributor road. Two 11-foot lanes and 2-foot offsets to barrier on both sides for total of 26-foot cross section.	P	7
3.	Note to Designer: Include Douglas to Eureka diverge improvements to all alternatives.	NTD	NA

[1] In the second column, a "P" for "Pass" means the idea is planned to be developed in the VA Alternative template for cost saving ideas. An "F" means the idea is Failed due to an evident disadvantage or fatal flaw. An "NTD" for "Note to Designer" means it is a general consideration compared to a cost-saving alternative. A "Combine" means the idea was considered to be combined with another idea to create a VA alternative concept.
NA – not applicable

6. VALUE ANALYSIS PROCESS FINAL

The Caltrans VA process involves 16 activities needed to accomplish a VA Study, organized into three parts: Pre-Study, VA Study, and Report. Integral to the Caltrans VA process is the Value Metrics process. The Value Metrics process offers the cornerstone of the Caltrans VA process by providing a systematic and structured means of considering the relationship of a project's performance and cost as they relate to value.

Value Analysis has traditionally been perceived as an effective means for reducing project costs. This paradigm only addresses one part of the value equation, oftentimes at the expense of the role that VA can play with regard to improving project performance. Project costs are fairly easy to quantify and compare; performance is not.

Project performance must be properly defined and concurred by the stakeholders at the beginning of the VA Study. The performance attributes and requirements developed are then used throughout the study to identify, evaluate, and document alternatives. This process, Value Metrics, emphasizes the interrelationship between cost and performance and can be quantified and compared in terms of how they contribute to overall value.

Value Metrics provides a standardized means of identifying, defining, evaluating, and measuring performance. Once this has been achieved, and costs for all VA alternatives have been developed, measuring value is straightforward.

Value Metrics can improve VA Studies by:

- Building consensus among project stakeholders (especially those holding conflicting views)
- Developing a better understanding of a project's goals and objectives as they relate to purpose and need
- Developing a baseline understanding of how the project is meeting performance goals and objectives
- Identifying areas where project performance can be improved through the VA process
- Developing a better understanding of an alternative concept's effect on project performance
- Developing a deeper understanding of the relationship between performance and cost in determining value
- Using value as the basis for selecting the best project or design concept

The following provides an overview of the Caltrans approach to VA. The Caltrans VA Study Activity Chart at the end of this narrative identifies the steps in each activity, which are detailed as follows.

PRE-STUDY

Meaningful and measurable results are directly related to the pre-study work performed. Depending on the type of study, all or part of the following information needs to be determined during the pre-study phase:

- Clear definition of the current situation and study objectives
- Identification of study team members
- Identification of project stakeholders
- Definition of how stakeholders are impacted by the project
- Identification of key issues and concerns
- Identification of the performance requirements and attributes of the project
- Status of project cost estimate
- Project data gathered to be distributed to the VA Team

In preparation for the VA Study, the team leader confers with owners and stakeholders to outline the VA process, initiate data gathering, refine project scope and objectives, structure the scope and team members and technical specialists, and finalize study plans. Specific deliverables are provided.

Following the initial planning meeting, the team leader reviews the data collected for the project and develops a cost model. The team leader also consults with the technical specialists to prepare them for the VA Study.

VA STUDY

The VA Job Plan guides the VA Team in their search to enhance value in the project or process. Caltrans follows a seven-phase VA Job Plan:

1. Information Phase
2. Function Phase
3. Speculation Phase
4. Evaluation Phase
5. Development Phase
6. Presentation Phase
7. Implementation Phase

Information Phase

At the beginning of the VA Study, the design team presents a more detailed review of the design and the various systems. This includes an overview of the project and its various requirements, which further enhances the VA Team's knowledge and understanding of the project. The project team also responds to questions posed by the VA Team.

The project's performance requirements and attributes are discussed, and the performance of the baseline concept is evaluated.

Function Phase

Key to the VA process is the function analysis techniques used during the Function Phase. Analyzing the functional requirements of a project is essential to assuring an owner that the project has been designed to meet the stated criteria and its need and purpose. The analysis of these functions in terms of cost, performance, time, and risk is a primary element in a VA Study, and is used to develop alternatives. This procedure is beneficial to the VA Team, as it forces the participants to think in terms of functions and their relative value in meeting the project need and purpose. This facilitates a deeper understanding of the project.

Speculation Phase

The Speculation Phase involves identifying and listing creative ideas. During this phase, the VA Team participates in a brainstorming session to identify as many means as possible to provide the necessary project functions. Judgment of the ideas is not permitted, in order to generate a broad range of ideas.

The idea list includes all of the ideas suggested during the study. These ideas should be reviewed further by the project team, since they may contain ideas that are worthy of further evaluation and may be used as the design develops. These ideas could also help stimulate additional ideas by others.

Evaluation Phase

The purpose of the Evaluation Phase is to systematically assess the potential impacts of ideas generated during the Speculation Phase relative to their potential for value improvement. Each idea is evaluated in terms of its potential impact to performance, cost, time, and risk. Once each idea is fully evaluated, it is given a total rating number. This is based on a scale of 1 to 7, as indicated by the following rating index:

7 = Major Value Improvement 6 = Moderate Value Improvement 5 = Minor Value Improvement 4 = Possible Value Improvement	These ratings represent the subjective opinion of the VA Team regarding the potential benefits of the concepts in order to prioritize them for development.
3 = Minor Value Degradation	Concept results in a minor cost or performance improvement at the expense of the other.
2 = Moderate Value Degradation	Concept reduces cost but creates an unacceptable degradation to performance.
1 = Major Value Degradation	Concept is not technically feasible or does not meet project need and purpose.

Ideas rated 4 to 7 are developed further. Those found to have the greatest potential for value improvement are documented in the VA Alternatives section of this report. A more refined definition of what a 4 to 7 rating is (Major Value Improvement, etc.) will be developed by the team leader and team for each study. The rationale for why ideas were rated highly but not developed as alternatives is documented in the Idea Evaluation section of the report.

Development Phase

During the Development Phase, the highly rated ideas are expanded and developed into VA alternatives. The development process considers the impact to performance, cost, time, and risk of the alternative concepts relative to the baseline concept. This analysis is prepared as appropriate for each alternative, and the information may include a performance assessment, initial cost and LCC comparisons, schedule analysis, and an assessment of risk. Each alternative describes the baseline concept and proposed changes, and includes a technical discussion. Sketches and calculations are also prepared for each alternative as appropriate.

Presentation Phase

The VA Study concludes with a preliminary presentation of the VA Team's assessment of the project and VA alternatives. The presentation provides an opportunity for the owner, project team, and stakeholders to preview the alternatives and develop an understanding of the rationale behind them.

Implementation Phase

After the stakeholders have had an opportunity to review the alternatives identified by the VA Team, the team leader conducts an implementation meeting to discuss the alternatives and resolve appropriate action for each VA alternative. If necessary, any other VA Report edits requested by the representatives are also made by the VA Team leader, and a final report is issued.

This implementation meeting helps to ensure that savings or process improvements are not lost due to lack of communication, and that those VA alternatives that are accepted are properly integrated into the project design.

VA REPORT

Preliminary Report

Following the completion of the VA Study, the team leader compiles the information developed during the VA Study into the *Preliminary Value Analysis Study Report*. This report, documenting viable alternatives, is provided to the customer within the timeframe requested (usually within 2 weeks). The preliminary report also contains a *VA Study Summary Report – Preliminary Findings*, designed to highlight critical elements of the VA Study, including detailed documentation of the VA alternatives, in a concise manner for the use of parties without the opportunity to review the report in its entirety. More details can be found in the complete preliminary report, which consists of the following documentation: Executive Summary, VA Alternatives, Project Information, Project Analysis, Idea Evaluation, and VA Process.

Written Report – VA Implementation Action Memo

If the disposition of all VA alternatives cannot be determined at the Implementation Meeting, then a *VA Implementation Action Memo* is submitted. This memorandum states which alternatives are accepted, which are rejected (and the rationale for rejection), and which VA alternatives are conditionally accepted with further study required. For these alternatives, the memo states what action must be completed so that a decision can be made as to the disposition of this VA alternative, when that action is expected to be completed, and who is responsible for completing this action. If all VA alternatives are either accepted or rejected, then this memo is not required.

Written Report – Final Report

Once all VA alternatives have been either accepted or rejected, the team leader updates the *Preliminary Value Analysis Study Report* to show the final results of the study in a *Final Value Analysis Study Report*. In addition, a Value Analysis Study Summary Report (VASSR) is sent to Caltrans Headquarters (HQ) to permit easy documentation into the Caltrans Annual Report to FHWA.

The following Caltrans VA Study Activity Chart describes each activity.

CALTRANS VA STUDY ACTIVITY CHART

PREPARATION

INITIATE STUDY (1)
- Identify study project
- Identify study roles and responsibilities
- Define study goals
- Select team leader
- Prepare draft Study Charter

ORGANIZE STUDY (2)
- Conduct Pre-Study Meeting
- Select team members
- Identify stakeholders, decision-makers, and technical reviewers
- Identify data collection
- Select study dates
- Determine study logistics
- Update VA Study Charter
- Identify and define performance requirements

PREPARE DATA (3)
- Collect and distribute data
- Develop construction cost models
- Develop highway user benefit / life cycle cost (LCC) model (if required)

VA STUDY

Segment 1

INFORM TEAM (4)
- Review study activities and confirm reviewers
- Present design concept
- Present stakeholders' interests
- Review project issues and objectives
- Rate performance of baseline concept
- Visit project site

ANALYZE FUNCTIONS (5)
- Analyze project data
- Expand project functions
- Prepare FAST diagram
- Determine functional cost drivers and performance

CREATE IDEAS (6)
- Focus on functions
- List all ideas
- Apply creativity and innovation techniques (group and individual)

EVALUATE IDEAS (7)
- Apply key performance attributes to rate idea
- List advantages and disadvantages
- Consider cost impacts
- Rank all ideas
- Assign alternatives for development

Segment 2

DEVELOP ALTERNATIVES (8)
- Develop alternative concepts
- Prepare sketches and calculations
- Measure performance
- Estimate costs, LCC benefits/costs

CRITIQUE ALTERNATIVES (9)
- VA Alternatives Technical Review
- VA Alternatives Team Consensus Review
- Identify mutually exclusive groups of alternatives
- Identify VA strategies
- Validate performance

PRESENT ALTERNATIVES* (10)
- Present findings
- Document feedback
- Confirm pending reviews
- Prepare preliminary report

**Interim presentation of study findings*

Segment 3

ASSESS ALTERNATIVES** (11)
- Review Preliminary Report
- Assess alternatives for project acceptance
- Prepare draft implementation dispositions

***Activities performed by PDT, Technical Reviewers, and Stakeholders*

RESOLVE ALTERNATIVES (12)
- Review implementation dispositions
- Resolve implementation actions with decision-makers and stakeholders
- Edit alternatives
- Revisit rejected alternatives, if needed

PRESENT RESULTS* (13)
- Present results
- Obtain management approval on implemented alternatives
- Summarize performance, cost, and value improvements

**Final presentation of study results*

REPORT

DOCUMENT STUDY (14)
- Document process and study findings
- Distribute Preliminary VA Report
- Distribute electronic report to HQ VA Branch
- Conduct Implementation Meeting

VA IMPLEMENTATION ACTION MEMO (15)
(If Conditionally Accepted Alternatives exist)
- Publish memo to document action plan to complete study
- Resolve Conditionally Accepted Alternatives

PUBLISH RESULTS (16)
- Document process and study results
- Incorporate all comments and implementation actions
- Distribute Final VA Report
- Distribute electronic report to HQ VA Branch
- Update VA Study Summary Report (VASSR)
- Provide HQ the Final VA Report in PDF format

*Note: The dashed boxes indicate steps that **may** not be required in some VA Studies.*

Day 1 – Monday, August 4, Caltrans Rocklin Office – 2520 Warren Drive, Suite A, Rocklin, CA

Kick-Off Meeting

8:00 VA Team Set-up
8:15 Introductions and VA Agenda Review (VA Team Leader)
8:45 Designer Presentation
11:00 Discussion of Key Project Risks, Stakeholder Issues and Concerns

Conclusion of Kick-Off Meeting

12:00 Lunch
1:00 Site Visit
3:30 Initial (or "Blink") Ideas
5:00 Adjourn

Day 2 – Tuesday, August 5, Caltrans Rocklin Office – 2520 Warren Drive, Suite A, Rocklin, CA

8:00 Function Analysis (FAST)
10:00 Initiate Brainstorming
12:00 Lunch
1:00 Continue Brainstorming
3:30 Start Idea Evaluation (P/F)
5:00 Adjourn

Day 3 – Wednesday, August 6, Caltrans Rocklin Office – 2520 Warren Drive, Suite A, Rocklin, CA

8:00 Identify Top 10 Project Risks
9:00 Evaluate and Rank VE Ideas
12:00 Lunch
1:00 Value Analysis Team Leader presents Ideas to PCTPA/Caltrans Project Manager
2:00 Final Ranking of Ideas
2:30 Initiate Alternative/Report Preparation
5:00 Adjourn

Day 4 – Thursday, August 7, Caltrans Rocklin Office – 2520 Warren Drive, Suite A, Rocklin, CA

8:00 Continue Alternative/Report Preparation
12:00 Lunch
1:00 Start Quality Review of Draft Alternatives
4:00 Start Power Point Presentation
5:00 Adjourn

Day 5 – Friday, August 8, Caltrans Rocklin Office – 2520 Warren Drive, Suite A, Rocklin, CA

8:00 Complete Power Point Presentation
10:00 Dry Run Presentation
12:00 Lunch
1:00 Continue Dry Run Presentation
2:00 ***Presentation of VA Alternatives Meeting*** **(Presentation of VA Study Results to Management and Stakeholders including PCTPA and Caltrans)**
4:00 Adjourn The VA Study

VA STUDY MEETING ATTENDEES

VA Team Members

Pre-Study	Day 1	Day 2	Day 3	Day 4	Day 5	Imp Mtg	Name	Position/Role	Organization	Telephone	E-mail
X	X	X	X	X	X	X	Don Ulrich	VA Leader	CH2M HILL	303-771-0952	don.ulrich@ch2m.com
	X	X	X	X	X		Cesar Tiscareno	VA Assistant	CH2M HILL	213-228-8244	cesar.tiscareno@gmail.com
	X	X	X	X	X		John O'Reilly	Estimating	CH2M HILL	916-718-8916	joreilly@ch2m.com
	X	X	X	X	X		Chris Angleman	Interchange Planning	CH2M HILL	480-363-2818	aangleman@ch2m.com
	X	X	X	X	X		Zeke Lynch	Traffic Planning/Ops	CH2M HILL	303-478-0962	zeke.lynch@ch2m.com
	X	X	X	X	X		Nina Buelna	Roadway	City of Roseville	916-746-1375	nbuelna@roseville.ca.us
	X	X	X	X	X	X	Matt Randall	Structures/Bridge	Placer County	530-745-3564	mrandall@placer.ca.gov
	X	X	X	X	X	X	Carl Berexa	Construction	Caltrans	916-624-2796	carl_berexa@dot.ca.gov

Agency/Consultant Team

Pre-Study	Day 1	Day 2	Day 3	Day 4	Day 5	Imp Mtg	Name	Position/Role	Organization	Telephone	E-mail
X	X		X		X	X	Chris Benson	Project Manager	CH2M HILL	916-286-0280	chris.benson@ch2m.com
	X						Lauren Proctor	Roadway Engineer	CH2M HILL	916-286-0332	lauren.proctor@ch2m.com
X						X	Leo Heuston		CH2M HILL	916-920-0300	Leo.heuston@ch2m.com
X	X		X		X	X	Samuel Jordan	Senior T.E.	Caltrans	916-396-9494	samuel.jordan@dot.ca.gov
X	X		X		X	X	Luke McNeel-Caird	Senior Engineer/Planning	Placer County Transportation Planning Agency	530-823-4033	luke_mcneel@yahoo.com
X						X	Kevin Espinoza	Eng. Serv.	Caltrans	530-741-5499	kevin.espinoza@dot.ca.gov
X							Troy Tusup	HQ VA	Caltrans	916-653-3538	ttusp@dot.ca.gov
	X						Glen Wheeler	Bridge	Caltrans	916-539-7432	glen.wheeler@dot.ca.gov
	X						Dennis Jagoda	Drainage/Hydraulics	Caltrans	530-744-4517	dennis.jagoda@dot.ca.gov

Pre-Study	Day 1	Day 2	Day 3	Day 4	Day 5	Imp Mtg	Name	Position/Role	Organization	Telephone	E-mail
							Dan Ferchaud	Pavement/Geotechnical	Caltrans		
	X						Nina Roscow	Environmental	Caltrans		
							Steve Mattos	Right-of-Way	Caltrans		
							Dave Catania	Const/Maintenance	Caltrans		
	X						Eric Worrell	Major Project Coordinator	FHWA	916-498-5890	Eric.worrell@dot.ca.gov
	X						T. Merriti Mary	Structures Engineer	Caltrans	530-701-7715	tyrel.mary@dot.ca.gov
						X	Scott Gandler	Senior Civil Engineer	City of Roseville	619-774-5439	sgandler@roseville.ca.us
						X	Jim Calkins	Traffic Operations	Caltrans		jim_calkins@dot.ca.gov
						X	Christine Zdunkiewicz	Traffic Operations	Caltrans	916-859-7949	christine_zdunkiewicz@doc.ca.gov
						X	William Mack	Project Development Design	Caltrans	530-741-4292	william_mack@dot.ca.gov

Appendix A
VA Study Attachments

APPENDIX A. VA STUDY ATTACHMENTS FINAL

The following items are included in this appendix:

- Pre-VA Study Coordination Meeting Minutes (April 23, 2013)
- Draft VA Study Agenda (July 24, 2014)
- VA Briefing Presentation (July 24, 2014)
- Structure Advance Planning Studies (July 24, 2014)
- Traffic Analysis Report (May 6, 2014)
- PSR Risk Register (May 19, 2009)
- VA Implementation Meeting Presentation (October 15, 2014)
- VA Implementation Meeting Summary (October 15, 2014)
- VA Alternative S-2 Weaving Analysis (October 27, 2014)

I-80/SR 65 Interchange Modification PA&ED Subject: Pre-Value Analysis (VA) Study Coordination Meeting

Location: CH2M HILL Office
2485 Natomas Park Drive, Suite 600, Sacramento, CA 95833

Time: **Tuesday, April 23, 2013**
1:00 to 3:00 pm

Planning for the Value Analysis Study

1. **Introductions**
2. **Review of the planned VA Study Agenda**
    a. The project purpose and need was discussed. General goals and objectives of the project purpose and need are:
        i. Reduce congestion
        ii. Improve traffic operations and enhance safety
        iii. Maintain community access
        iv. Consider all travel modes and users
        v. Other items discussed related to the purpose and need include:
            1. Operational improvements
            2. Improve local access
            3. Alternative modes of travel related to local streets
            4. Roadway maintenance
            5. Local roadway with access to Taylor Road, sidewalk, bike lanes, and space for transit
            6. HOV system is a component of the project
    b. Project overview by Leo Heuston.
        i. Three alternatives adding capacity, improving IC's in the Roseville and Rocklin area along I-80 from Eureka Rd to Rocklin Rd and on SR 65 from I-80/SR 65 IC area to south of Pleasant Grove Blvd. Going with higher speed designs on system IC ramps. Existing IC's with substandard spacing issues. IC spacing situation improved to bring closer to current standards. Project to maintain local circulation and access to the transportation system. Regarding local access ramps, yes it is for community. Looking at a combination of system and local ramps, providing access to Taylor Road. Interstate travel will maintain capacity. HOV system for commuter traffic. Businesses include, Water Park, hotels, restaurants, park & ride lot, residential, storage facility, auto business. Three build alternatives, a TSM alternative and the No build alternative. Further discussion of geometry within the 3 alternatives.

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ii. Project adds:
    1. Mainline capacity to both I-80 and SR 65
    2. HOV lanes north on SR 65
    3. HOV direct connection from I-80 to SR 65
    4. High capacity system ramp connections for the I-80/SR 65 IC
    5. Removes the existing Taylor Road IC
    6. three build alternatives that differ with the way the Taylor Road IC is replaced:
        a. Alternative 1 – adds 4 local ramp connections between I-80 and Taylor Road within the I-80/SR 65 IC, in a tight diamond configuration
        b. Alternative 2 - adds 4 local ramp connections between I-80 and Taylor Road within the I-80/SR 65 IC, in a trumpet configuration
        c. Alternative 3 – does not replace the Taylor Road IC. The Galleria/SR 65, Eureka/I-80 and Rocklin Rd/I-80 interchanges will function as replacement access for Taylor Road

c. Originally there were 20 concepts that have been refined to 3. Don't bring up an old alternative that has been reviewed. It is OK to suggest a modification or a different alternative if it solves the functional requirements and hasn't been addressed before.

3. Confirm Focus of Study, Expected Outcomes, Goals from VA Study, Deliverables

a. Expected Outcomes:
    i. Typically cost savings without compromise to functional integrity.
    ii. Endorsement of a design concept using a Decision Analysis/rating system.
    iii. Overall estimate is $330 million. Phasing will be required. Now determining the scope of phase I on the order of $30 million, a combination of local, state, federal funding. Overall project is not yet funded. Funding already identified for Phase 1 design.

b. Goals from VA Study:
    i. Cost saving opportunities within each alternative.
    ii. Development of a 4th build alternative if it presents itself.
    iii. Refinement of alternatives to better meet purpose and need.

c. Deliverables:
    i. Draft VA Report within 2-3 weeks.
    ii. Preliminary VA Report with implementation action forms (acceptance/non-acceptance forms or notes on conditional items).
    iii. Final VA Report (3 hard copies & electronic copy to Caltrans; electronic copies to agencies): Four weeks depending on proposal dispositions.

4. Performance Measures to be used in the VA Study

a. Caltrans' Typical Performance Measures include the following. Discuss/revise for the I-80/SR 65 Project.
    i. Mainline Operations
        1. High Speed Ramp Operations
    ii. Local Operations
        1. Local Access is a key point, differentiating alternatives
    iii. Maintainability
    iv. Environmental Impacts
    v. Construction Impacts
    vi. Phasing Capability

5. Confirm Dates of the VA Study: Preferred: Week of July 15, Second choice July 22

6. Confirm Location of the VA Study: CH2M HILL Sacramento office

7. Confirm VA Study Roles and Participants, Times of Attendance

a. VA Team Leader/Facilitator – Paul Johnson, CVS, CH2M HILL; Office: (208) 383-6299; cell: (208) 890-8203; paul.johnson@ch2m.com
b. Decision Analysis/ Assistant Team Leader: Dan Speicher; CH2M HILL
c. Roadway Design: Keith Mack/Caltrans (confirmed)
d. Bridge Engineer (Structure Design): CH2M HILL – Mike Cooper/RDD
e. Geotechnical: TBD: part time on call: CH2M HILL
f. Interchange Planning/Geometry first team member: CH2M HILL
g. Traffic Planning/Ops: CH2M HILL – Loren Bloomberg
h. Drainage/Hydraulics: Caltrans person TBD by Naghi: part time on call
i. Pavement/Materials Engineer: Caltrans – Dan Ferchaud: part time on call; could be same as geotech
j. Construction (Structures): Caltrans
k. Construction (Roadway): Caltrans
l. Environmental: Debbie Loh/ICF or CH2M HILL or Ken Lastufka - Caltrans; part time, but part of information phase and creative phase only
m. Cost Estimating: CH2M HILL – Rick Hults; or John O'Reilly
n. Right-of-Way: part time on call Jean-Marie Hunter/Caltrans
o. FHWA Technical Resource: TBD – verify team member; Naghi will check with Jeff Holm

Totals: 9 full time; 1 part time first half of week; verify FHWA; 4 part-time on call staff

8. Discuss all materials needed and who will assemble and any further preparations necessary prior to the study. Possibly including:

a. Project Scope Review
b. NEPA and Design Documents
c. Project Delivery Method Review (if applicable)
d. Design Information
e. Cost Estimate
f. Project Schedule Review

g. Draft Traffic Report, and Traffic Model to illustrate during the presentation
h. Risk Registry Discussion
i. Criteria that had been used in short-listing from 20 concepts to current 3 build alternatives, including summary of previous concepts.
j. Advance planning studies

9. Determine how and when the appropriate subset of design information will be distributed to the VA team members in advance of the study: Mid June on SP site. Communicate this in the agenda; make sure Caltrans and agencies can access.

10. Other topics:

Attending In Person:	**Attending Via Telephone:**
Paul Johnson, CH2M HILL	
Naghi Ghafari, CT	Dave Stanek, F&P
Leo Heuston, CH2M HILL	
Luke McNeel-Caird, PCTPA	Heidi Sykes/CT
Sam Jordan, CT	Claire Bromund, ICF
Chris Benson, CH2M HILL	Jean-Marie Hunter, CT
Keith Mack, CT	
Eric Fredrickson, CT	
Mark Brady, CH2M HILL	

I-80/SR 65 Interchange Improvements PA&ED

Subject: Value Analysis

Location: **Caltrans Rocklin Field Office**
2520 Warren Drive, Suite A
Rocklin, CA

Time: **Monday, August 4, 2014 to Friday, August 8, 2014**

Day	Time	Phase or Work Element
Monday, August 4, 2014	8:00 – 8:45 a.m.	General orientation
(Information Phase) (Include PCTPA/Caltrans PMs)	8:45 – 11:00 a.m.	Designer Presentation
	11:00 – 12:00 p.m.	Discussion of key project risks
	12:00 – 1:00 p.m.	Lunch
	1:00 – 3:30 p.m.	Field Trip
	3:30 – 5:00 p.m.	Initial (or "Blink") ideas
Tuesday, August 5, 2014	8:00 – 10:00 a.m.	Function Analysis (FAST)
(Creative and Analytical Phases)	10:00 – 12:00 p.m.	Initiate Brainstorming
	12:00 – 1:00 p.m.	Lunch
	1:00 – 3:30 p.m.	Continue Brainstorming
	3:30 – 5:00 p.m.	Start Idea Evaluation (P/F)
Wednesday, August 6, 2014	8:00 – 9:00 a.m.	Identify Top 10 project risks
(Analytical/Evaluation Phases)	9:00 – 12:00 p.m.	Evaluate and Rank VE Ideas
	12:00 – 1:00 p.m.	Lunch
	1:00 – 2:00 p.m.	VATL presents Ideas to PCTPA/Caltrans PM
	2:00 – 2:30 p.m.	Final Ranking of Ideas
	2:30 – 5:00 p.m.	Initiate proposal/report preparation
Thursday, August 7, 2014	8:00 – 12:00 p.m.	Continue proposal/Report preparation
(Evaluation Phase)	12:00 – 1:00 p.m.	Lunch
	1:00 – 4:00 p.m.	Start Quality review of draft proposals
	4:00 – 5:00 p.m.	Start PowerPoint Presentation
Friday, August 9, 2014	8:00 – 10:00 a.m.	Complete PowerPoint Presentation
	10:00 – 12:00 p.m.	Dry Run Presentation
	12:00 – 1:00 p.m.	Lunch
	1:00 – 2:00 p.m.	Continue Dry Run Presentation
	2:00 – 4:00 p.m.	VA Presentation (Incl. PCTPA/Caltrans PMs)

Note: Agenda assumes two 15 minute breaks per day, generally at 10:00 a.m. and 3:00 p.m.

VA Team Presentation

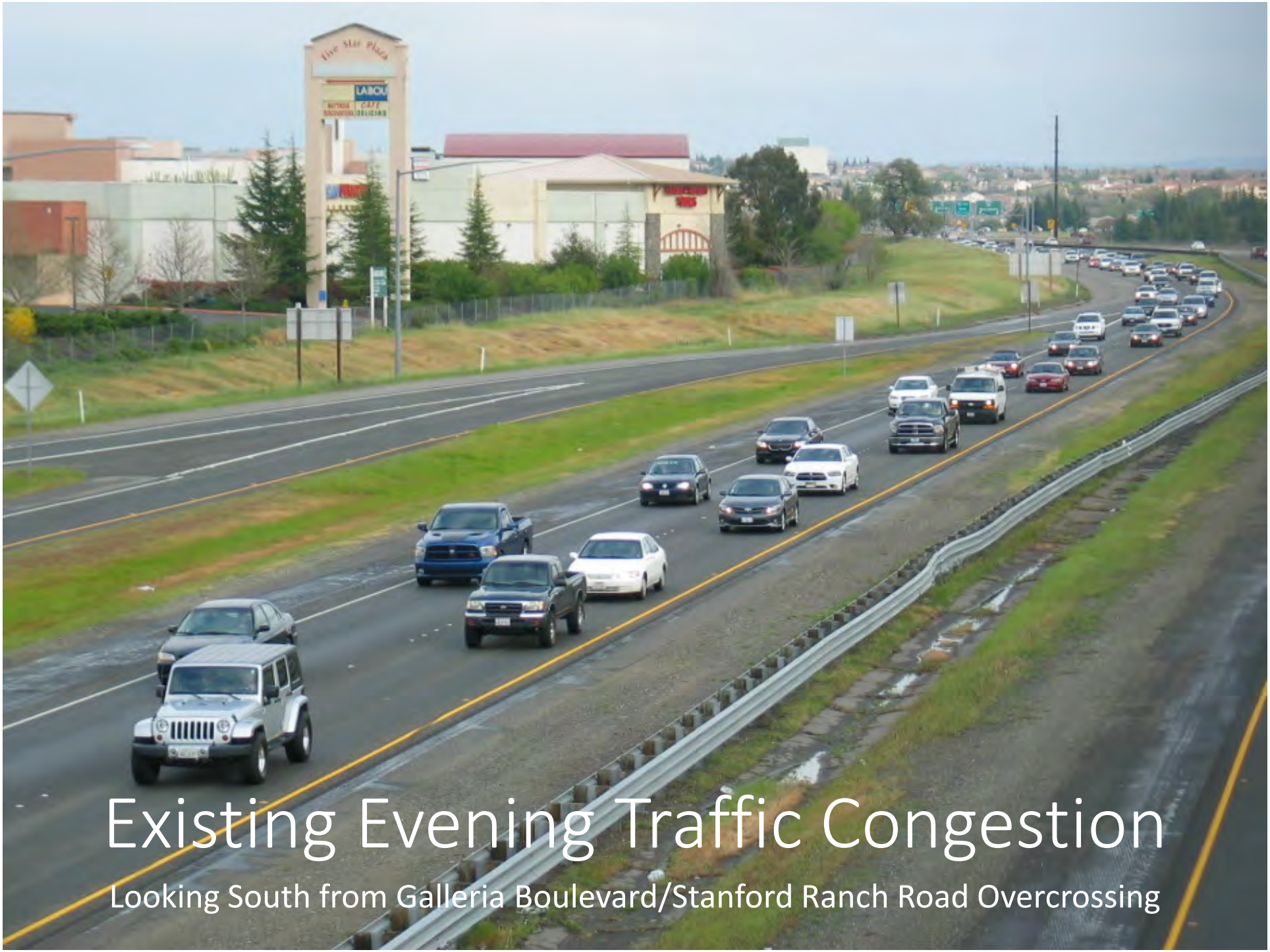
I-80 / SR 65 INTERCHANGE IMPROVEMENTS

Preliminary Findings

August 8, 2014

Existing Morning Traffic Congestion

Looking North from Pleasant Grove Boulevard Overcrossing



Existing Evening Traffic Congestion

Looking South from Galleria Boulevard/Stanford Ranch Road Overcrossing

Existing Evening Traffic Congestion

Looking East on I-80 from Roseville Parkway Overcrossing

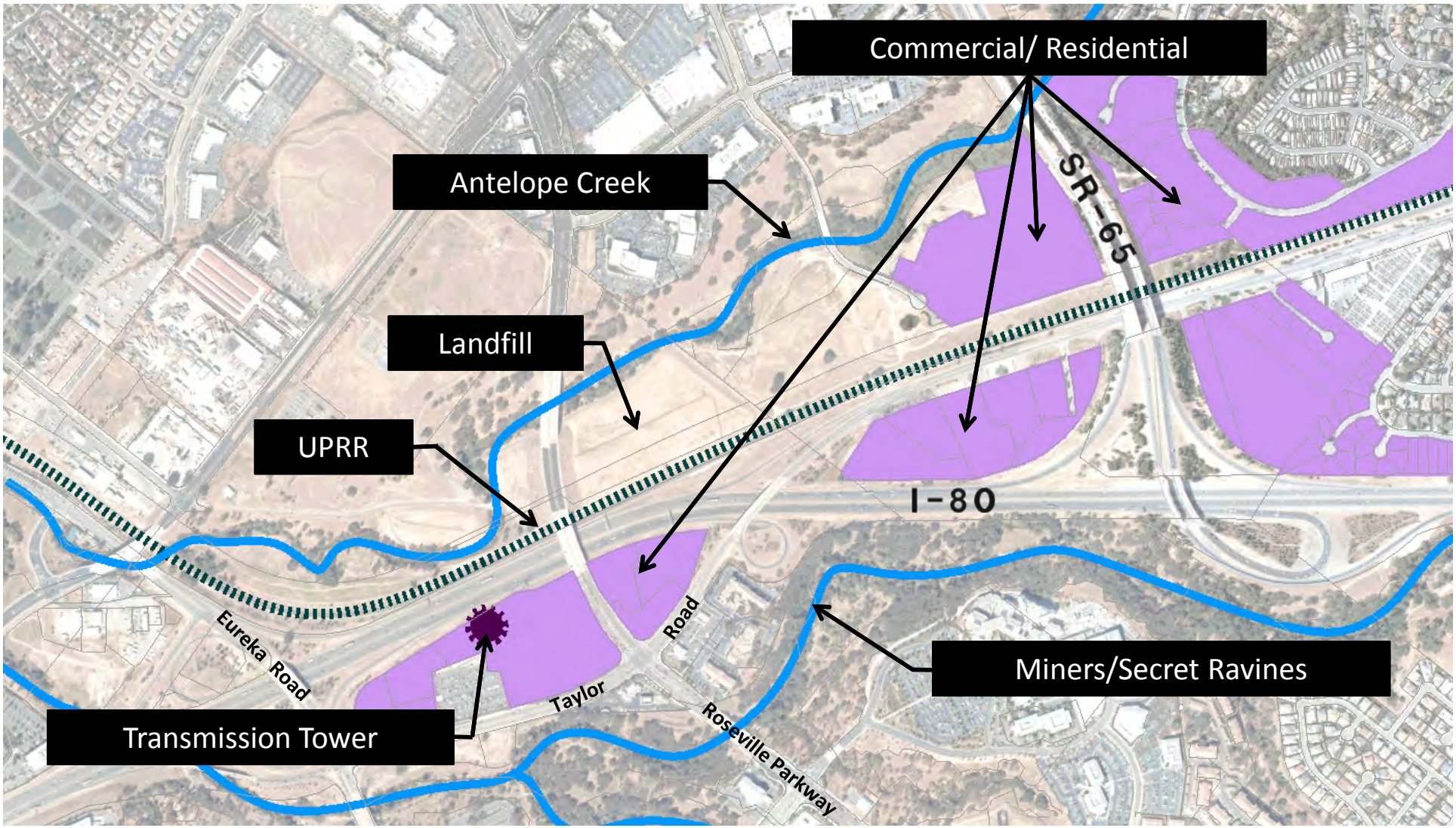
I-80 / SR 65 Interchange Improvements

Project Goals and Objectives

- Reduce congestion
- Improve traffic operations and enhance safety
- Maintain and/or enhance community access
- Consider all travel modes and users

I-80 / SR 65 Interchange Improvements

Adjacent Site Conditions/Constraints



VA Mission

- **Expected Outcomes**
  - Cost savings without compromise to functional integrity.
  - Endorsement of a design concept using a Decision Analysis/rating system.
  - Overall and phased project funding summary (new).

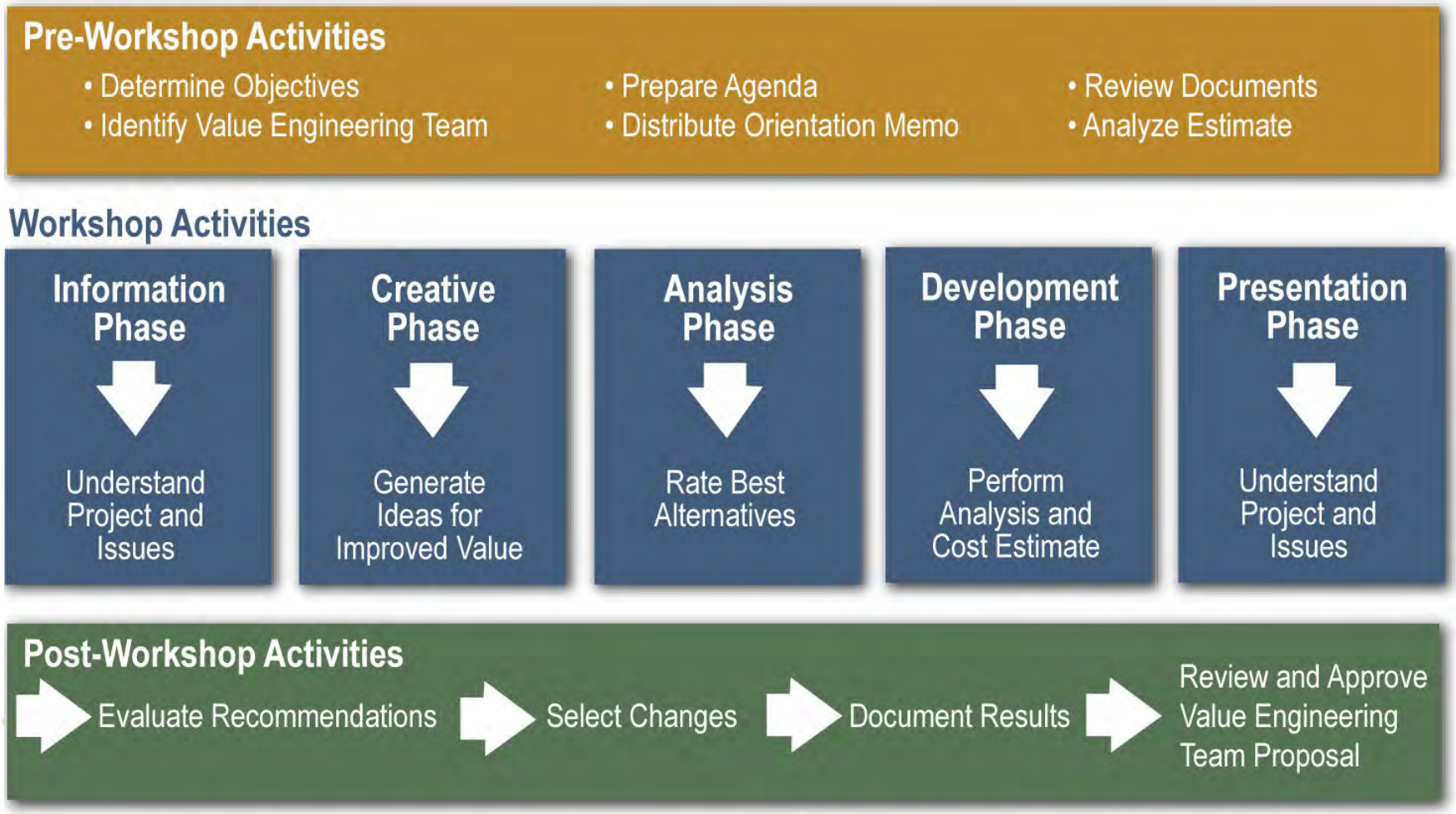
- **Goals from VA Study**
  - Cost saving opportunities within each alternative.
  - Develop recommendations that provide safe facilities for users and workers (new).
  - Refinement of alternatives to better meet purpose and need.

VA Team

- VA Team Leader – Don Ulrich/CH2M HILL
- VA Team Assistant – Cesar Tiscareno/CH2M HILL
- Geometrician – Chris Angleman/CH2M HILL
- Traffic Planning/Ops – Zeke Lynch/CH2M HILL
- Roadway Engineer – Nina Bueina/Roseville
- Bridge Engineer – Matt Randall/Placer Co.
- Construction – Carl Berexa/Caltrans
- Cost Estimating – John O'Reilly/CH2M HILL

I-80 / SR 65 Interchange Improvements

VA Process



Cost Estimate Overview/Differences

Alternative 1 – Taylor Road Full Access Interchange

- **$348.3M (2014)** – Relatively high roadway, low structures, low R/W

Alternative 2 – Collector-Distributor (C-D) System Ramps

- **$351.0M (2014)** – Relatively low roadway, high structures, high R/W

Alternative 3 – Taylor Road Interchange Eliminated

- **$342.0M (2014)** – Relatively low roadway, medium structures, high R/W

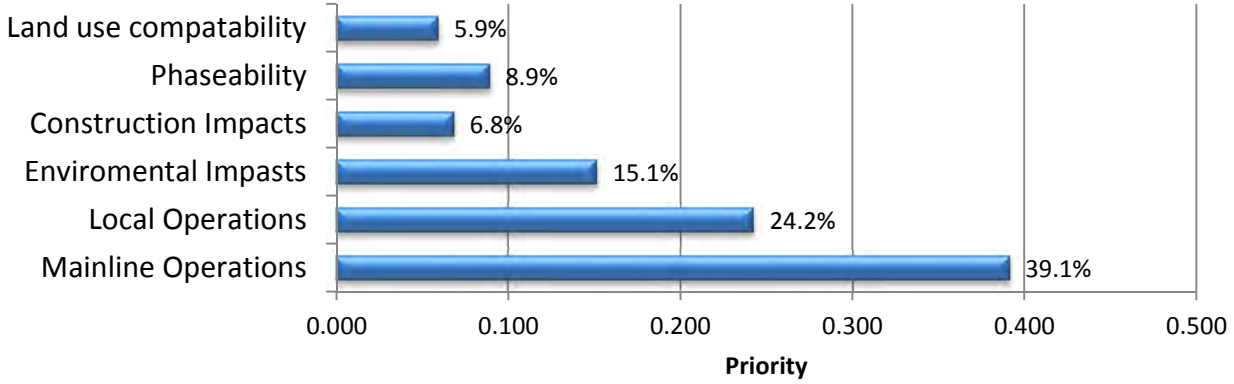
I-80 / SR 65 Interchange Improvements

Performance Attributes	Mainline Operations	Local Operations	Enviromental Impasts	Construction Impacts	Phaseability	Land use compatability	PRIORITIES
Mainline Operations	1	5.00	5	7	5	2	**0.391**
Local Operations	0.2	1	5	7	5	3	**0.242**
Enviromental Impasts	0.2	0.2	1	5	3	6	**0.151**
Construction Impacts	0.1429	0.1429	0.2	1	0.5	5	**0.068**
Phaseability	0.2	0.2	0.3333	2	1	5	**0.089**
Land use compatability	0.5	0.3333	0.1667	0.2	0.2	1	**0.059**
SUB-TOTALS	2.24	6.88	11.70	22.20	14.70	22.00	**1.00**

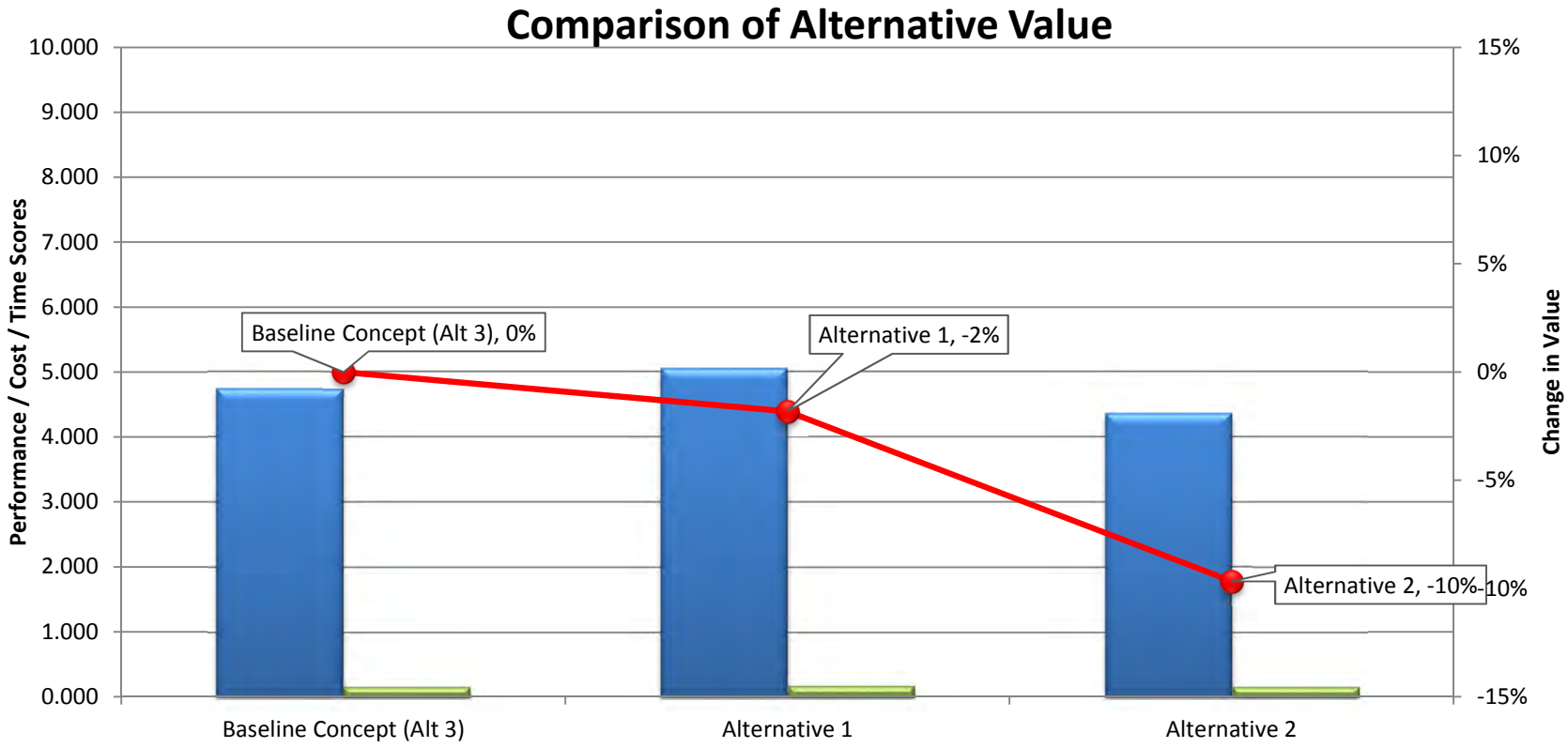
I-80 / SR 65 Interchange Improvements

Priorities

Relative Importance of Performance Attributes



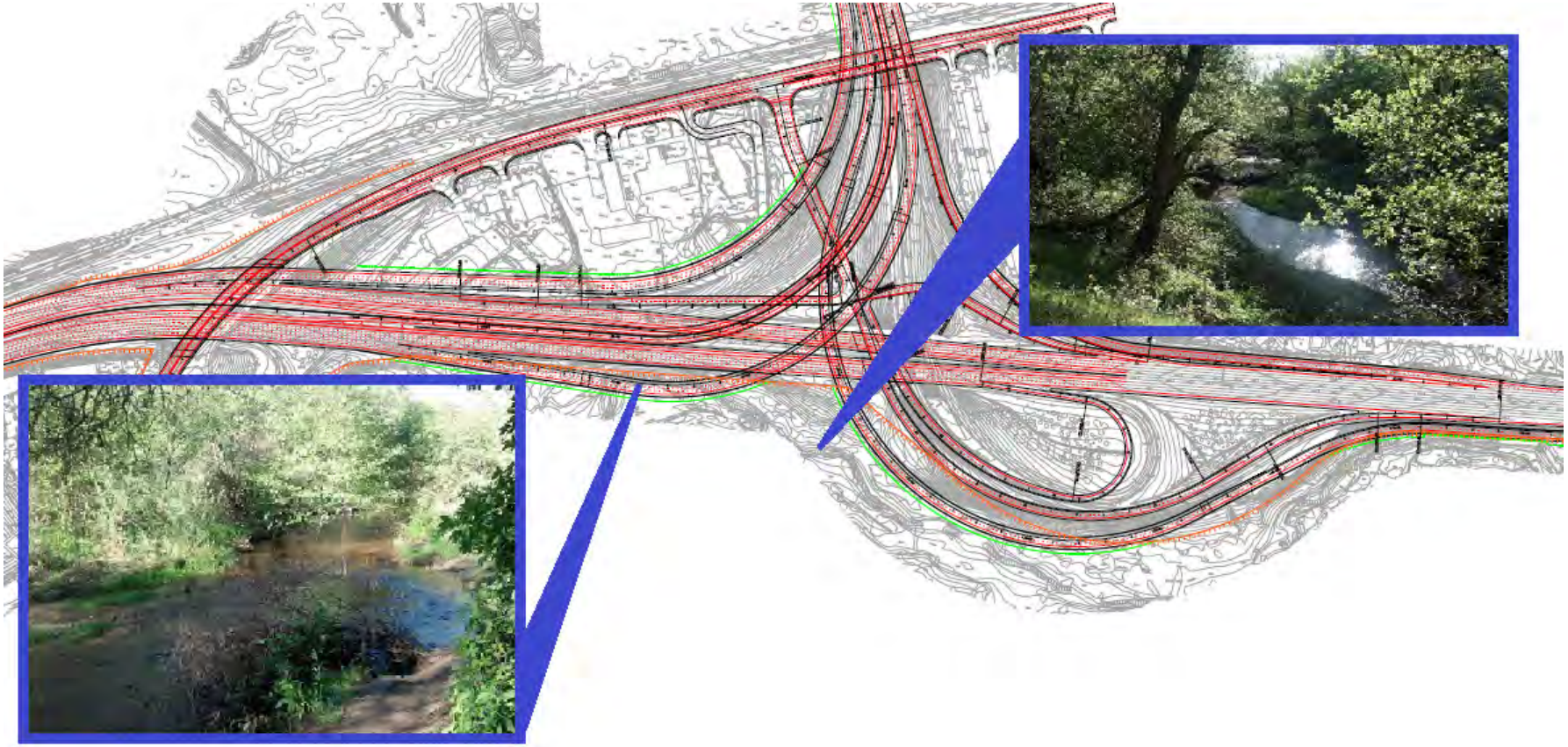
Summary


Comparison of Alternative Value
Performance / Cost / Time Scores
Change in Value
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
15%
10%
5%
0%
-5%
-10%
-15%
Baseline Concept (Alt 3), 0%
Alternative 1, -2%
Alternative 2, -10%
Baseline Concept (Alt 3)
Alternative 1
Alternative 2

VA Component Proposals

I-80 / SR 65 Interchange Improvements

R-1: Realign Secret Ravine, Eliminate CD4 Structure

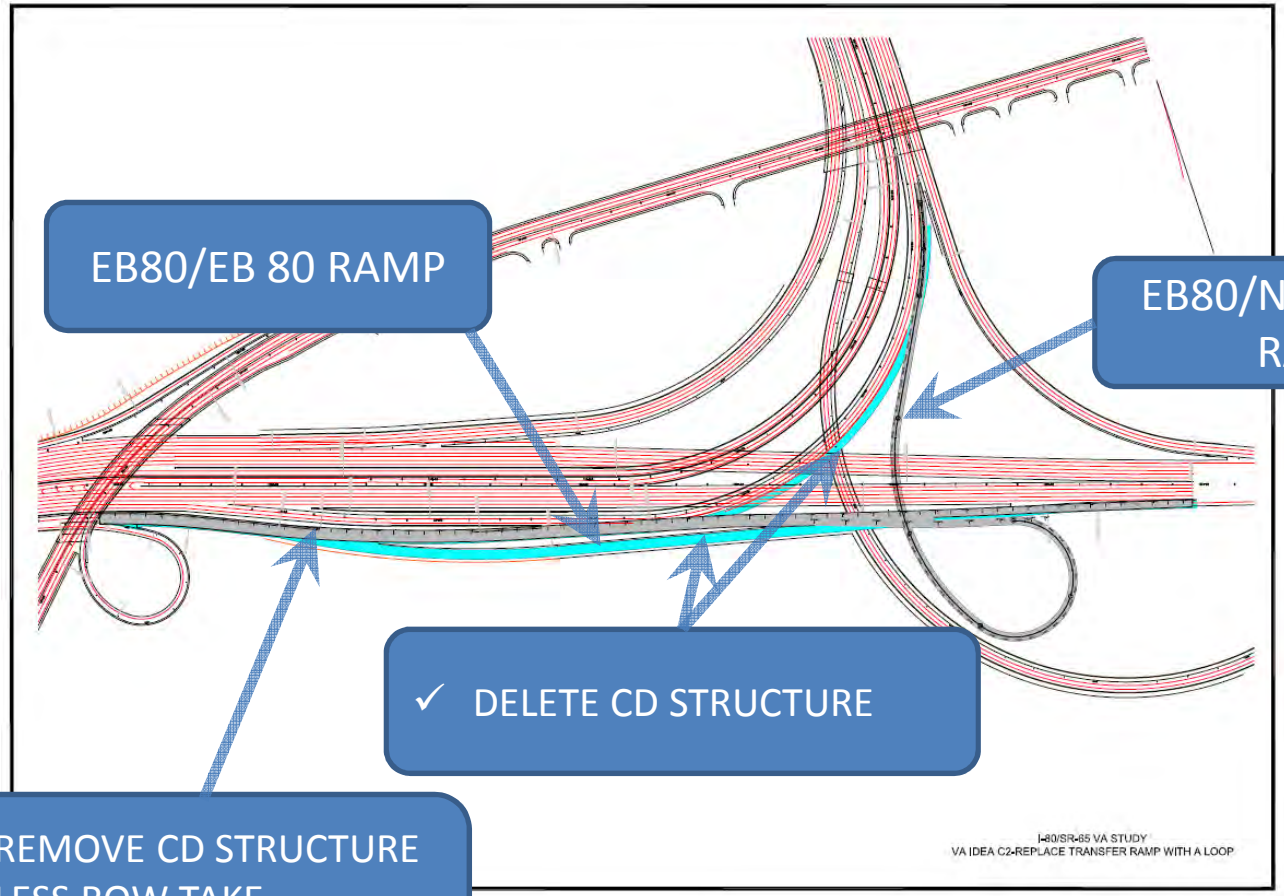


R-1: Realign Secret Ravine, Eliminate CD4 Structure

- Advantages:
  - Reduction in structure number and length
  - Reduction in maintenance and construction costs
- Disadvantages:
  - Requires regulatory agency approval
  - Likely formal consultation with ACOE required
  - Permanent loss of habitat

I-80 / SR 65 Interchange Improvements

R-2: Replace Transfer Ramp with Loop



✓ REMOVE CD STRUCTURE
✓ LESS ROW TAKE
✓ BUILT AT GRADE

R-2: Replace Transfer Ramp with Loop

Advantages:

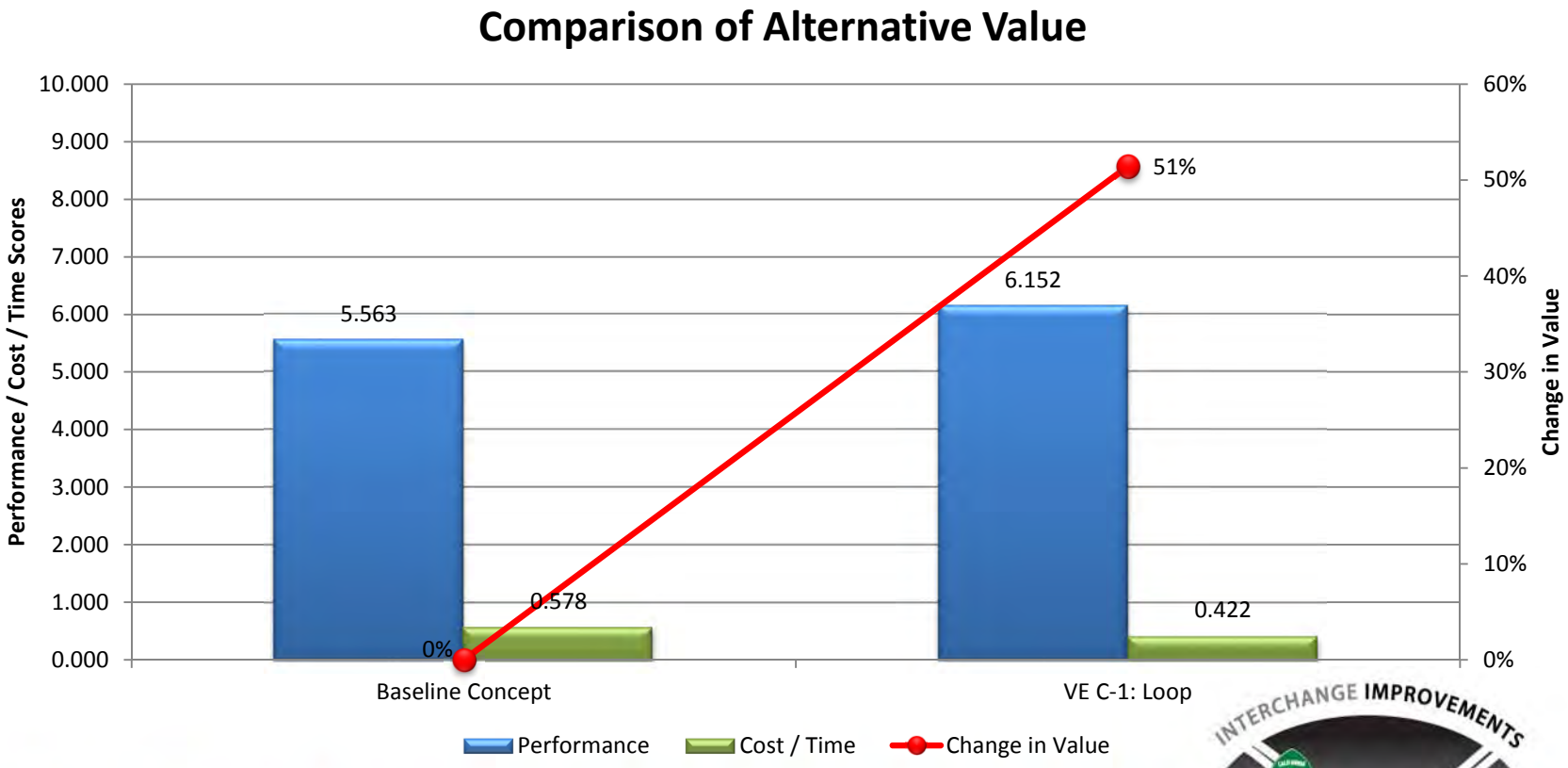
- Smaller footprint
- Eliminates structures
- Less environmental impacts
- Reduces construction schedule
- Cost effective, save $12.5 million

Disadvantages:

- Slower design speed
- Longer travel distance to northbound SR 65

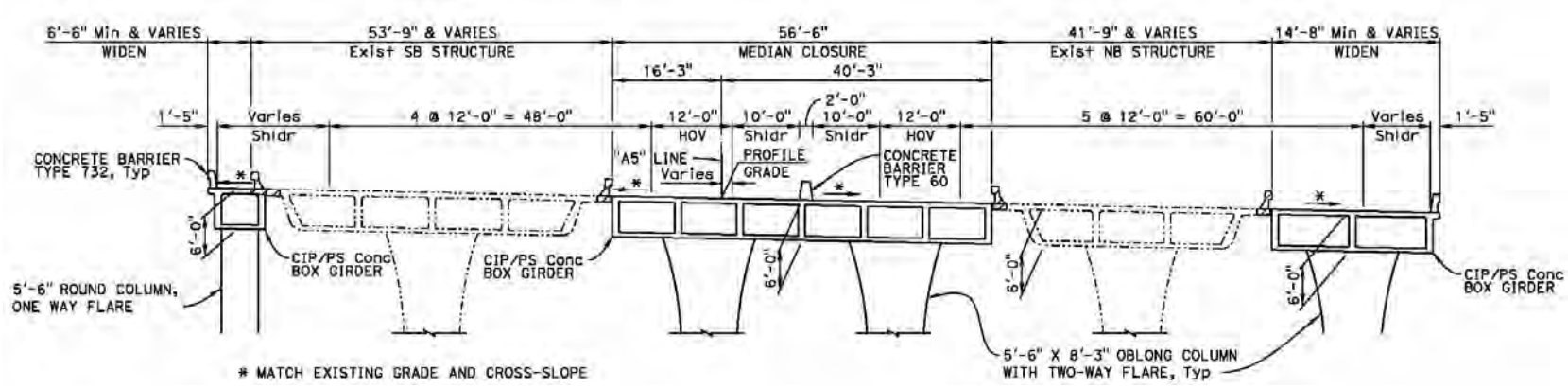
I-80 / SR 65 Interchange Improvements

R-2: Replace Transfer Ramp with Loop



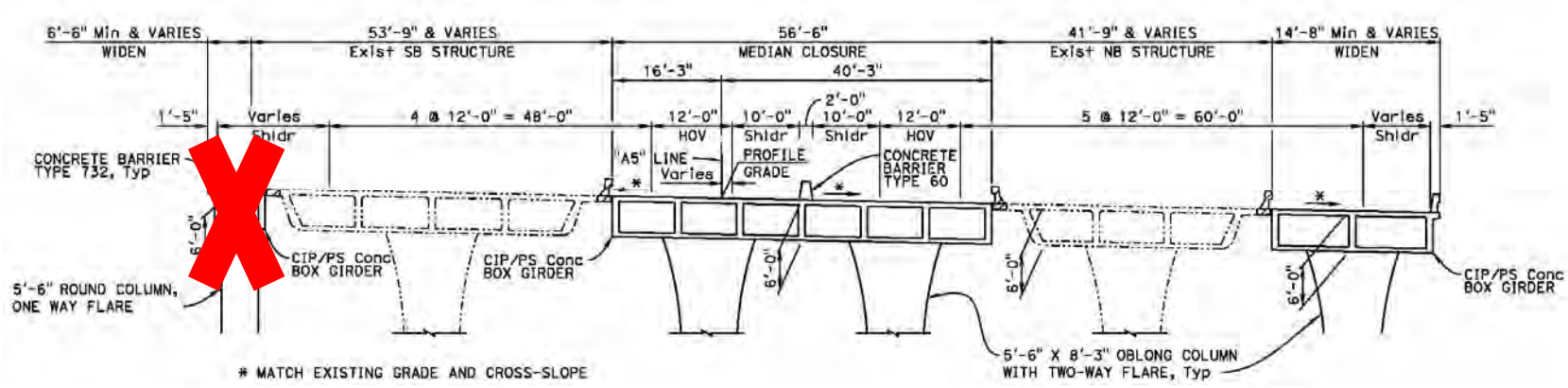
S-1 VA Alternative – Narrow Viaduct

Baseline Concept



I-80 / SR 65 Interchange Improvements

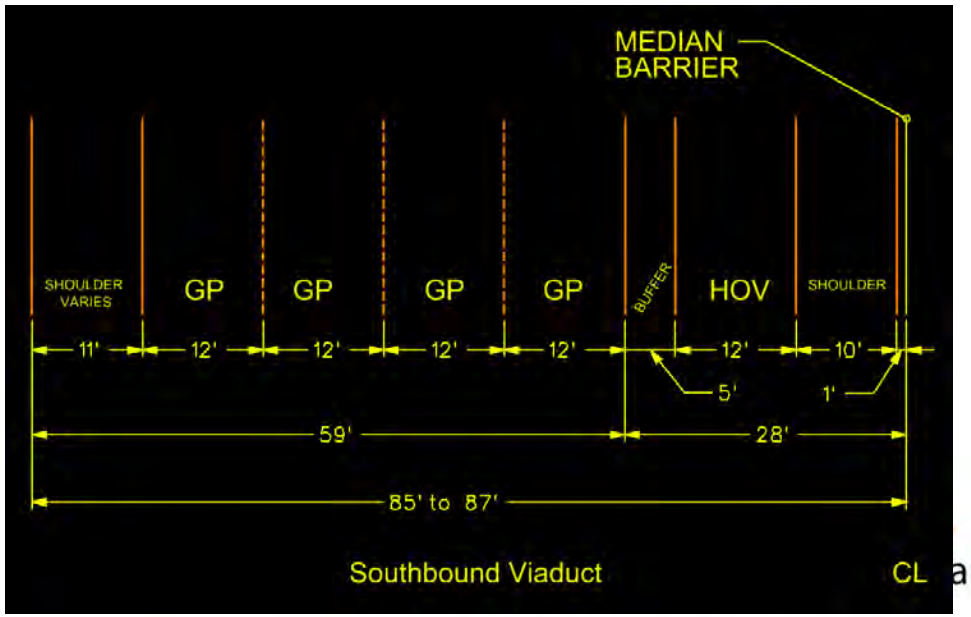
S-1 VA Alternative – Narrow Viaduct

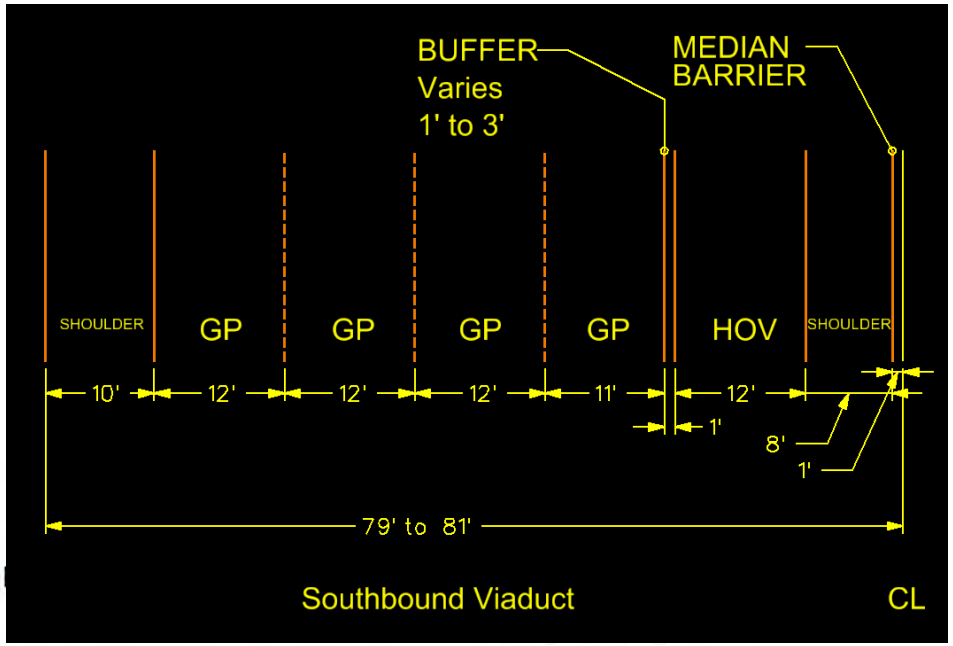


I-80 / SR 65 Interchange Improvements

Alternative Comparison

- Reduces one GP from 12’ to 11’
- Reduces HOV shoulder from 10’ to 8’
- Reduces HOV buffer from 5’ to between 1’ and 3’





I-80 / SR 65 Interchange Improvements

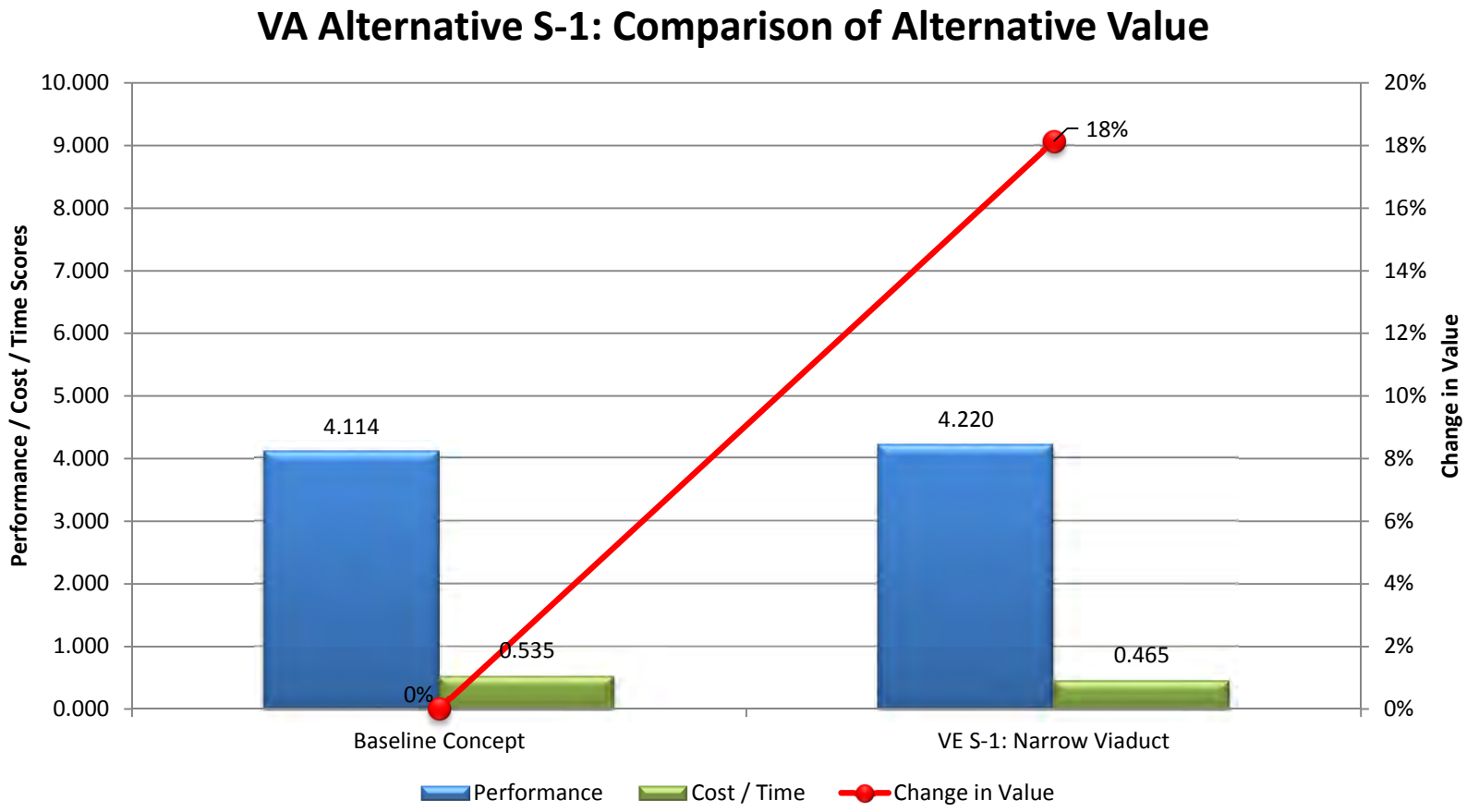
Advantages:

- Reduces project cost by $1.9M
- Eliminates the widening on the south side of the viaduct
- Does not require changing the mainline centerline
- Maintains the desired barrier separated northbound HOV lane between I-80 and the Galleria interchange

Disadvantages:

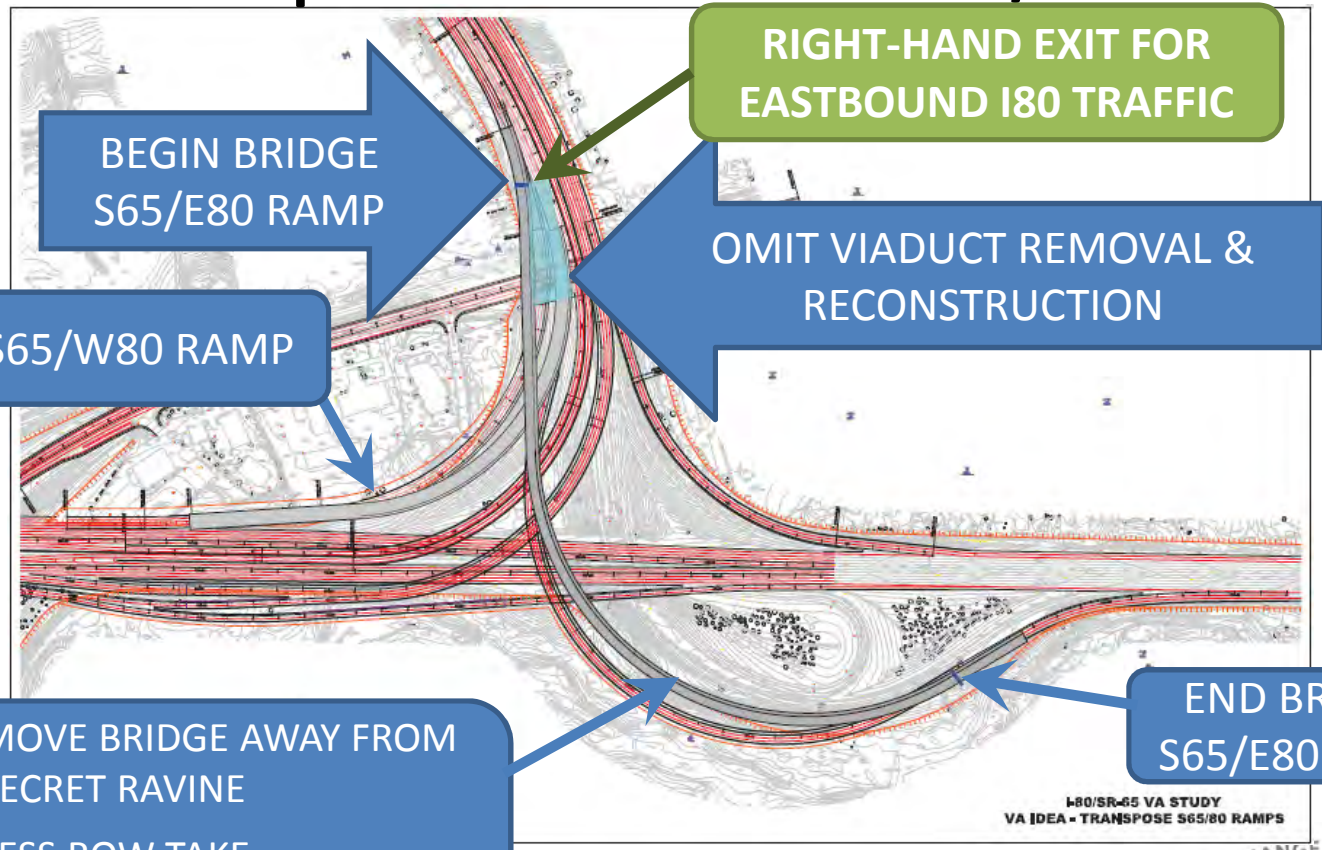
- Requires design exceptions

I-80 / SR 65 Interchange Improvements



I-80 / SR 65 Interchange Improvements

S-2: Transpose South SR65/I-80 Ramps



- ✓ MOVE BRIDGE AWAY FROM SECRET RAVINE
- ✓ LESS ROW TAKE
- ✓ LOWER PROFILE GRADE

S-2: Transpose South SR65/I-80 Ramps

Advantages:

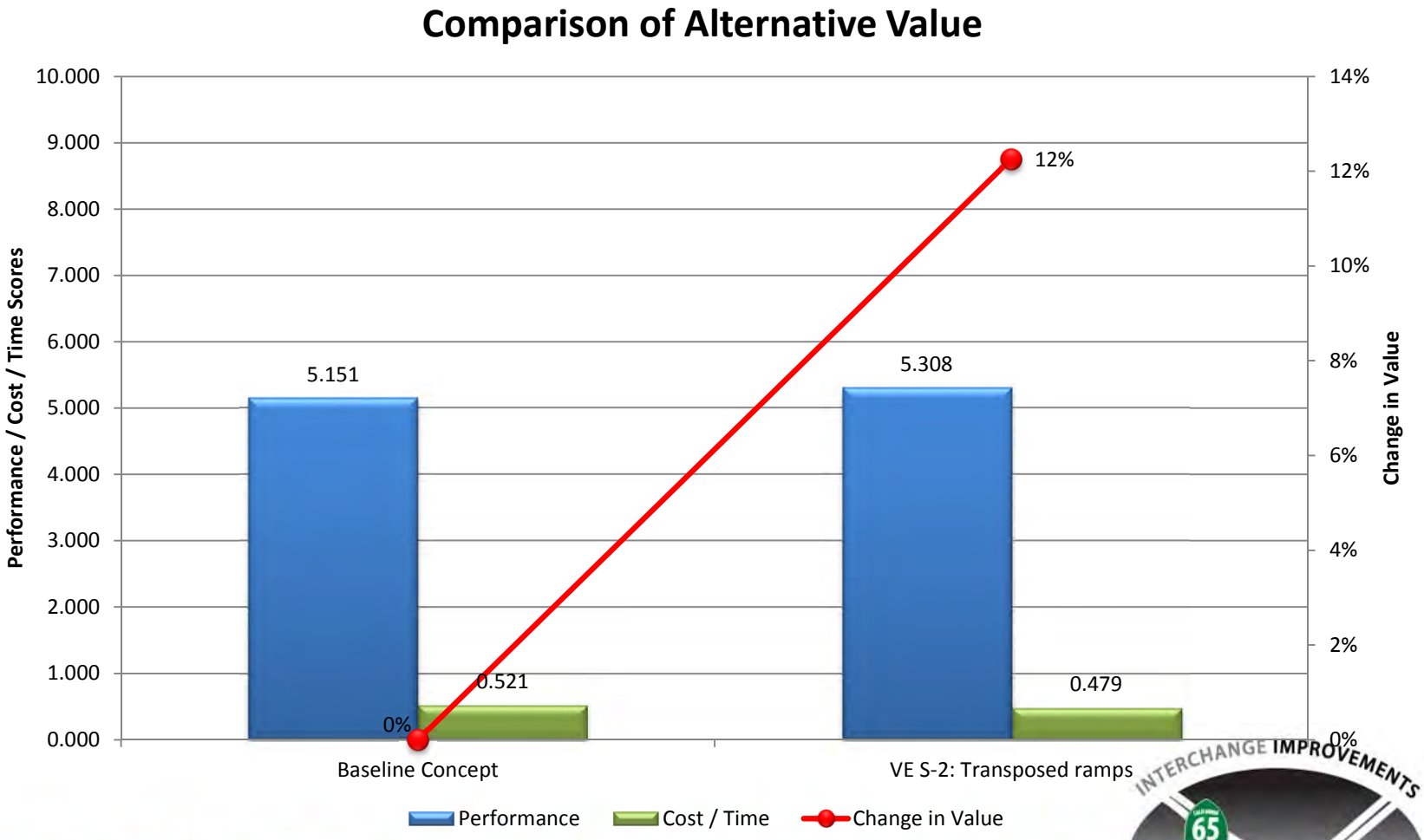
- Traffic volumes more closely match ramp movements
- Geometric benefits on eastbound I-80 ramp structure
- Reduces environmental footprint compared to proposed design
- Constructability advantages: removal and reconstruction of the East Roseville Viaduct is not required
- More modest climbing grades / lower overall profile grade.
- Greater phasing flexibility
- Reduces the amount of right-of-way take

Disadvantages:

- The transposed exits do not meet driver expectation (Left to go left and right to go right).
- Longer connector structure necessary

I-80 / SR 65 Interchange Improvements

S-2: Transpose South SR65/I-80 Ramps



Value Strategy Proposals

VS 1: Baseline + S-1 + R-2

- Advantages
  - Adds value at +12.4 percent
  - Less environmental and construction impacts
  - Faster construction
- Disadvantages
  - Less local access

VS-2: Alt-1 + S-1

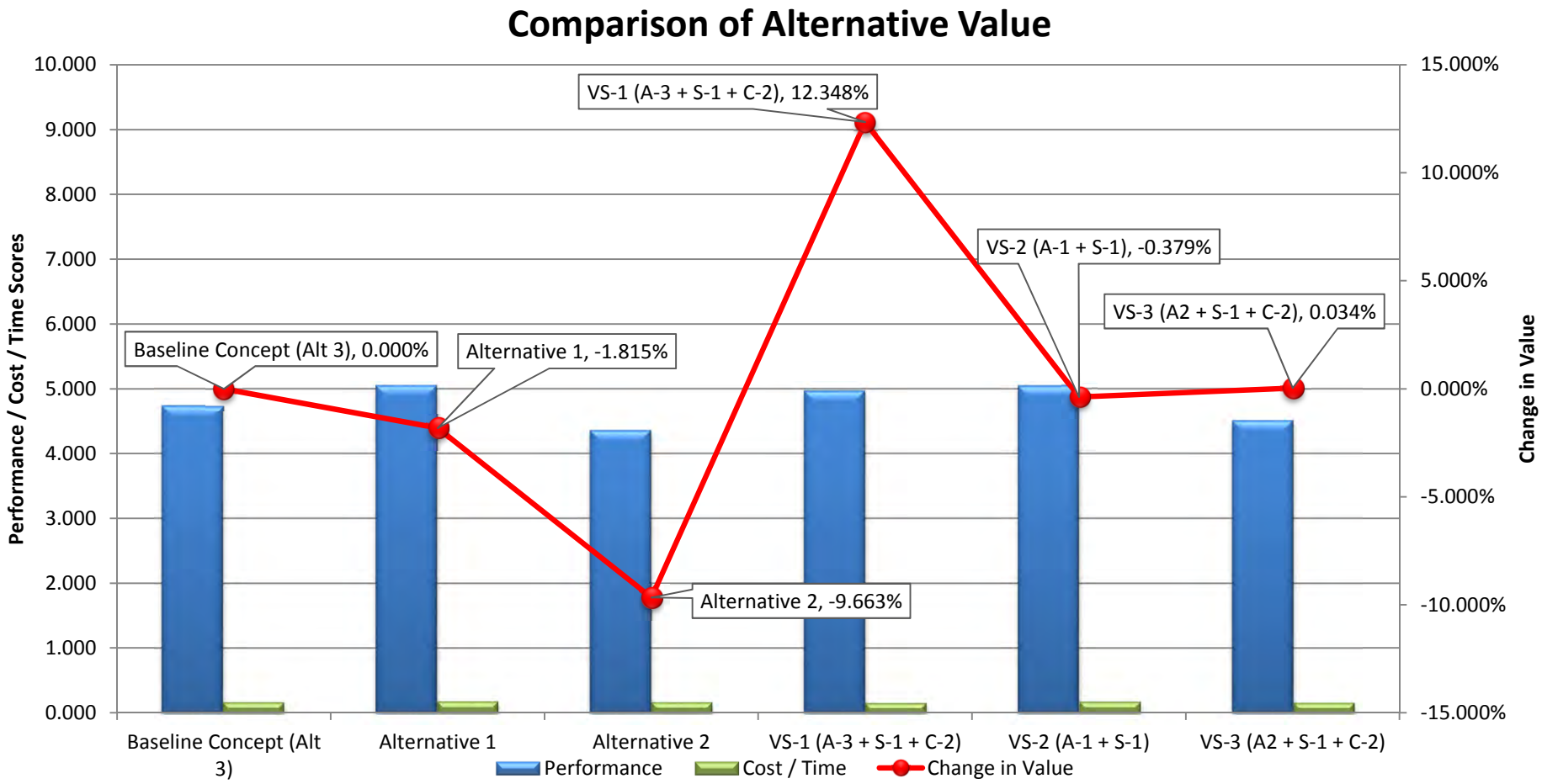
- Advantages
  - Comparable to A-1 with slightly less cost ($1.9 M)
  - Small schedule improvement
  - Minimally improves value
- Disadvantages
  - Comparable to A-1
  - Longest construction schedule

VS-3: Alt-2 + S-1 + R-2

- Advantages
  - Minimally improves value
  - Mitigates environmental and construction impacts
  - Faster construction schedule
- Disadvantages
  - Performs a bit lower than VS-1

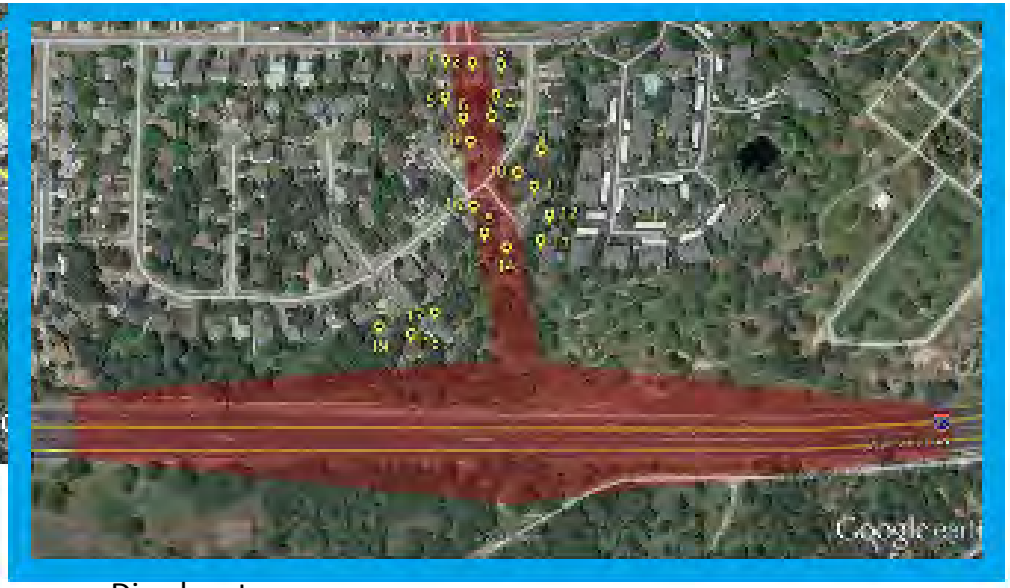
I-80 / SR 65 Interchange Improvements

Summary



I-80 / SR 65 Interchange Improvements

NP-1: New I-80/Sunset Interchange



Advantages:

- Provides standard interchange design
- Provides direct access to Sunset Blvd and residential communities and commercial developments to the north
- Enhances local access and circulation
- Balances access east and west of system interchange
- Minimize out-of-direction travel along Taylor Rd and Pacific Street
- Independent of larger I-80./SR 65 Interchange Improvement Project

Disadvantages:

- Requires 15 to 20 residential acquisitions
- Disrupts access and circulation within residential development
- Increases noise and traffic to residential area
- Would require an Interchange Justification Report
- Would require a Design Exception
- Would require community support

NP-2 Eliminate I-80 HOV east of SR 65

- Advantages
  - Saves $2 million
  - Reduces width/footprint in a critical area
- Disadvantages
  - Increases lane changing near Taylor Road
  - Precludes future extension

I-80 / SR 65 Interchange Improvements

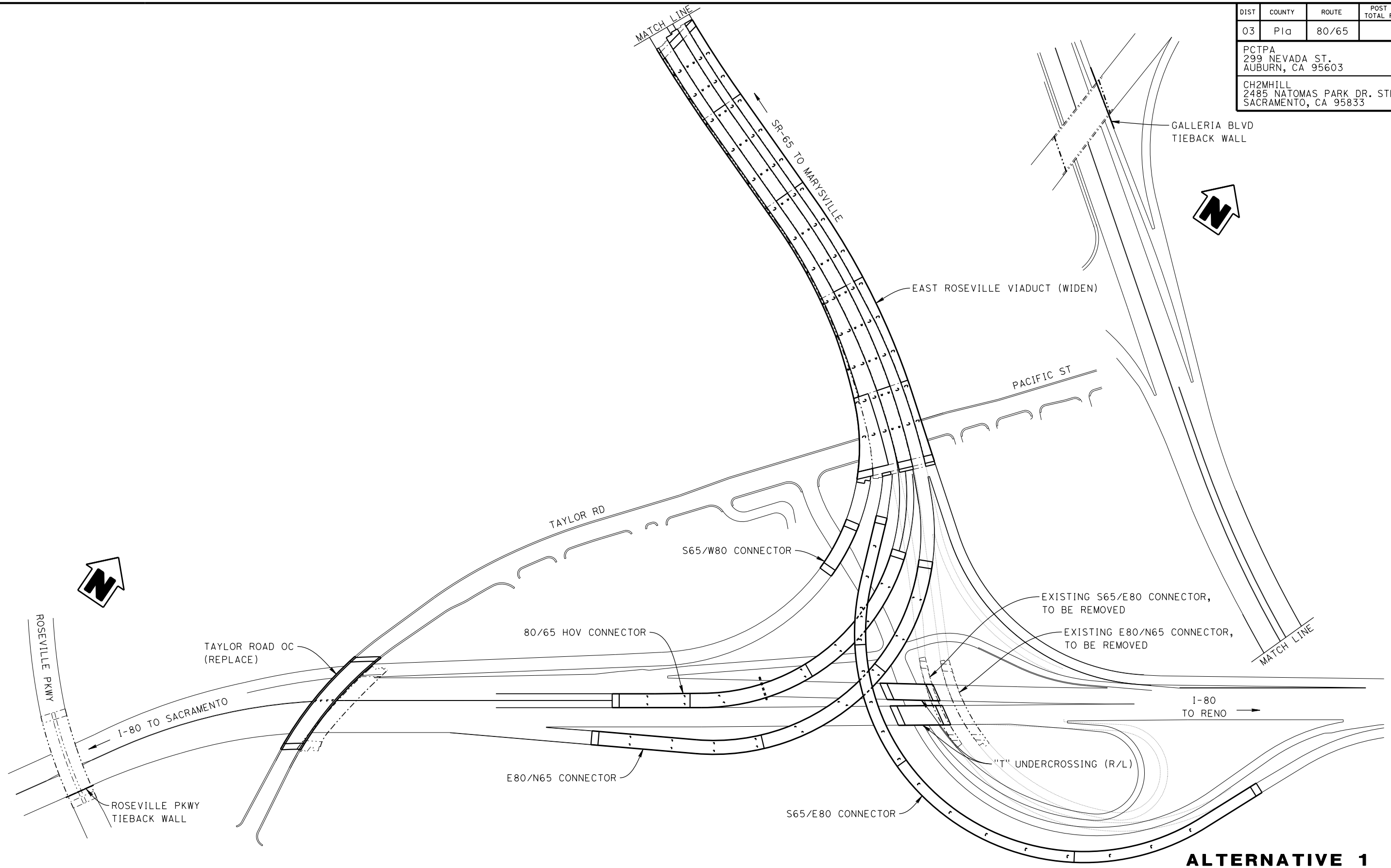
Questions?

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



ALTERNATIVE 1

PLANNING STUDY

LOCATION MAP

BRIDGE NO.	UNIT:
SCALE: 1"=200'	PROJECT NUMBER & PHASE:

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_g1t1_A_LOCATION MAP.dgn

CONTRACT NO.: X

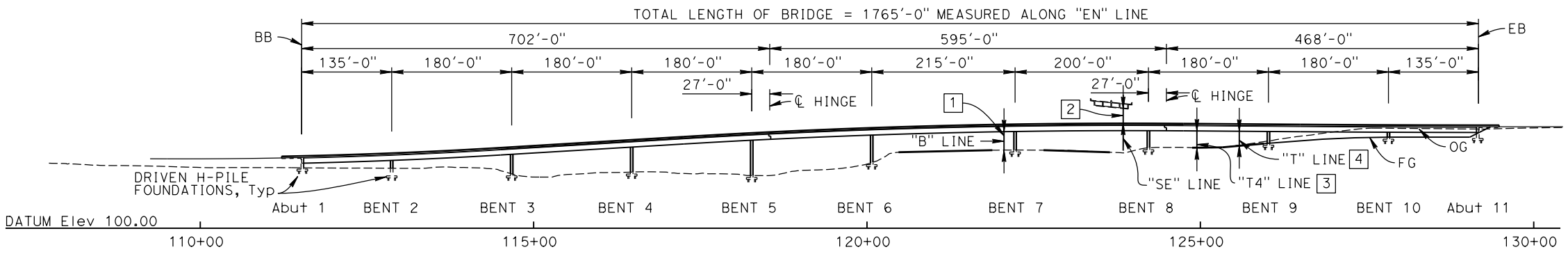
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:03

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



STRUCTURE DEPTH	= 8'-6"
LENGTH	= 1765'-0"
WIDTH	= 60'-10"
AREA	= 108,918 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA *	= 12,702 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 30,143,000

* REMOVAL OF BR. NO. 19-0151R

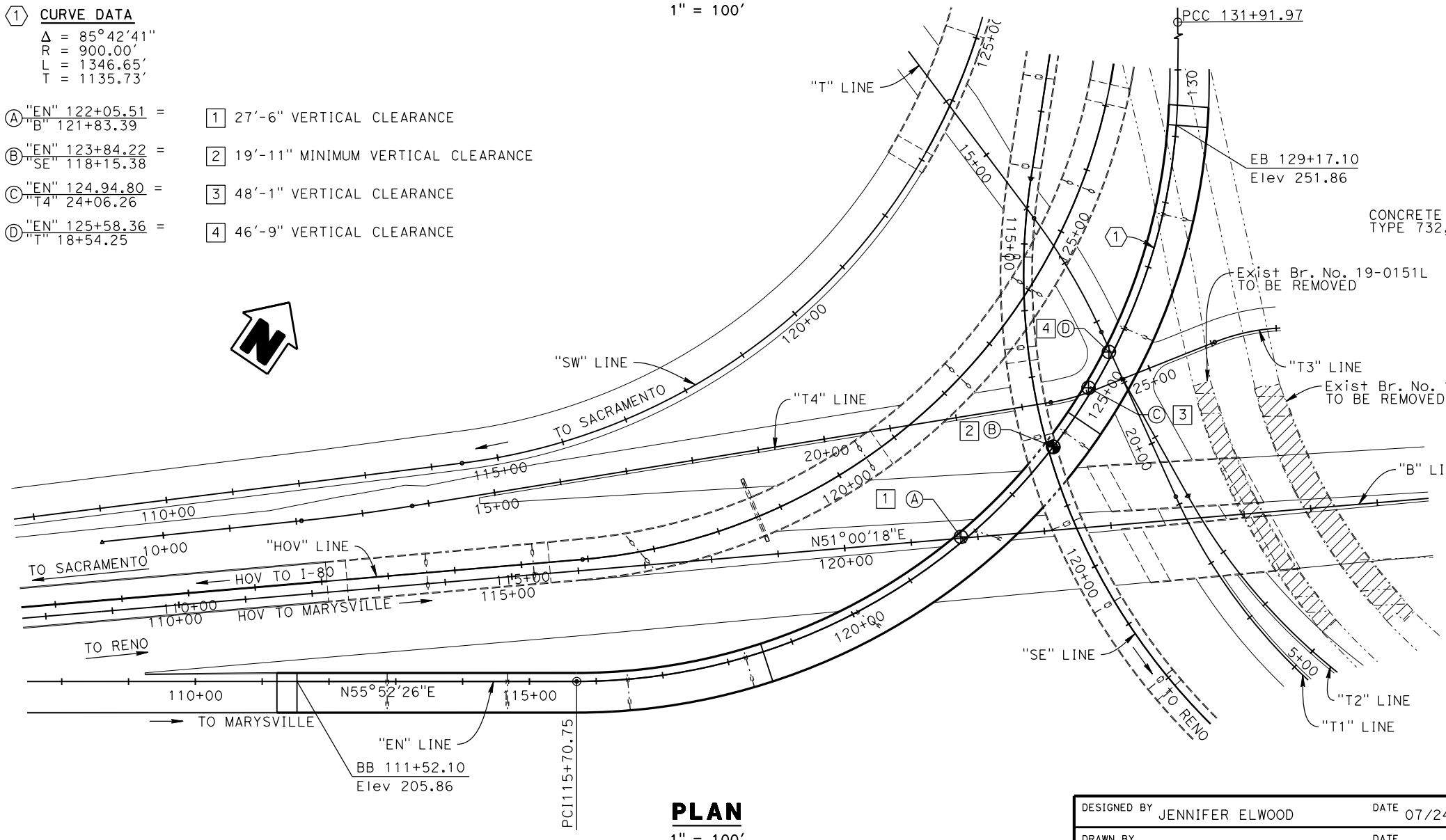
DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 85°42'41"
R = 900.00'
L = 1346.65'
T = 1135.73'

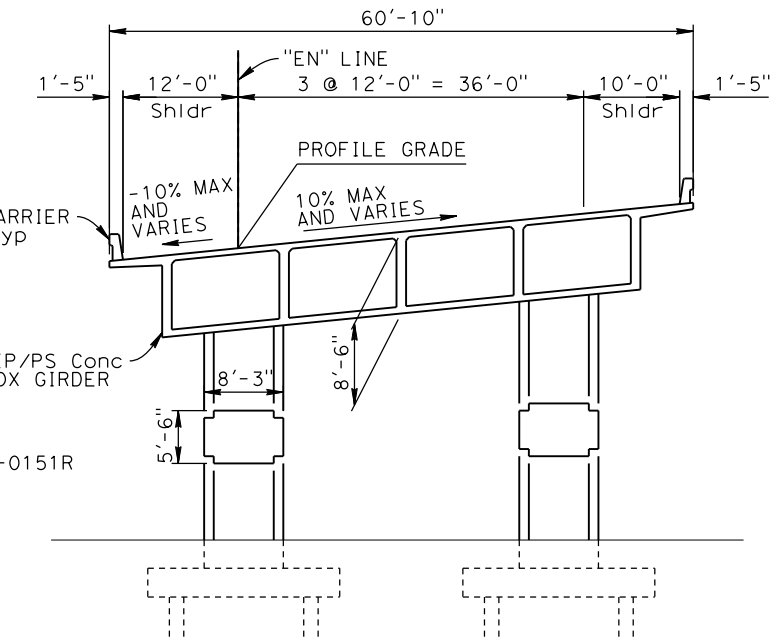
Ⓐ "EN" 122+05.51 = "B" 121+83.39
Ⓑ "EN" 123+84.22 = "SE" 118+15.38
Ⓒ "EN" 124.94.80 = "T4" 24+06.26
Ⓓ "EN" 125+58.36 = "T" 18+54.25

[1] 27'-6" VERTICAL CLEARANCE
[2] 19'-11" MINIMUM VERTICAL CLEARANCE
[3] 48'-1" VERTICAL CLEARANCE
[4] 46'-9" VERTICAL CLEARANCE



PLAN

1" = 100'



TYPICAL SECTION

1" = 10'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Bridge to be removed

ALTERNATIVE 1

PLANNING STUDY

E80/N65 CONNECTOR

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14
DRAWN BY PATRICK WALKER	DATE 07/24/14
CHECKED BY MARK BRADY	DATE 07/24/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

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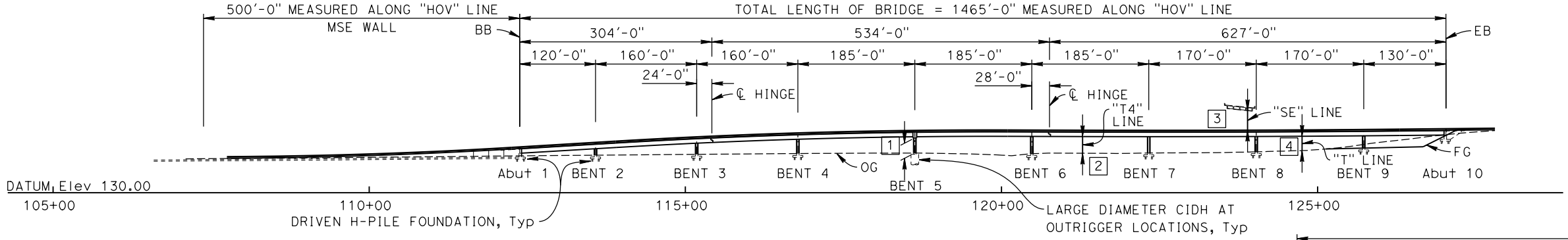
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

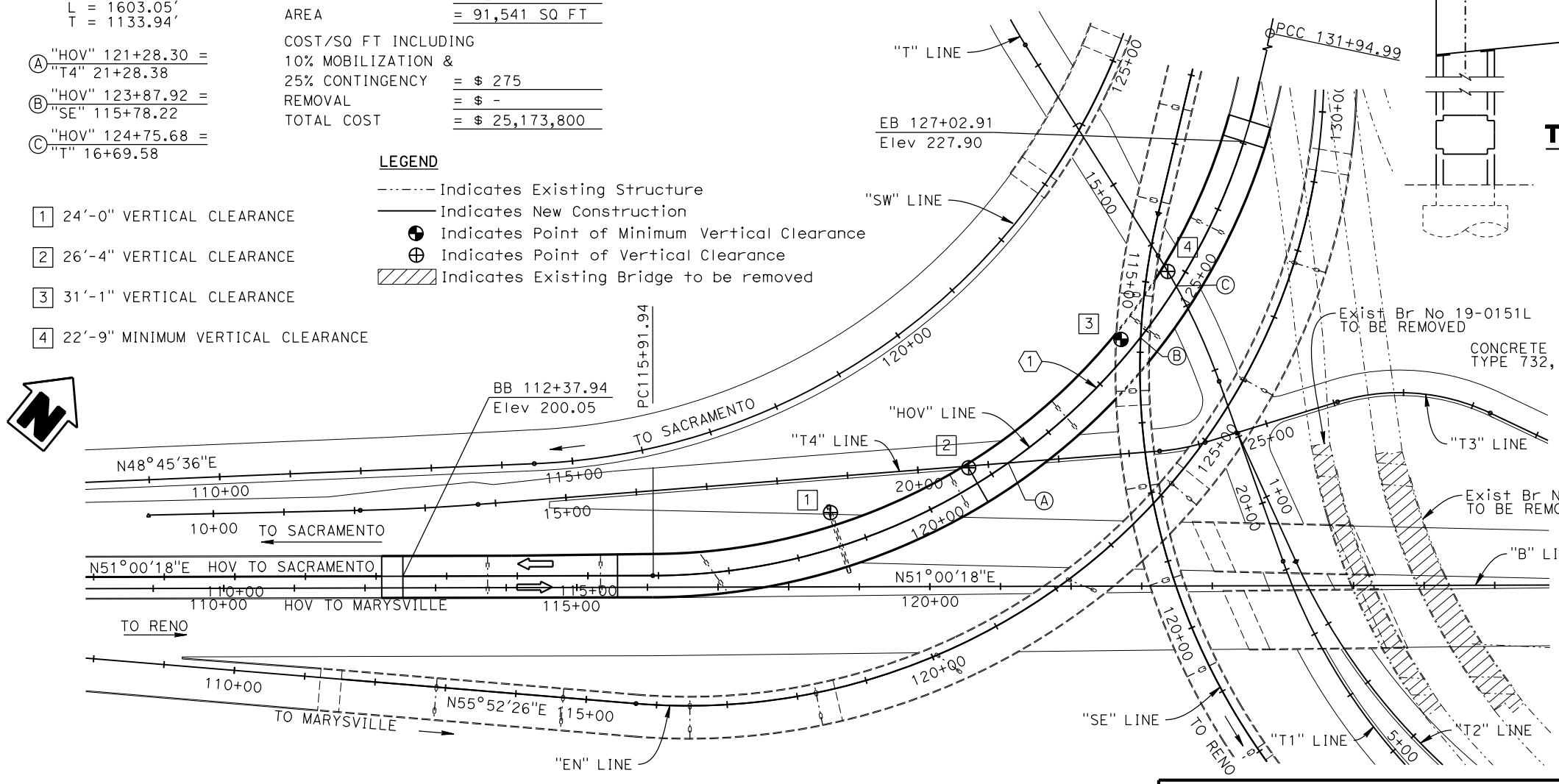
(1) CURVE DATA
Δ = 104°22'22"
R = 880.00'
L = 1603.05'
T = 1133.94'

Ⓐ "HOV" 121+28.30 = "T4" 21+28.38
Ⓑ "HOV" 123+87.92 = "SE" 115+78.22
Ⓒ "HOV" 124+75.68 = "T" 16+69.58

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1465'-0"
WIDTH	= 62'-10" MAX
AREA	= 91,541 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL	= $ -
TOTAL COST	= $ 25,173,800

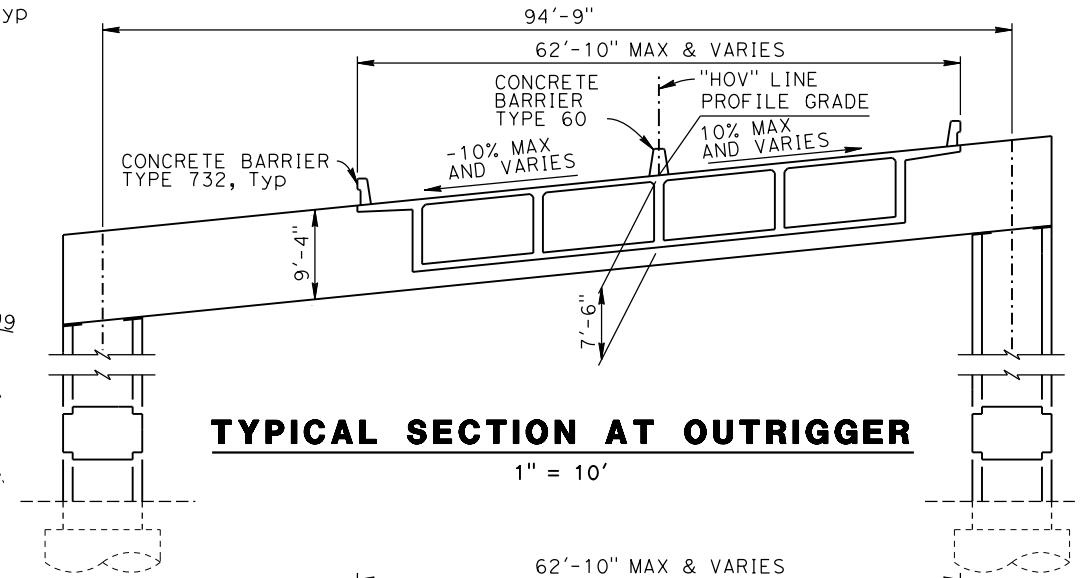
LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Bridge to be removed

[1] 24'-0" VERTICAL CLEARANCE
[2] 26'-4" VERTICAL CLEARANCE
[3] 31'-1" VERTICAL CLEARANCE
[4] 22'-9" MINIMUM VERTICAL CLEARANCE



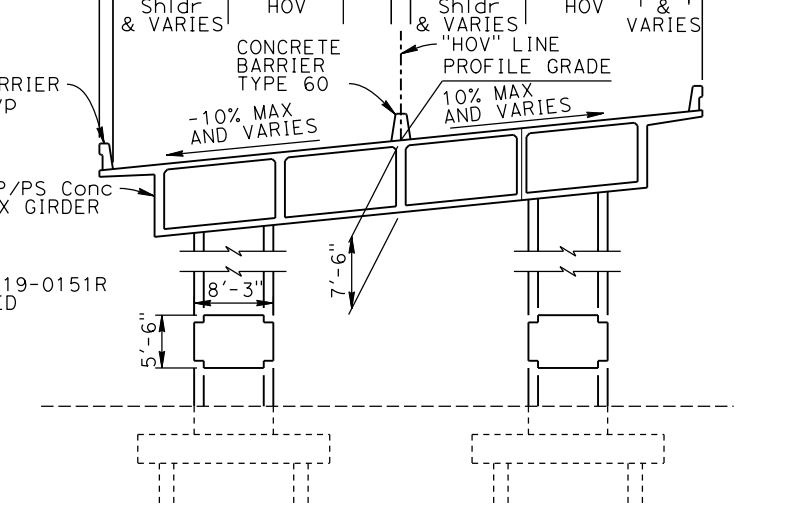
PLAN

1" = 100'



TYPICAL SECTION AT OUTRIGGER

1" = 10'



TYPICAL SECTION

1" = 10'

ALTERNATIVE 1

PLANNING STUDY

80/65 HOV CONNECTOR

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14
DRAWN BY PATRICK WALKER	DATE 07/24/14
CHECKED BY MARK BRADY	DATE 07/24/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

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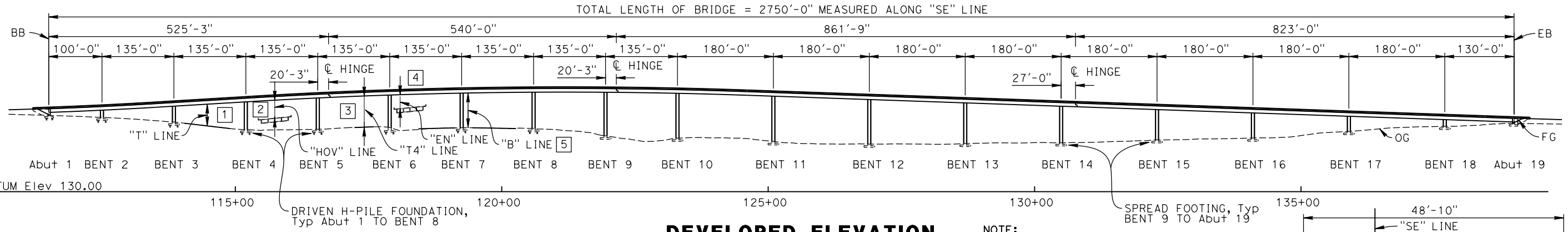
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

① **CURVE DATA**
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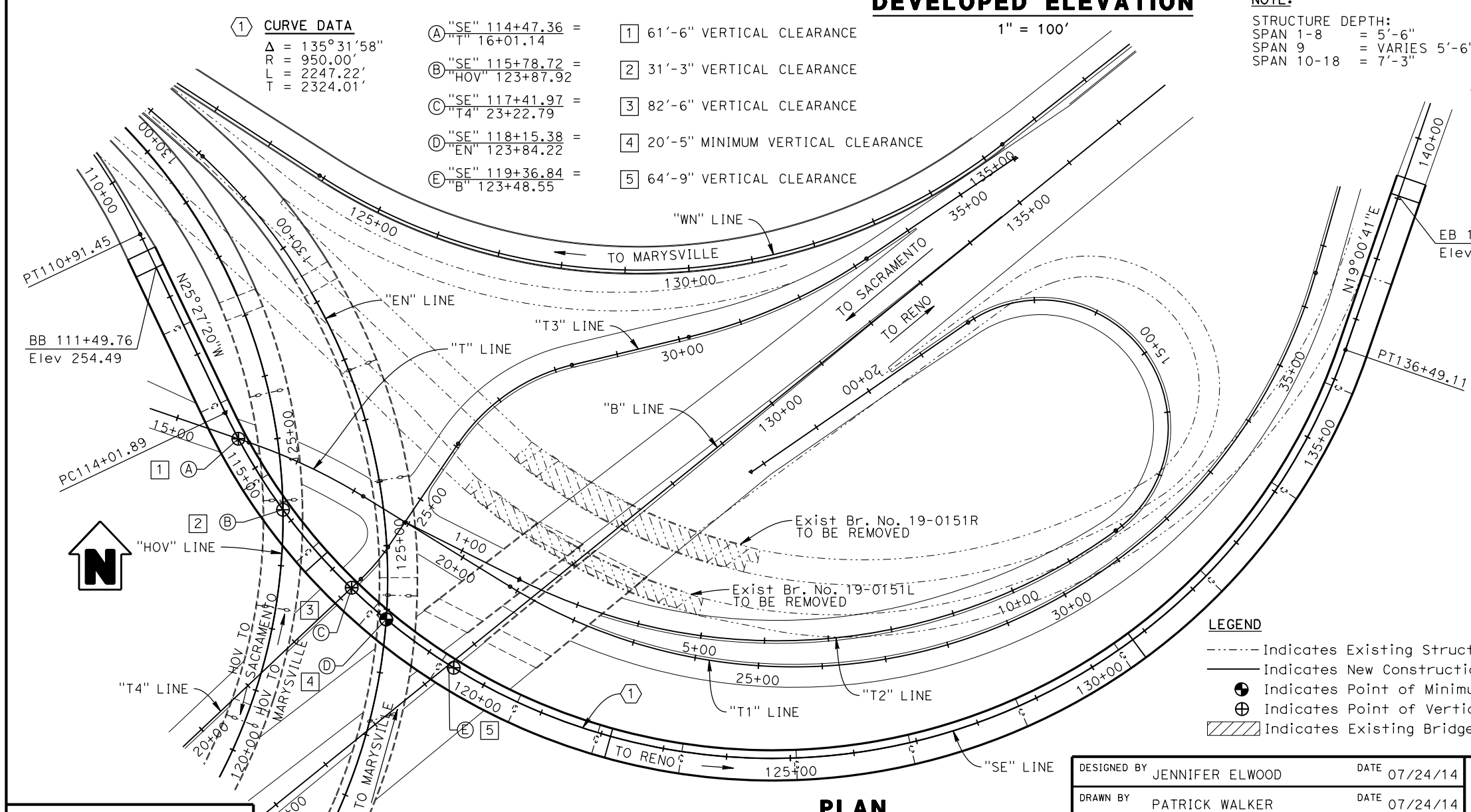
R = 950.00'
L = 2247.22'
T = 2324.01'

Ⓐ "SE" 114+47.36 = "T" 16+01.14
Ⓑ "SE" 115+78.72 = "HOV" 123+87.92
Ⓒ "SE" 117+41.97 = "T4" 23+22.79
Ⓓ "SE" 118+15.38 = "EN" 123+84.22
Ⓔ "SE" 119+36.84 = "B" 123+48.55

1 61'-6" VERTICAL CLEARANCE
2 31'-3" VERTICAL CLEARANCE
3 82'-6" VERTICAL CLEARANCE
4 20'-5" MINIMUM VERTICAL CLEARANCE
5 64'-9" VERTICAL CLEARANCE

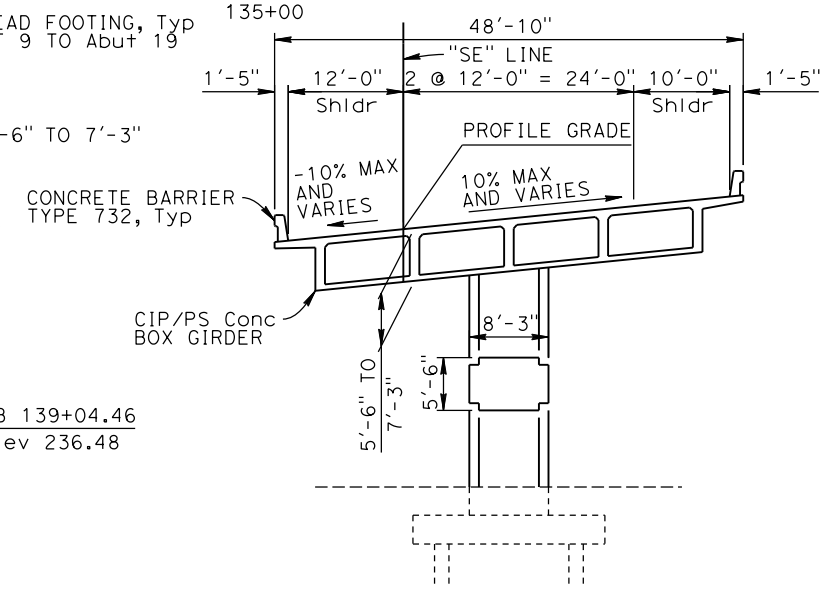


PLAN

1" = 100'

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

NOTE:
STRUCTURE DEPTH:
SPAN 1-8 = 5'-6"
SPAN 9 = VARIES 5'-6" TO 7'-3"
SPAN 10-18 = 7'-3"



TYPICAL SECTION

1" = 10'

STRUCTURE DEPTH	= 5'-6" to 7'-3"
LENGTH	= 2750'-0"
WIDTH	= 48'-10"
AREA	= 135,807 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA *	= 9,222 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 37,485,300

* REMOVAL OF BR. NO. 19-0151L

LEGEND
Indicates Existing Structure
Indicates New Construction
Indicates Point of Minimum Vertical Clearance
Indicates Point of Vertical Clearance
Indicates Existing Bridge to be removed

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1
PLANNING STUDY
S65/E80 CONNECTOR

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)
FILE => 418554_a1t1_SE-a-gp01.dgn
CONTRACT NO.: X

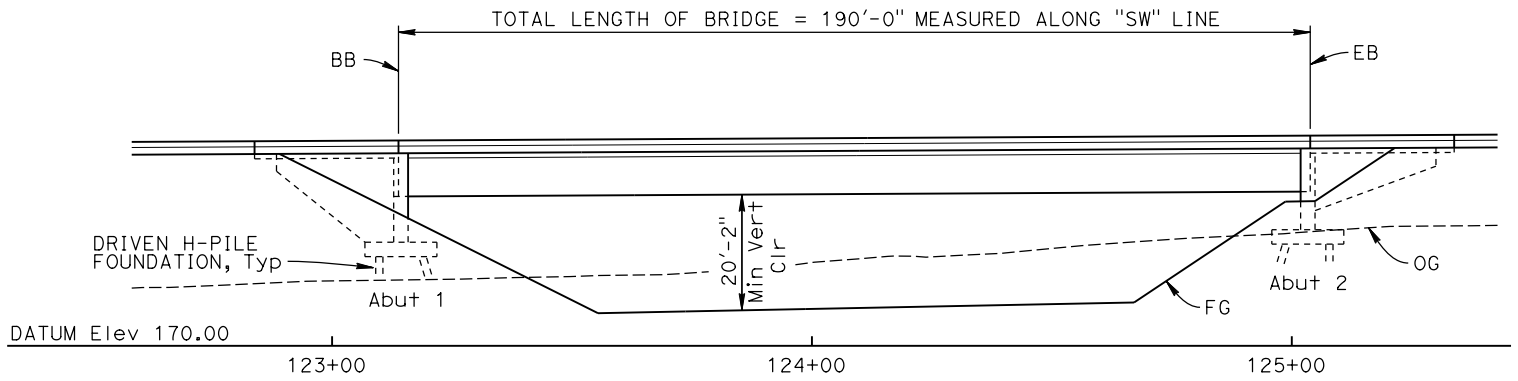
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:04

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

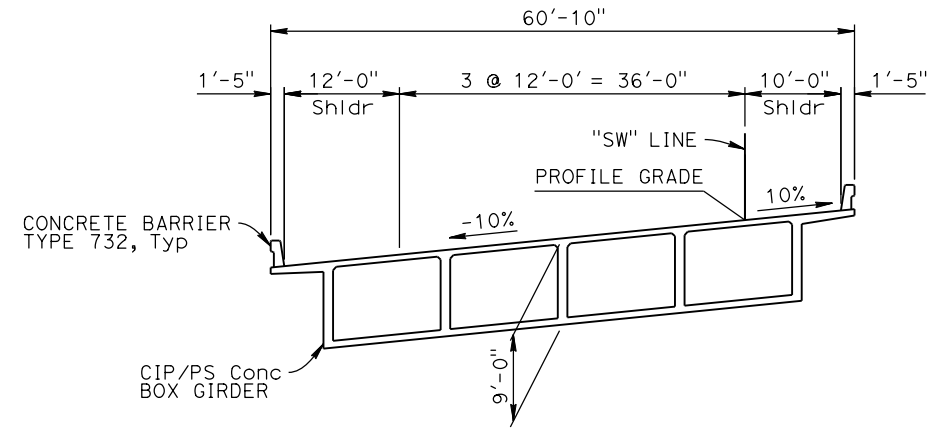
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 20'

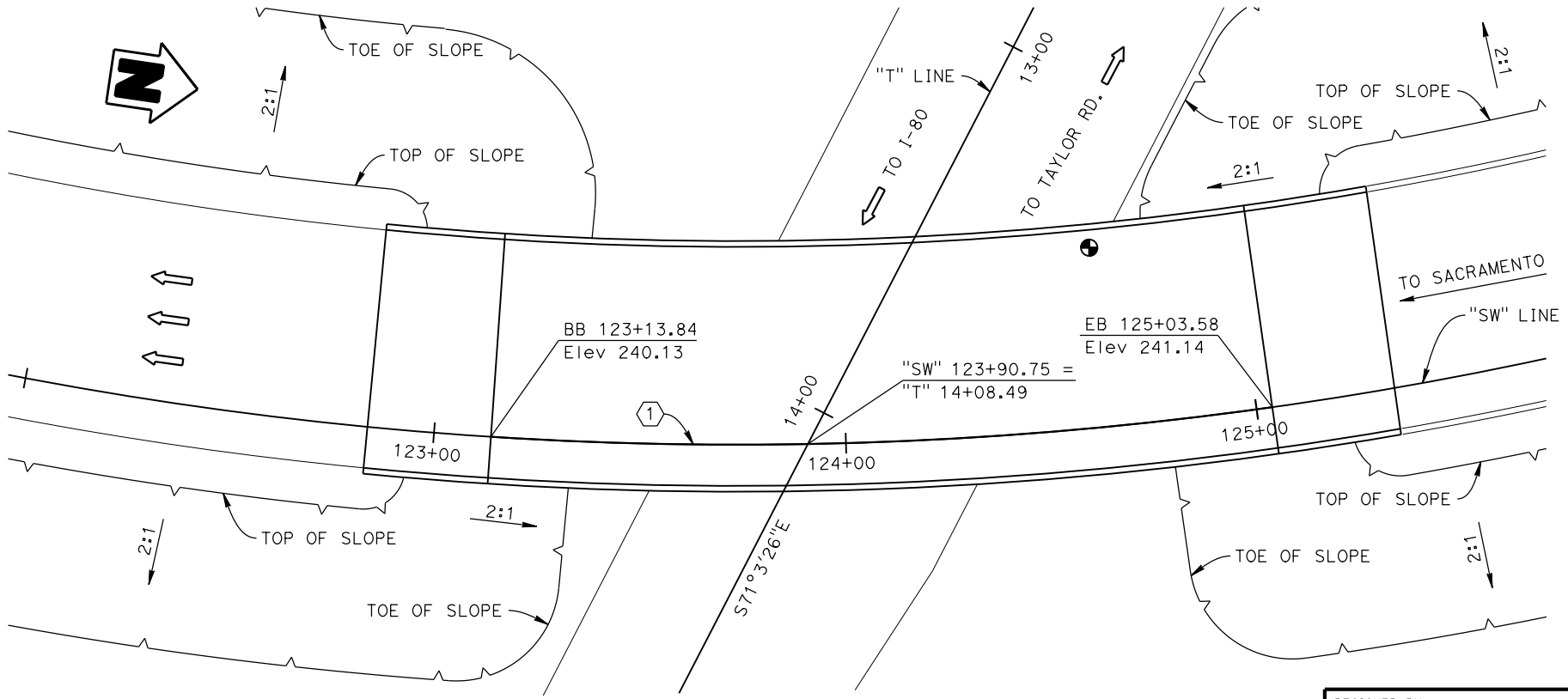
STRUCTURE DEPTH	= 9'-0"
LENGTH	= 190'-0"
WIDTH	= 60'-10"
AREA	= 11,558 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL	= $ -
TOTAL COST	= $ 3,178,500



TYPICAL SECTION

1" = 10'

① CURVE DATA
Δ = 101°20'53"
R = 930.00'
L = 1645.04'
T = 1135.19'



PLAN

1" = 20'

LEGEND

——— Indicates New Construction

⊕ Indicates Point of Minimum Vertical Clearance

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1
PLANNING STUDY
S65/W80 CONNECTOR

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

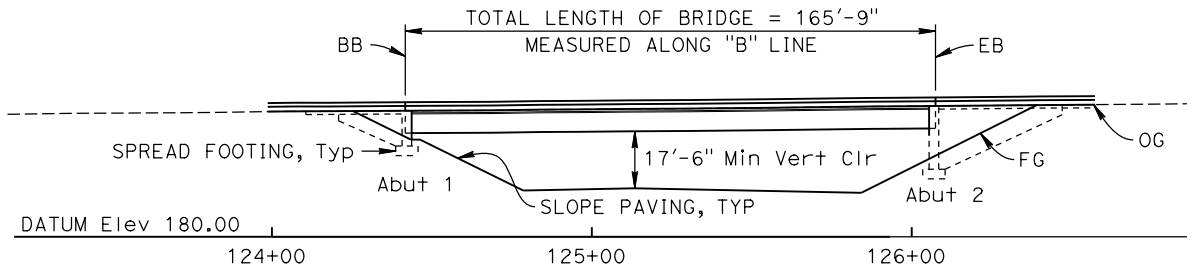
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:04

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

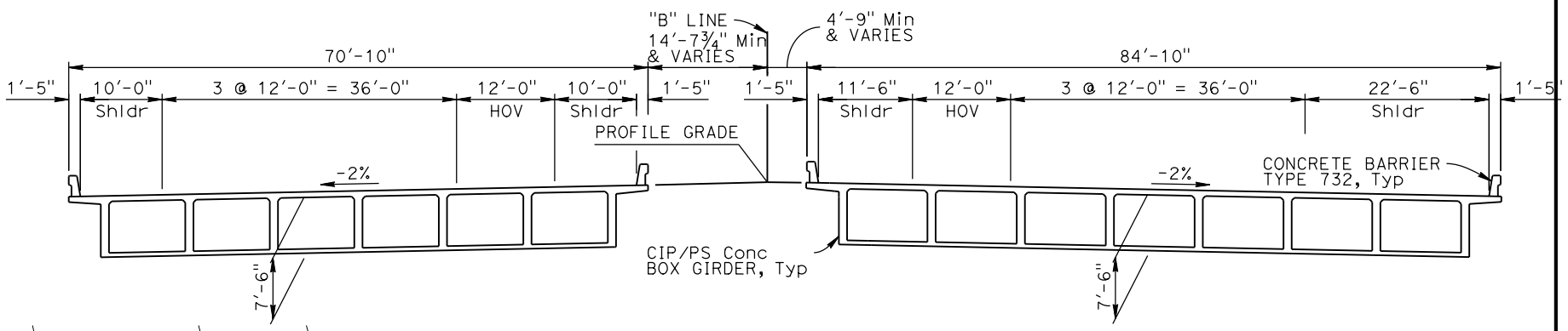
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



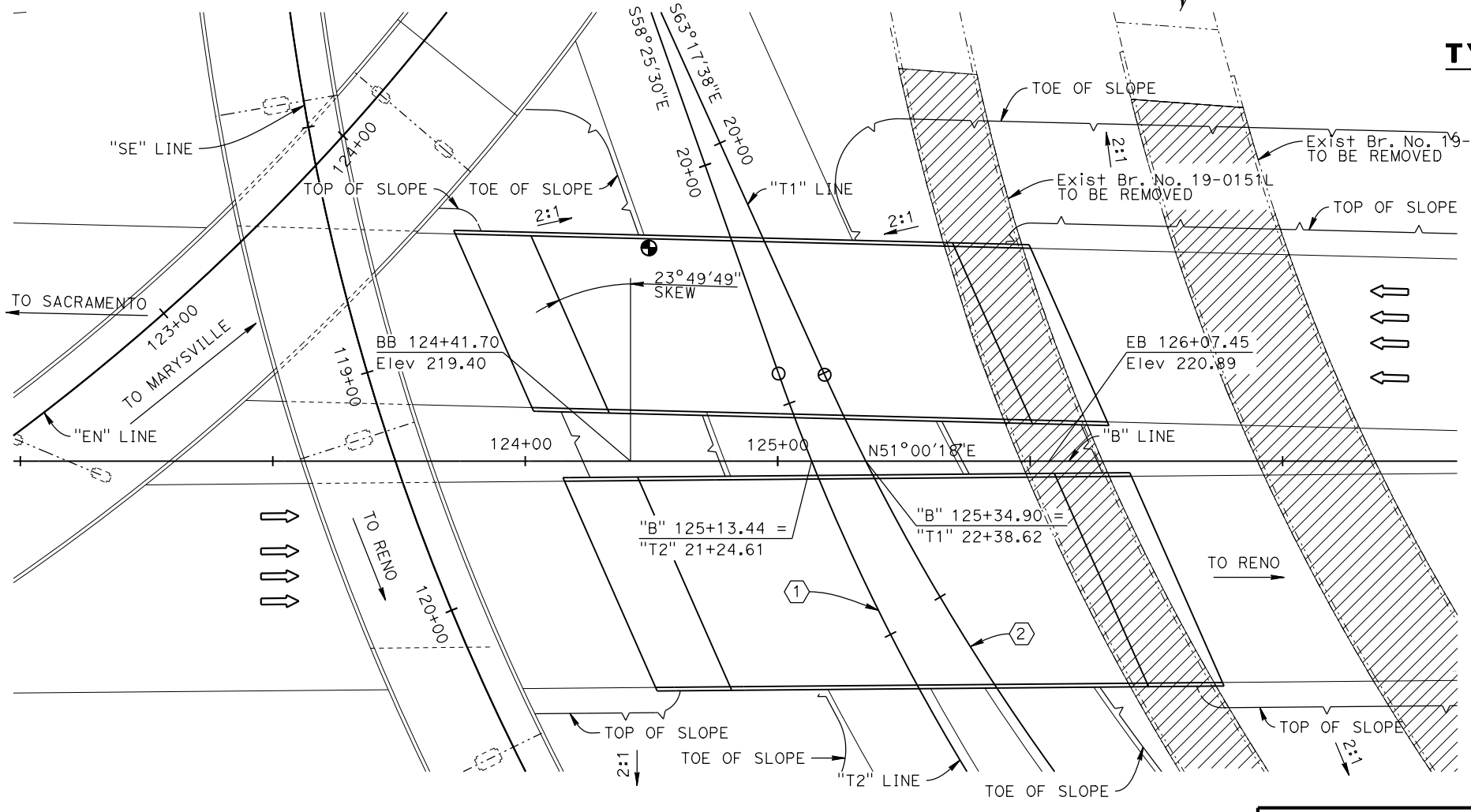
ELEVATION
1" = 30'

LEFT	
STRUCTURE DEPTH	= 7'-6"
LENGTH	= 165'-9"
WIDTH	= 70'-10"
AREA	= 11,875 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL	= $ -
TOTAL COST	= $ 3,265,600

RIGHT	
STRUCTURE DEPTH	= 7'-6"
LENGTH	= 165'-9"
WIDTH	= 84'-10"
AREA	= 14,007 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL	= $ -
TOTAL COST	= $ 3,851,900



TYPICAL SECTION
1" = 10'



PLAN
1" = 30'

① CURVE DATA
Δ = 105°43'17"
R = 850.00'
L = 1568.41'
T = 1122.30'

② CURVE DATA
Δ = 62°49'19"
R = 900.00'
L = 986.80'
T = 549.60'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge to be removed

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1

PLANNING STUDY

"T" UNDERCROSSING (R/L)

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

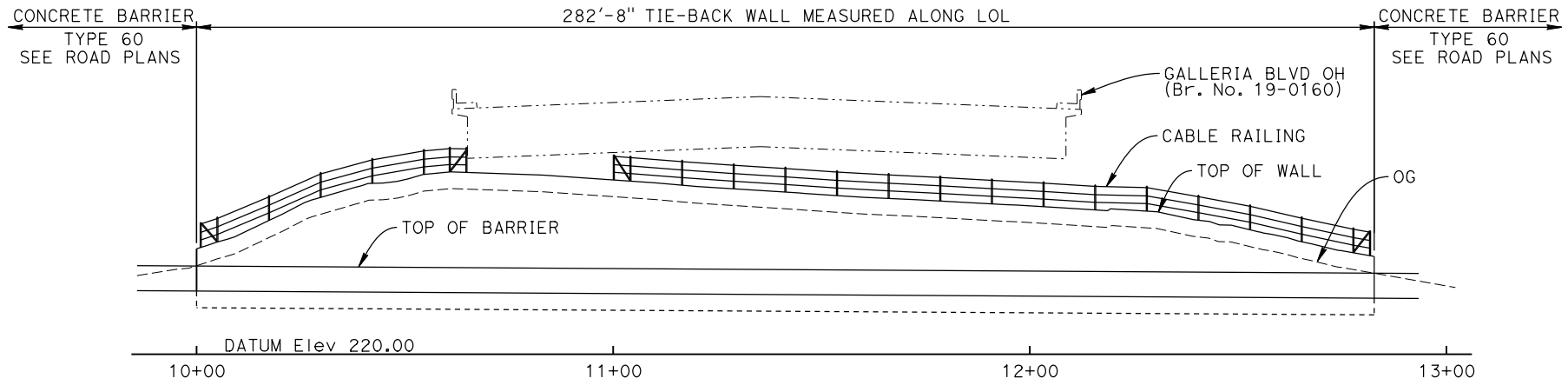
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:04

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

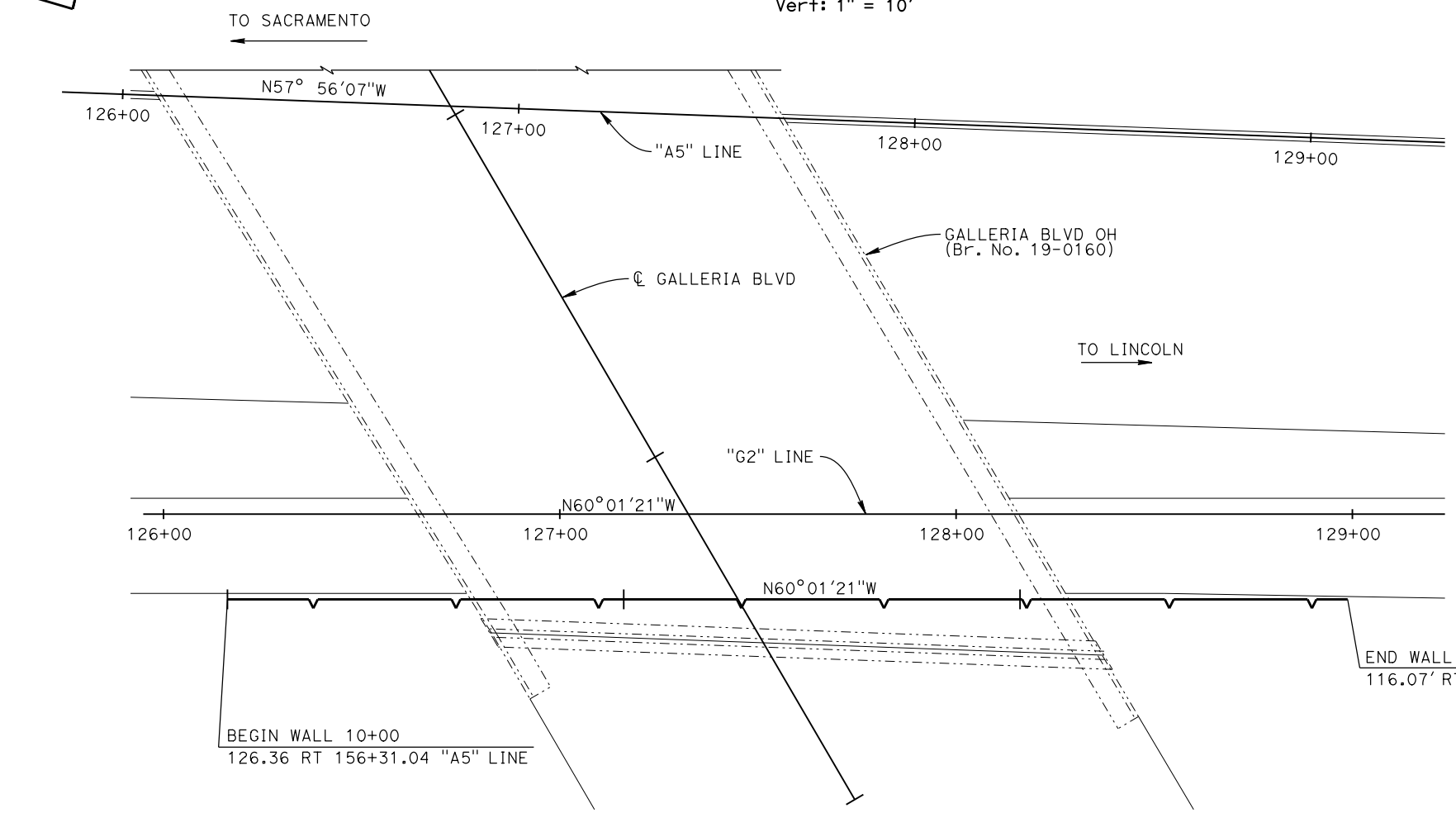
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



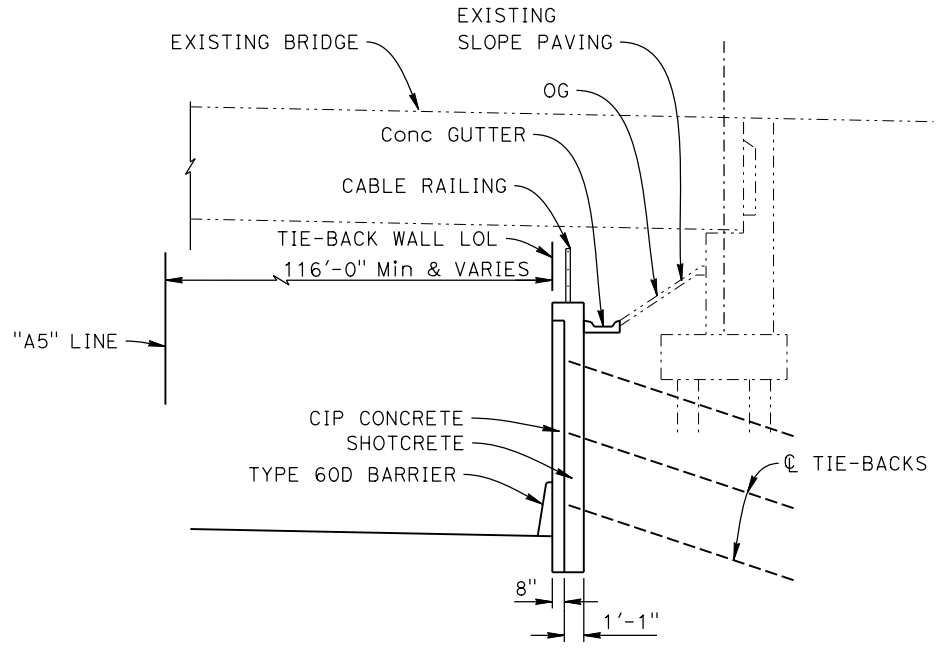
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



PLAN

1" = 20'



TYPICAL SECTION

3/16" = 1'

STRUCTURE LENGTH = 282'-8"
HEIGHT = 5'-0" TO 16'-6"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 125
TOTAL COST = $ 461,700

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1
PLANNING STUDY
GALLERIA BLVD TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

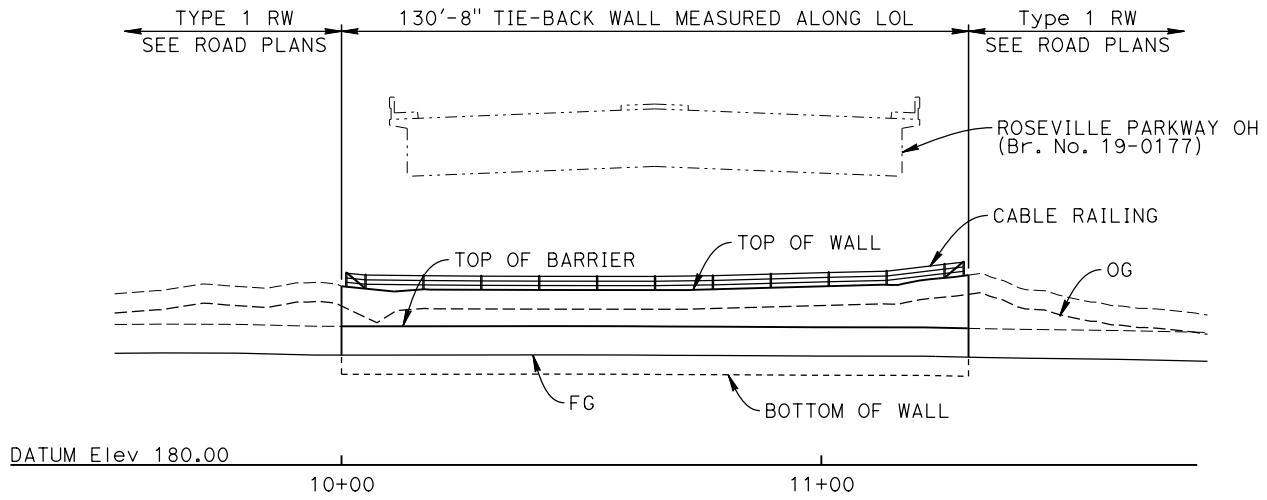
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:04

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

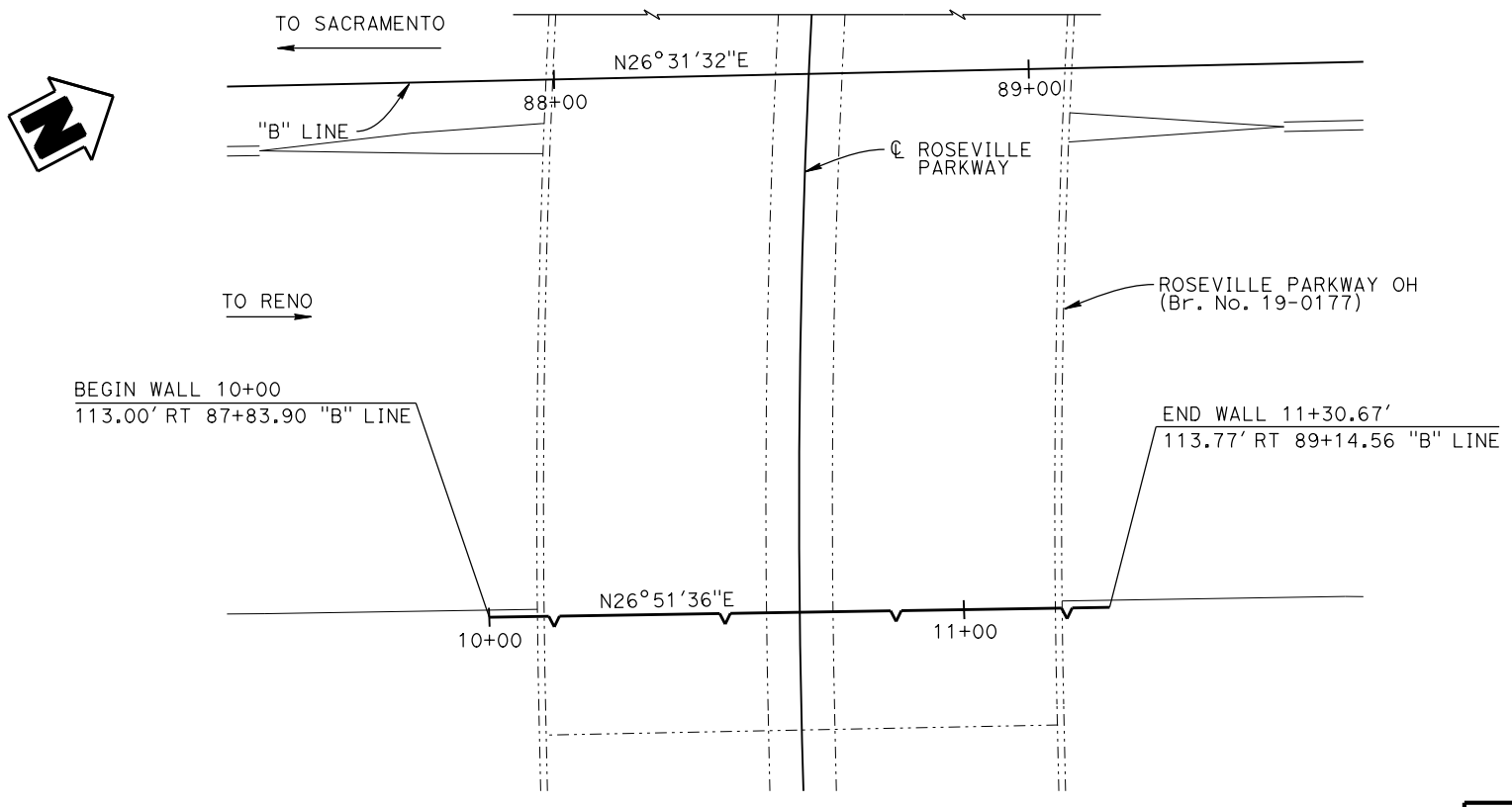
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



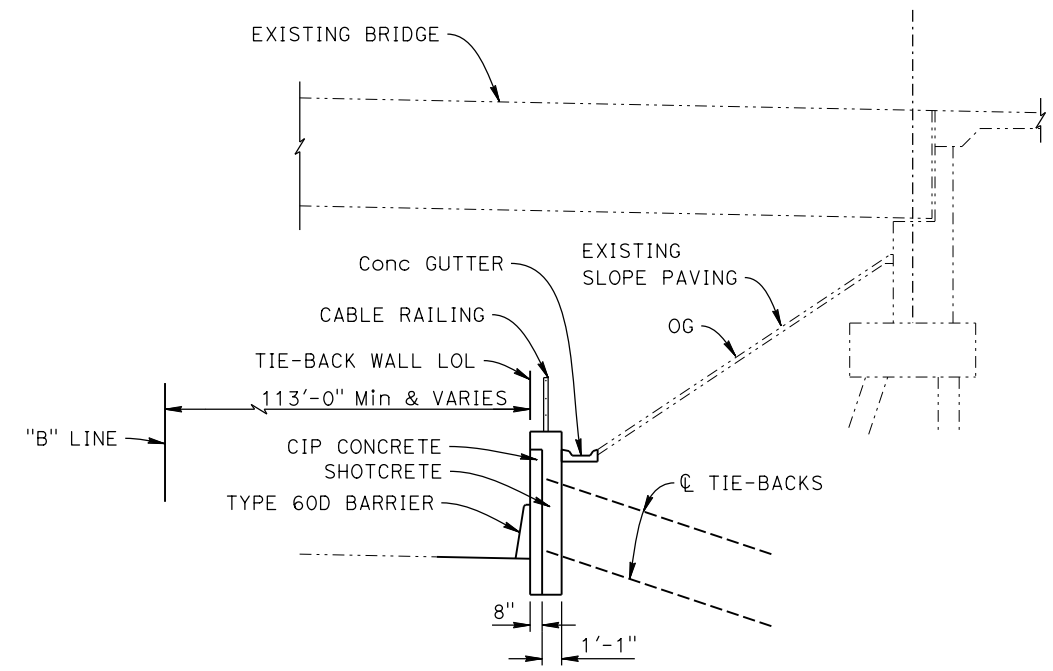
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



PLAN

1" = 20'



TYPICAL SECTION

3/16" = 1'

STRUCTURE LENGTH = 130'-8"
HEIGHT = 8'-0" TO 8'-6"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 125
TOTAL COST = $ 148,000

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 1

PLANNING STUDY

ROSEVILLE PKWY TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:04

FILE => 418554_alt1_TB_RosevillePky.dgn

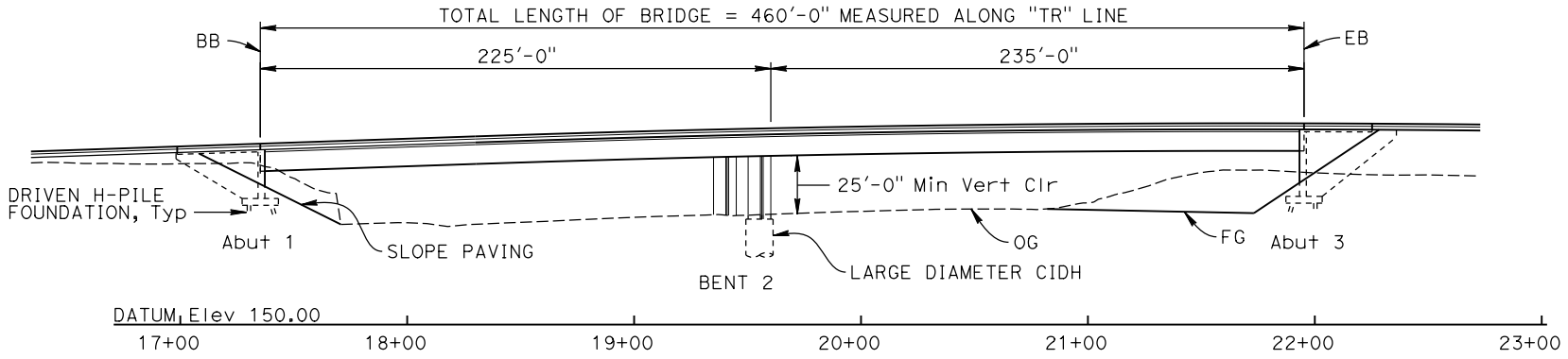
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

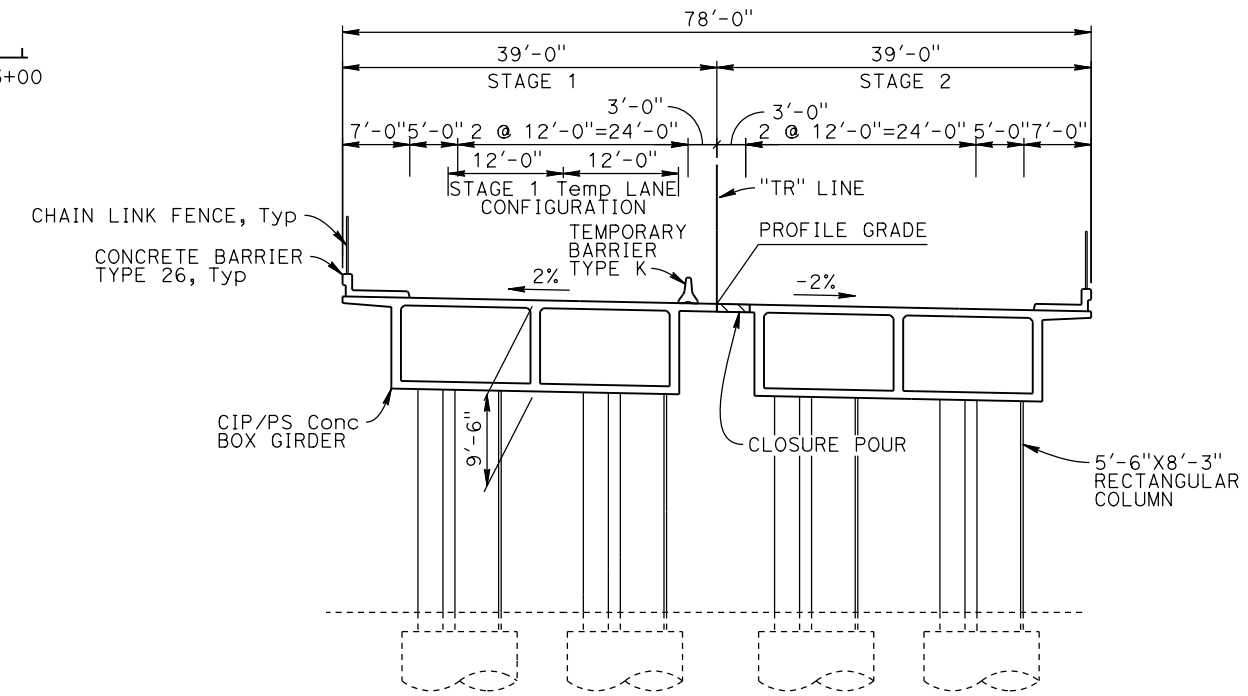
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 40'

STRUCTURE DEPTH	= 9'-6"
LENGTH	= 460'-0"
WIDTH	= 78'-0"
AREA	= 35,880 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA	= 22,570 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 10,205,600



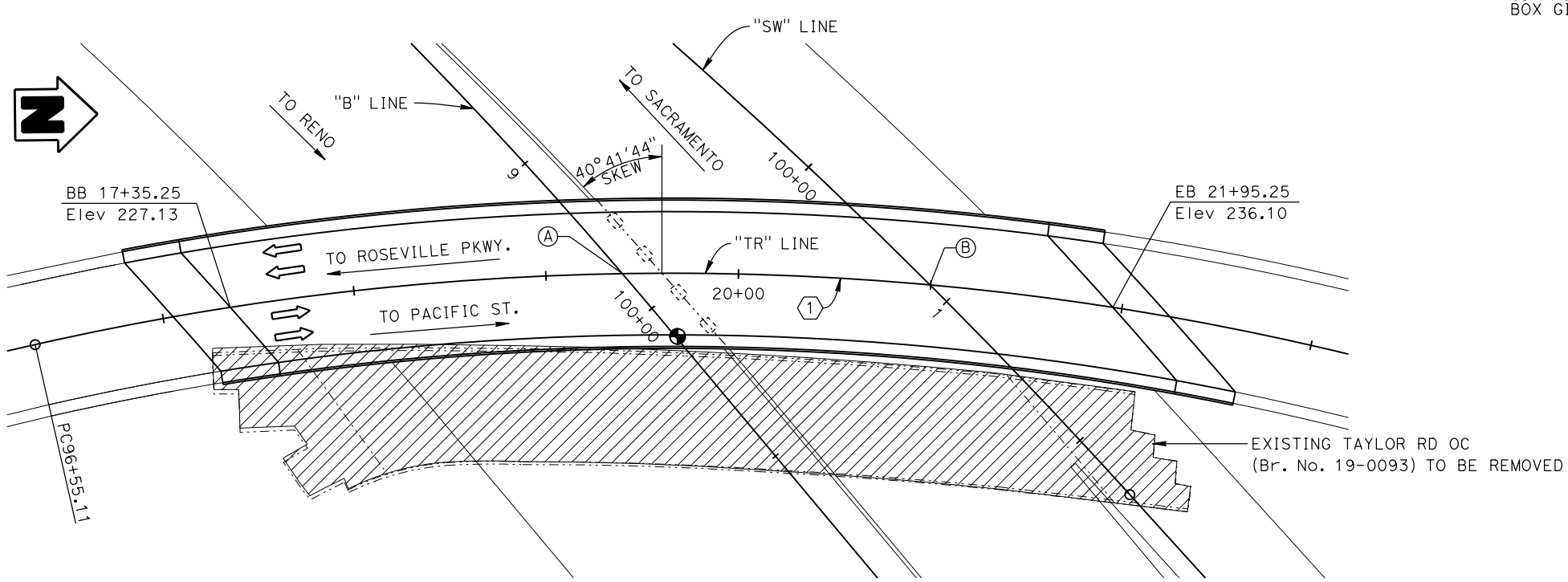
TYPICAL SECTION

1" = 10'

① CURVE DATA
Δ = 28°26'05"
R = 1491.00'
L = 739.96'
T = 377.76'

Ⓐ "TR" 19+39.71 = "B" 99+76.31

Ⓑ "TR" 109+60.25 = "SW" 100+87.76



PLAN

1" = 40'

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge to be removed

ALTERNATIVE 1

PLANNING STUDY

TAYLOR ROAD OC (REPLACE)

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14
DRAWN BY PATRICK WALKER	DATE 07/24/14
CHECKED BY MARK BRADY	DATE 07/24/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-XXXX | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt1_TR-a-gp01.dgn

CONTRACT NO.: X

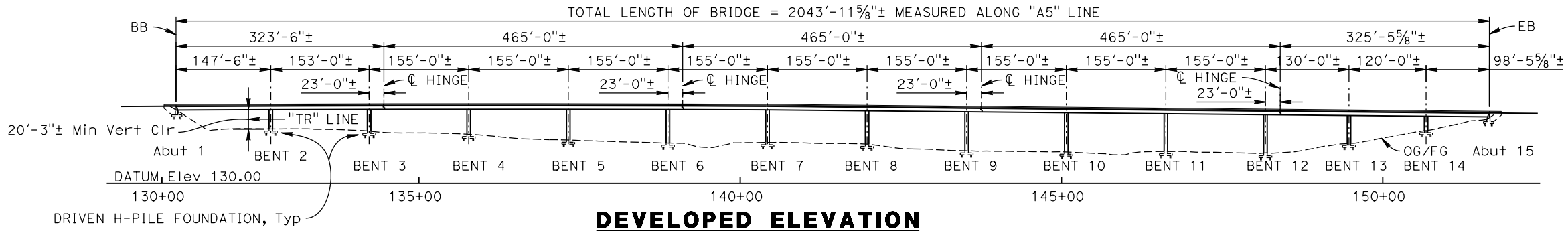
USERNAME => jjoomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:05

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

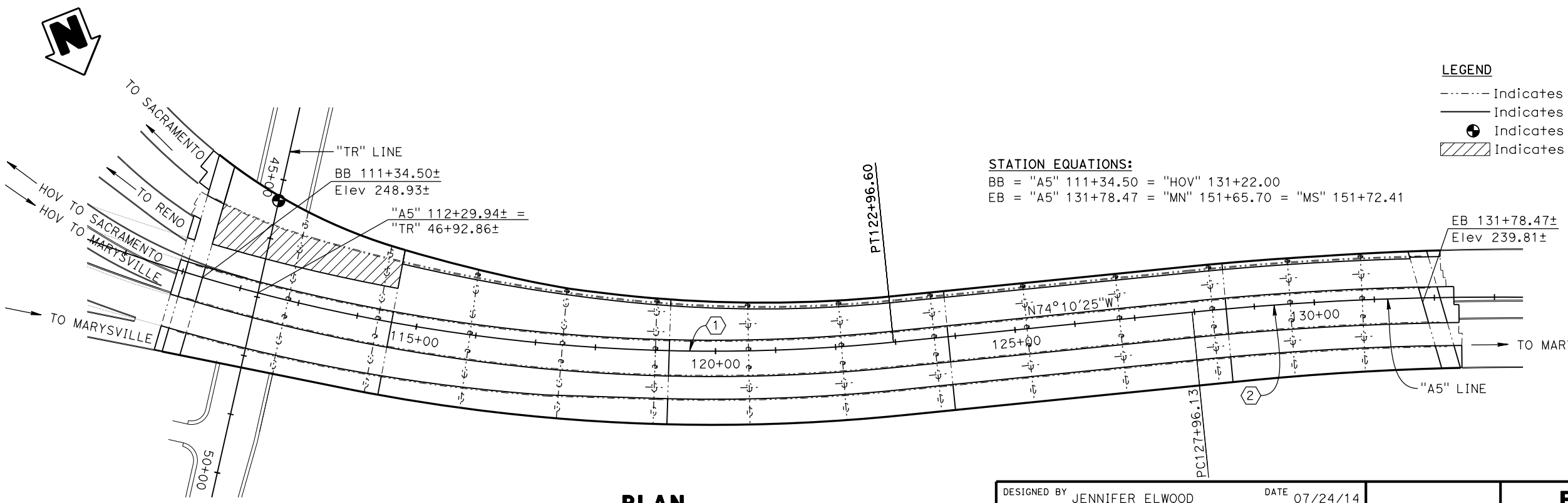


DEVELOPED ELEVATION
1" = 100'

STRUCTURE DEPTH	= 6'-0"
LENGTH	= 2043'-11⅝"±
WIDTH LEFT	= 10'-9" TO 68'-6"
WIDTH CENTER	= 60'-6"
WIDTH RIGHT	= 18'-11" TO 40'-7"
AREA LEFT	= 49,918 SQ FT
AREA CENTER	= 124,074 SQ FT
AREA RIGHT	= 84,424 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 250
REMOVAL AREA	= 36,893 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 65,157,400

① CURVE DATA
Δ = 35°10'43"
R = 3000.00'
L = 1841.95'
T = 951.04'

② CURVE DATA
Δ = 16°14'18"
R = 5000.00'
L = 1417.06'
T = 713.31'



PLAN
1" = 100'

STATION EQUATIONS:
BB = "A5" 111+34.50 = "HOV" 131+22.00
EB = "A5" 131+78.47 = "MN" 151+65.70 = "MS" 151+72.41

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge Removal

NOTE:
For Typical Sections, see E. Roseville Viaduct Widen (2 of 2).

ALTERNATIVE 1

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

PLANNING STUDY

E. ROSEVILL VIADUCT (WIDEN) 1 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME =>jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:05

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt1_VIADUCT-a-gp01.dgn

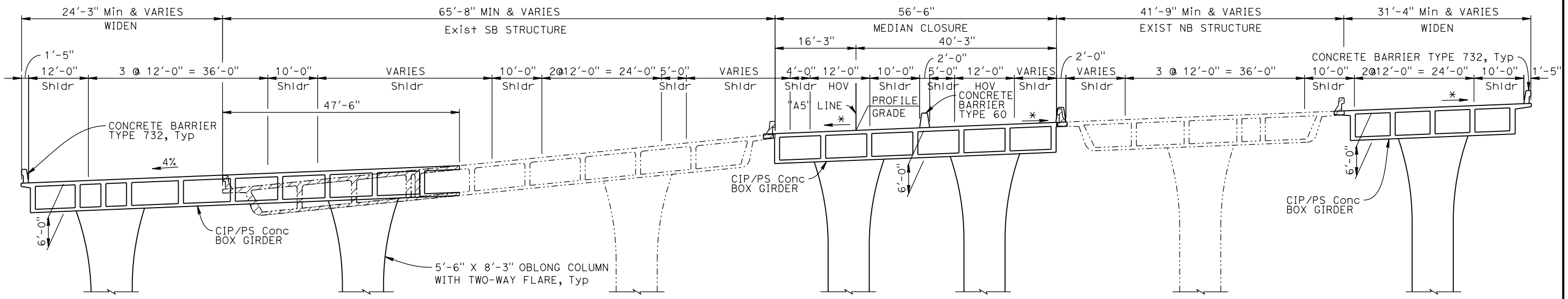
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

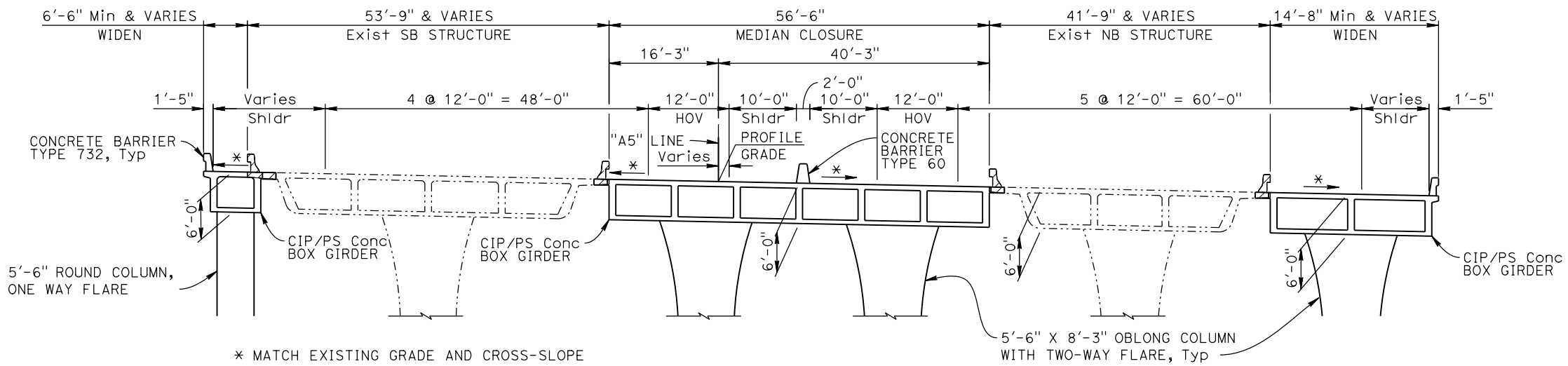
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION-FRAME 1

1" = 10'



* MATCH EXISTING GRADE AND CROSS-SLOPE

TYPICAL SECTION-FRAMES 2,3,4,5

1" = 10'

LEGEND

- Indicates Existing Structure
- Indicates New Construction
- Indicates Existing Bridge Removal

ALTERNATIVE 1

PLANNING STUDY

E. ROSEVILL VIADUCT (WIDEN) 2 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14	MARK S. BRADY, PROJECT ENGINEER
DRAWN BY PATRICK WALKER	DATE 07/24/14	
CHECKED BY MARK BRADY	DATE 07/24/14	
APPROVED	DATE	

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt1_VIADUCT-a-gp02.dgn

CONTRACT NO.: X

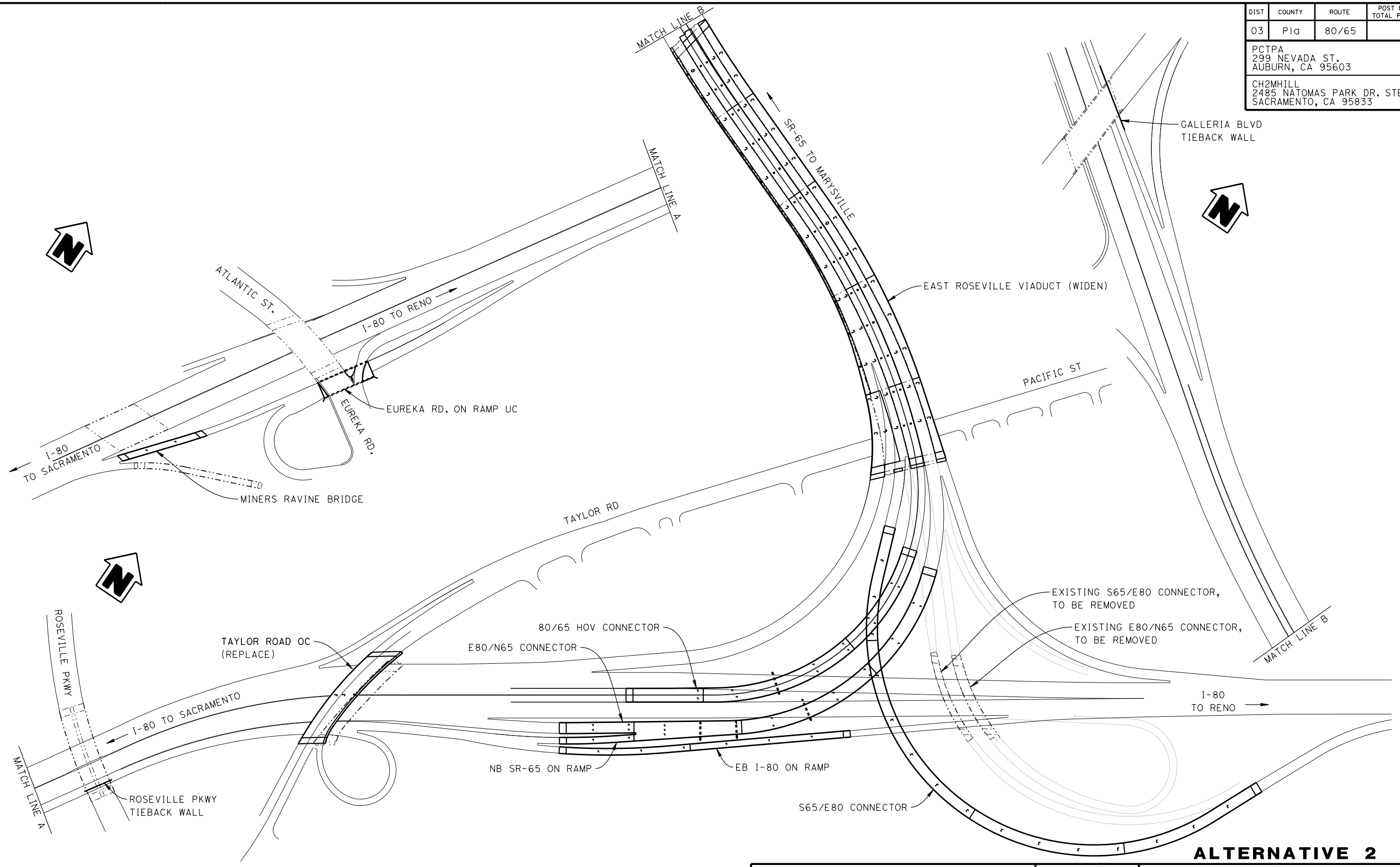
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 11:05

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



ALTERNATIVE 2

PLANNING STUDY

LOCATION MAP

BRIDGE NO.	UNIT:
SCALE: 1"=200'	PROJECT NUMBER & PHASE:

DESIGNED BY	JENNIFER ELWOOD	DATE 07/24/14
DRAWN BY	PATRICK WALKER	DATE 07/24/14
CHECKED BY	MARK BRADY	DATE 07/24/14
APPROVED		DATE

MARK S. BRADY
PROJECT ENGINEER

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

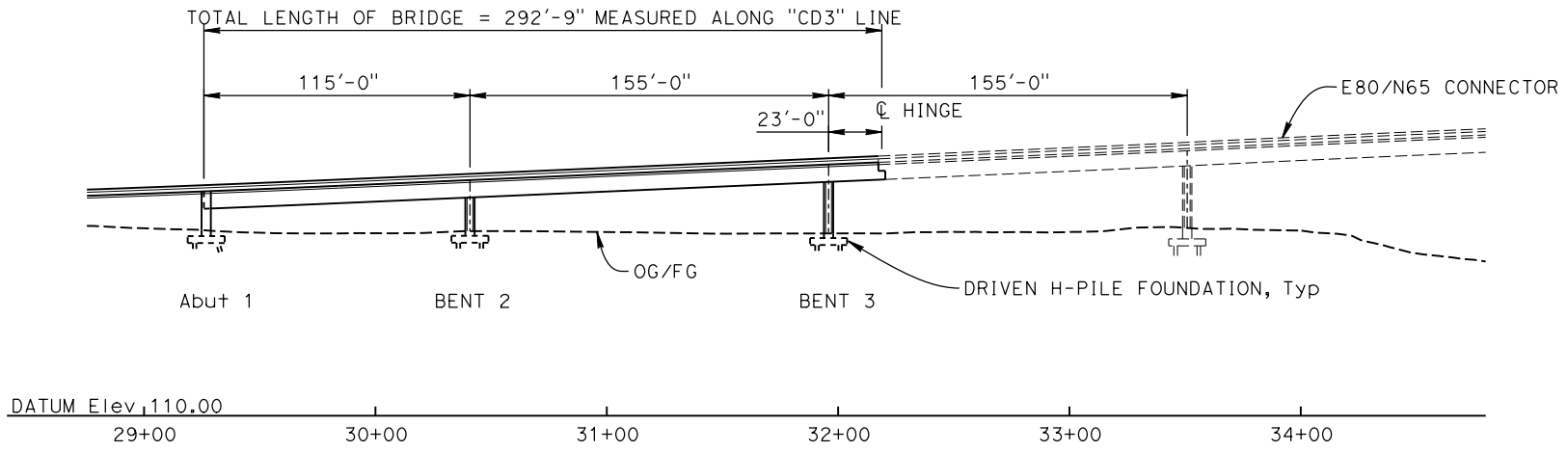
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:15

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

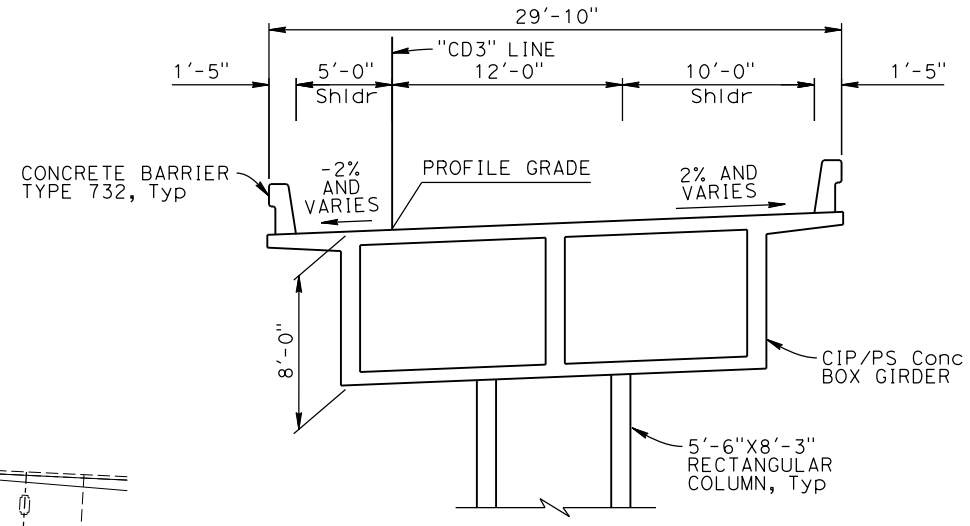
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



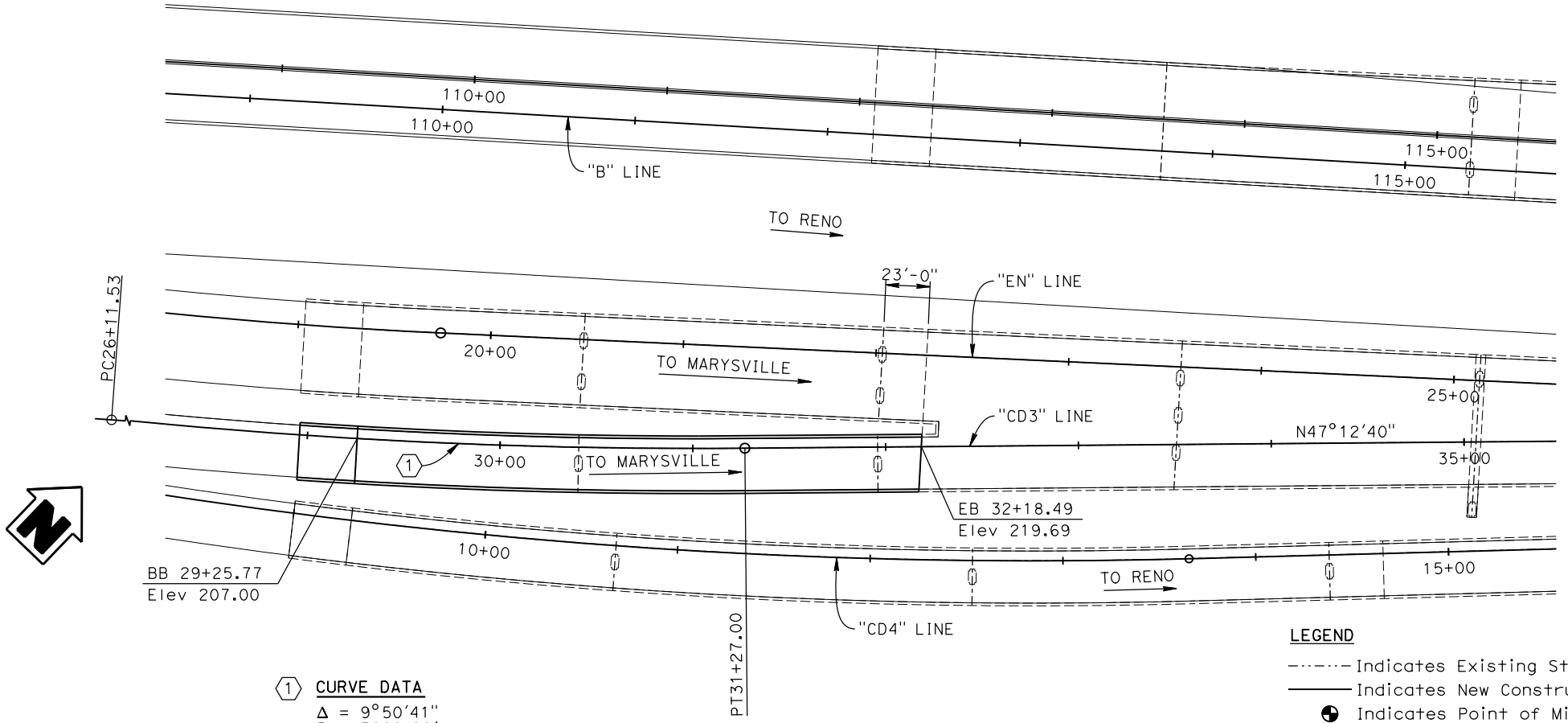
DEVELOPED ELEVATION

1" = 40'



TYPICAL SECTION

1" = 5'



1 CURVE DATA
Δ = 9°50'41"
R = 3000.00'
L = 515.47'
T = 258.37'

PLAN

1" = 40'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 292'-9"
WIDTH	= 29'-10"
AREA	= 8,736 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL COST	= $ -
TOTAL COST	= $ 2,402,400

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
NB SR-65 ON RAMP

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_CD3-a-gp01.dgn

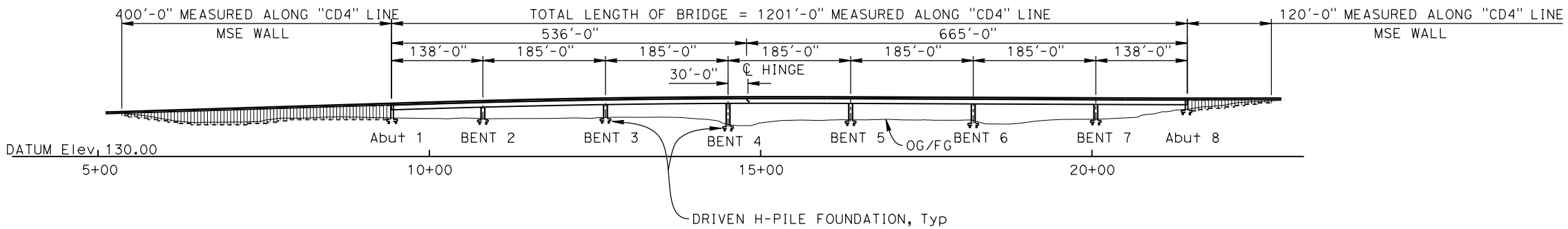
USERNAME => jloomis DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:15

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

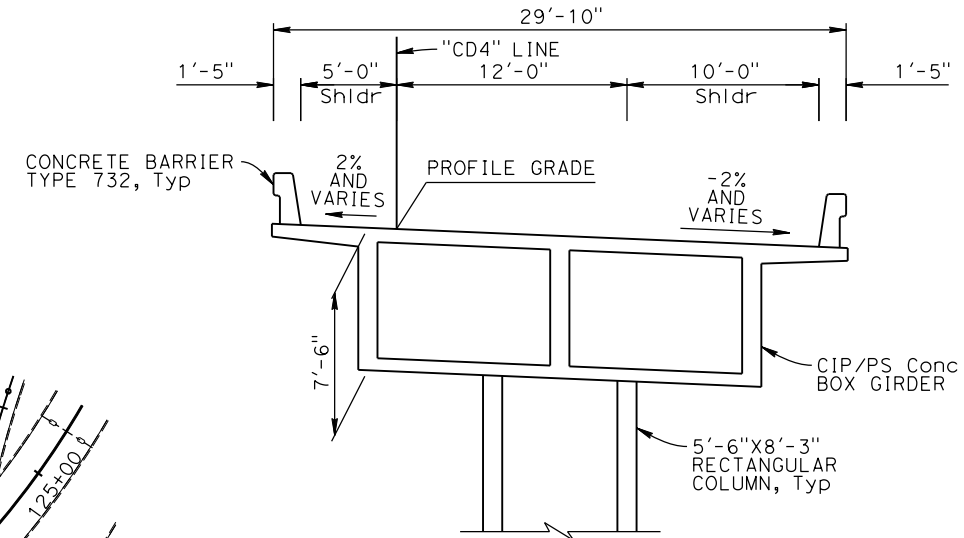
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'



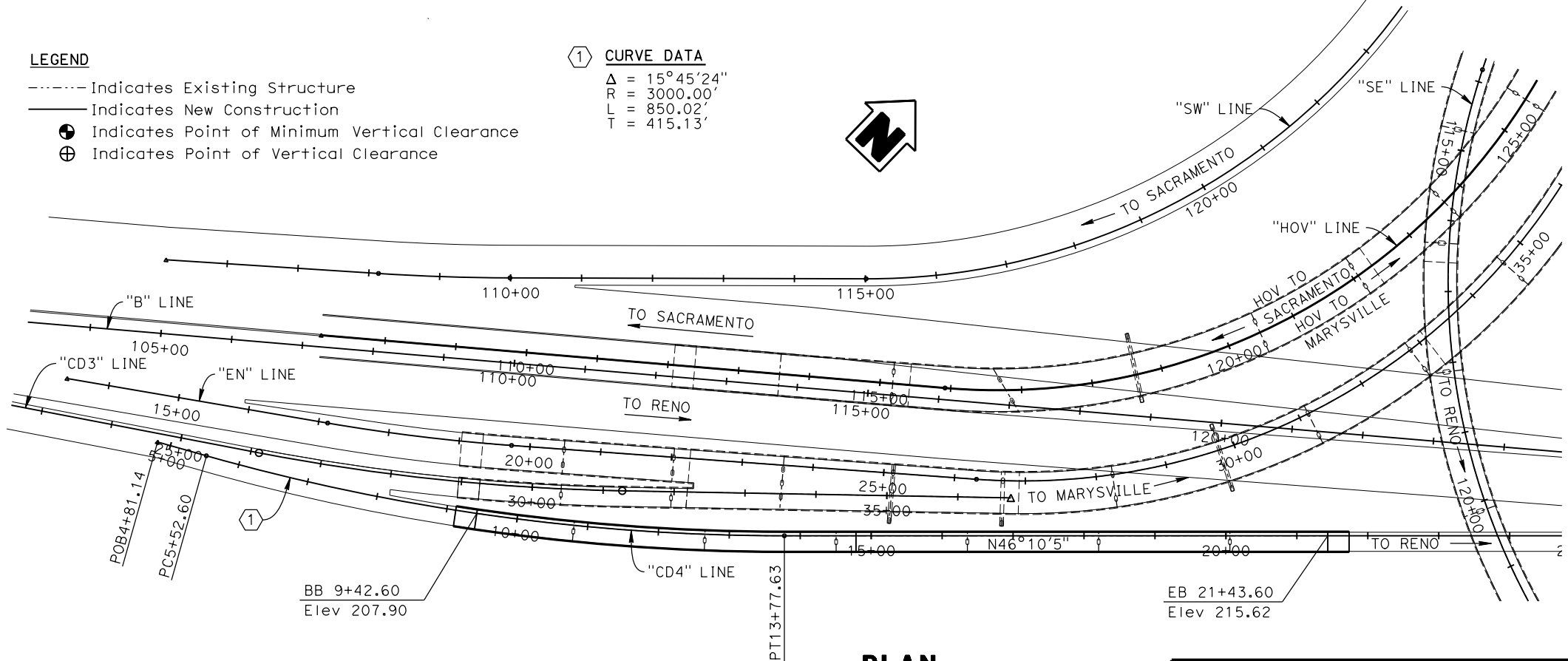
TYPICAL SECTION

1" = 5'

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1201'-0"
WIDTH	= 29'-10"
AREA	= 35,867 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL COST	= $ -
TOTAL COST	= $ 9,863,400

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

(1) CURVE DATA
Δ = 15°45'24"
R = 3000.00'
L = 850.02'
T = 415.13'



PLAN

1" = 100'

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
EB I-80 ON RAMP

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

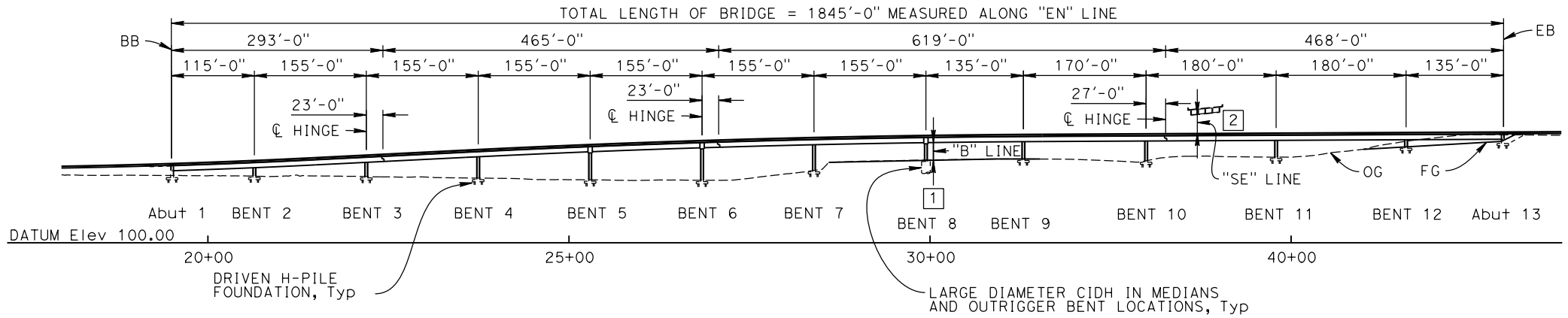
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:15

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

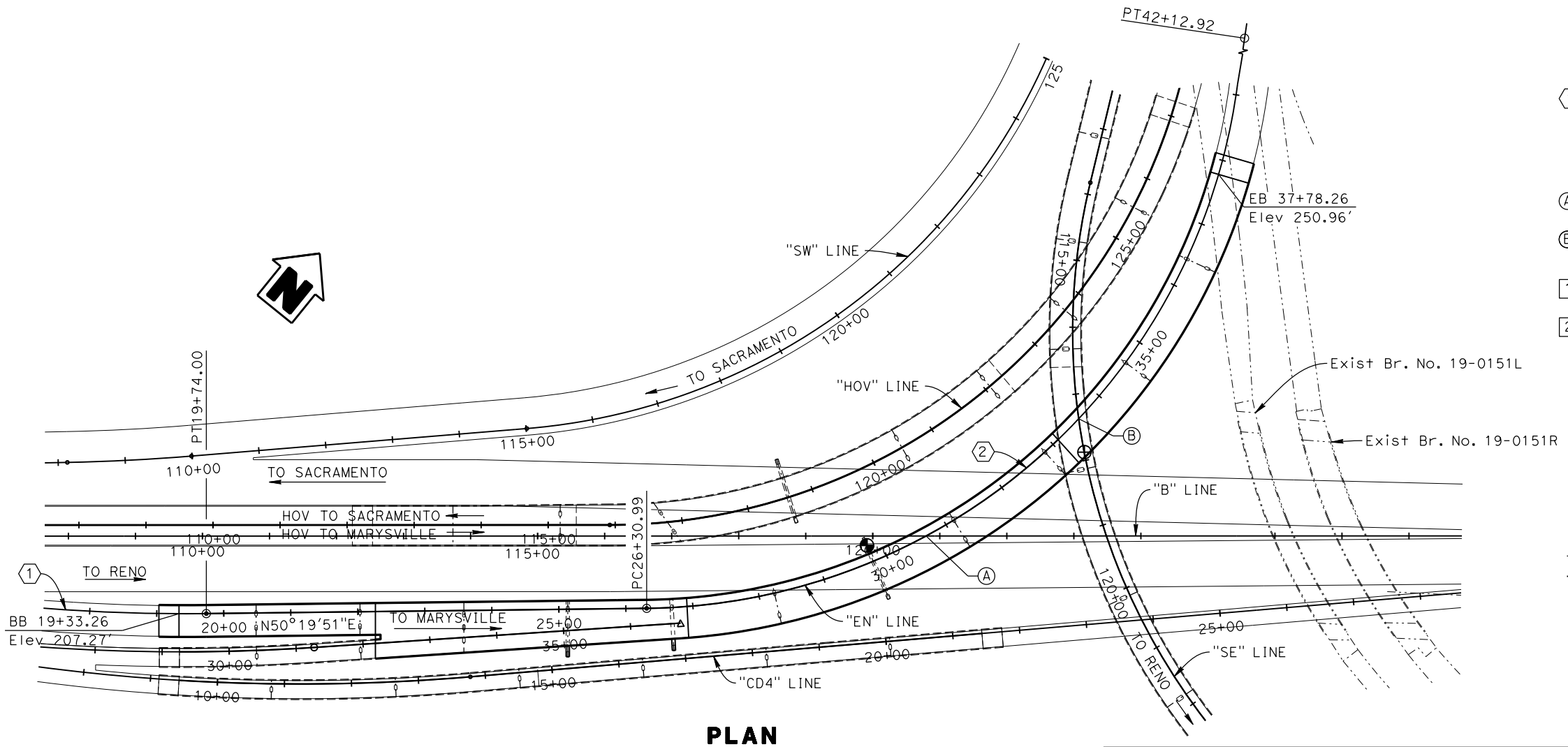


DEVELOPED ELEVATION

1" = 100'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 1845'-0"
WIDTH	= 48'-11" TO 84'-6"
AREA	= 115,185 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA *	= 12,702 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 31,866,400

* REMOVAL OF BR. NO. 19-0151R



PLAN

1" = 100'

1 CURVE DATA
Δ = 5°32'35"
R = 2700.00'
L = 261.21'
T = 130.71'

2 CURVE DATA
Δ = 100°42'31"
R = 900.00'
L = 1581.93'
T = 1086.15'

Ⓐ "EN" 30+65.84 = "B" 120+79.55

Ⓑ "EN" 33+54.17 = "SE" 117+37.08

1 20'-2" MINIMUM VERTICAL CLEARANCE

2 23'-3" VERTICAL CLEARANCE

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

ALTERNATIVE 2

PLANNING STUDY

E80/N65 CONNECTOR (1 OF 2)

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14
DRAWN BY PATRICK WALKER	DATE 07/24/14
CHECKED BY MARK BRADY	DATE 07/24/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_EN-a-gp01.dgn

CONTRACT NO.: X

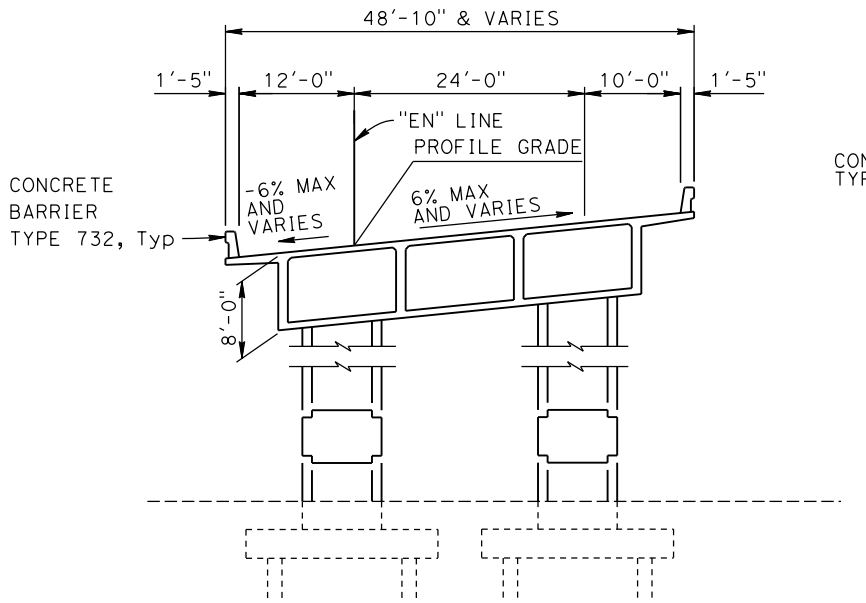
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:15

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

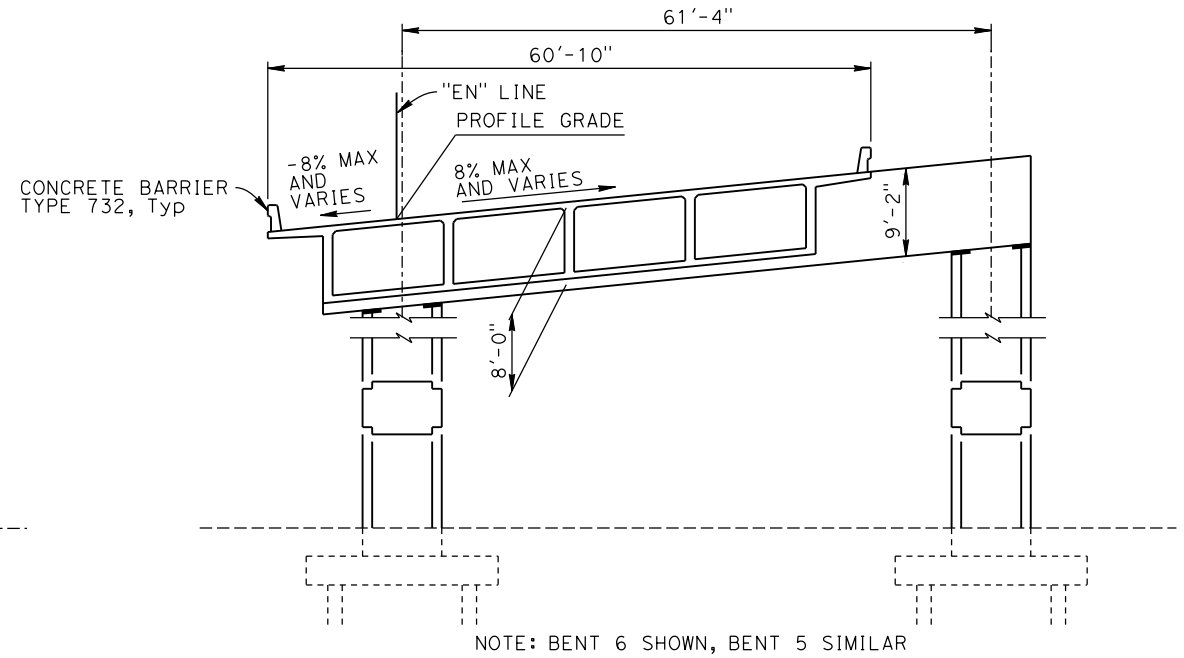
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION - FRAME 1

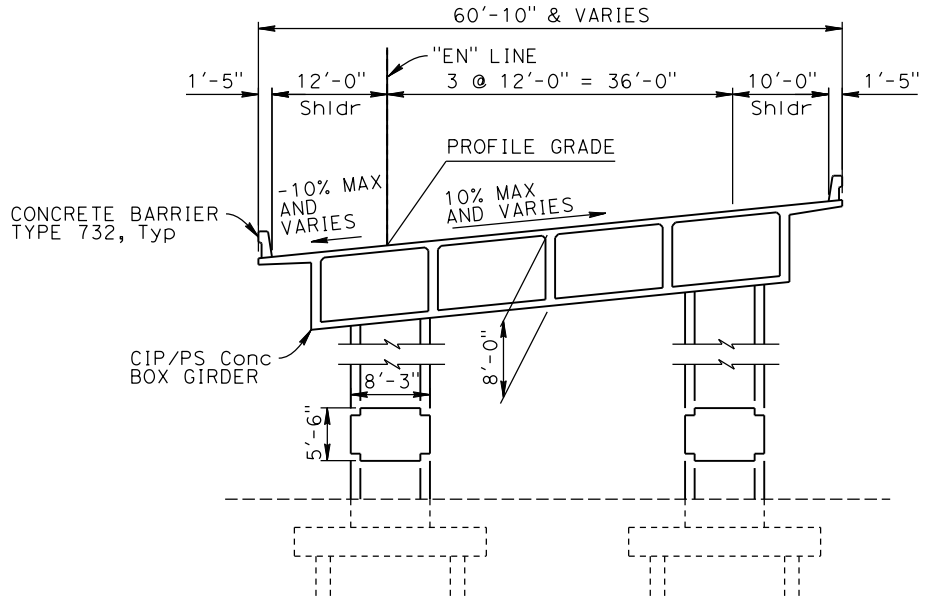
1" = 10'



NOTE: BENT 6 SHOWN, BENT 5 SIMILAR

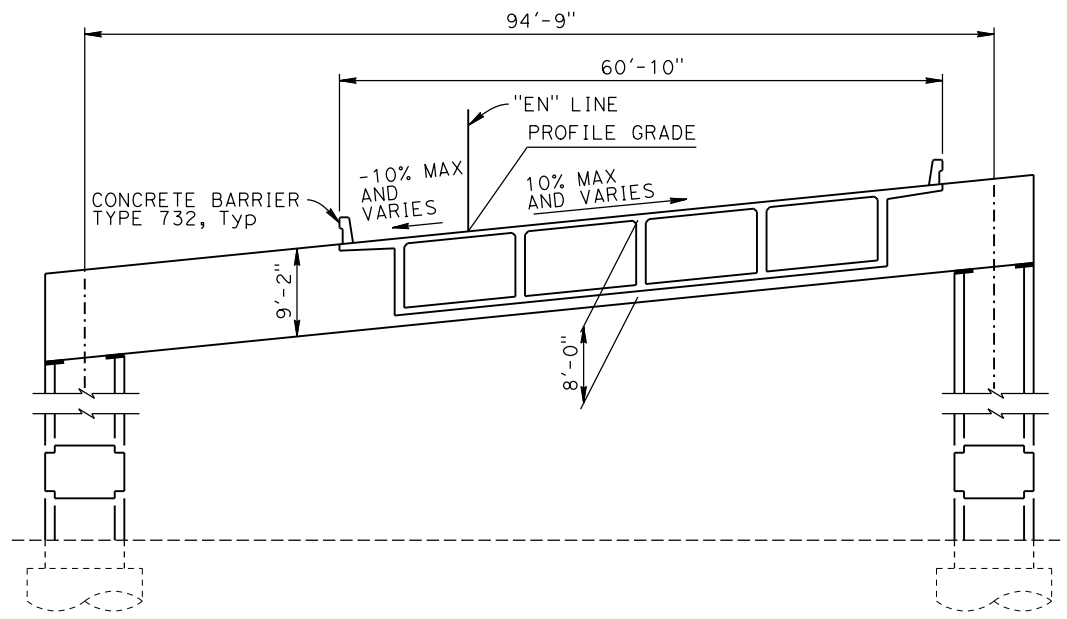
TYPICAL SECTION AT BENT 6

1" = 10'



TYPICAL SECTION - FRAMES 2,3,4

1" = 10'



TYPICAL SECTION AT BENT 8

1" = 10'

LEGEND

Indicates Existing Structure

Indicates New Construction

ALTERNATIVE 2

PLANNING STUDY

E80/N65 CONNECTOR (2 OF 2)

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_EN-a-gp02.dgn

CONTRACT NO.: X

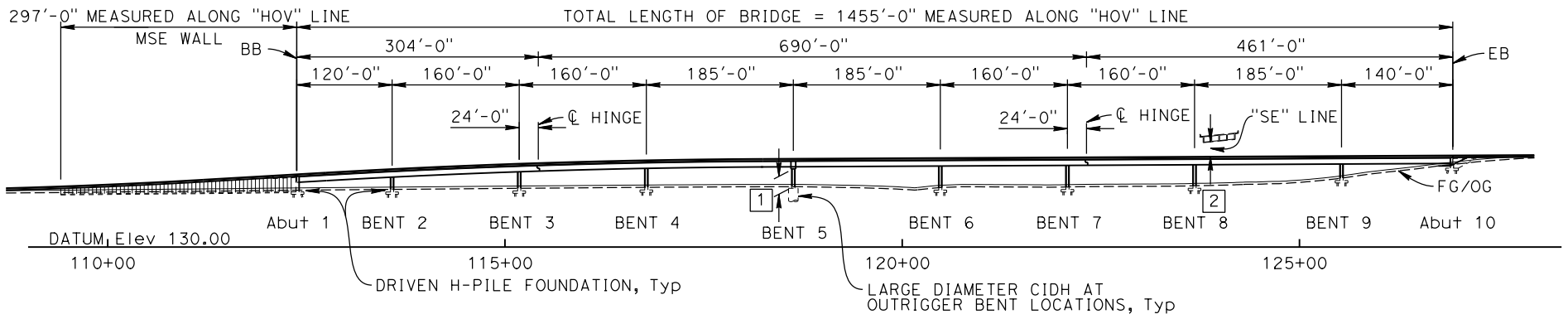
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:15

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 104°22'22"
R = 880.00'
L = 1603.05'
T = 1133.94'

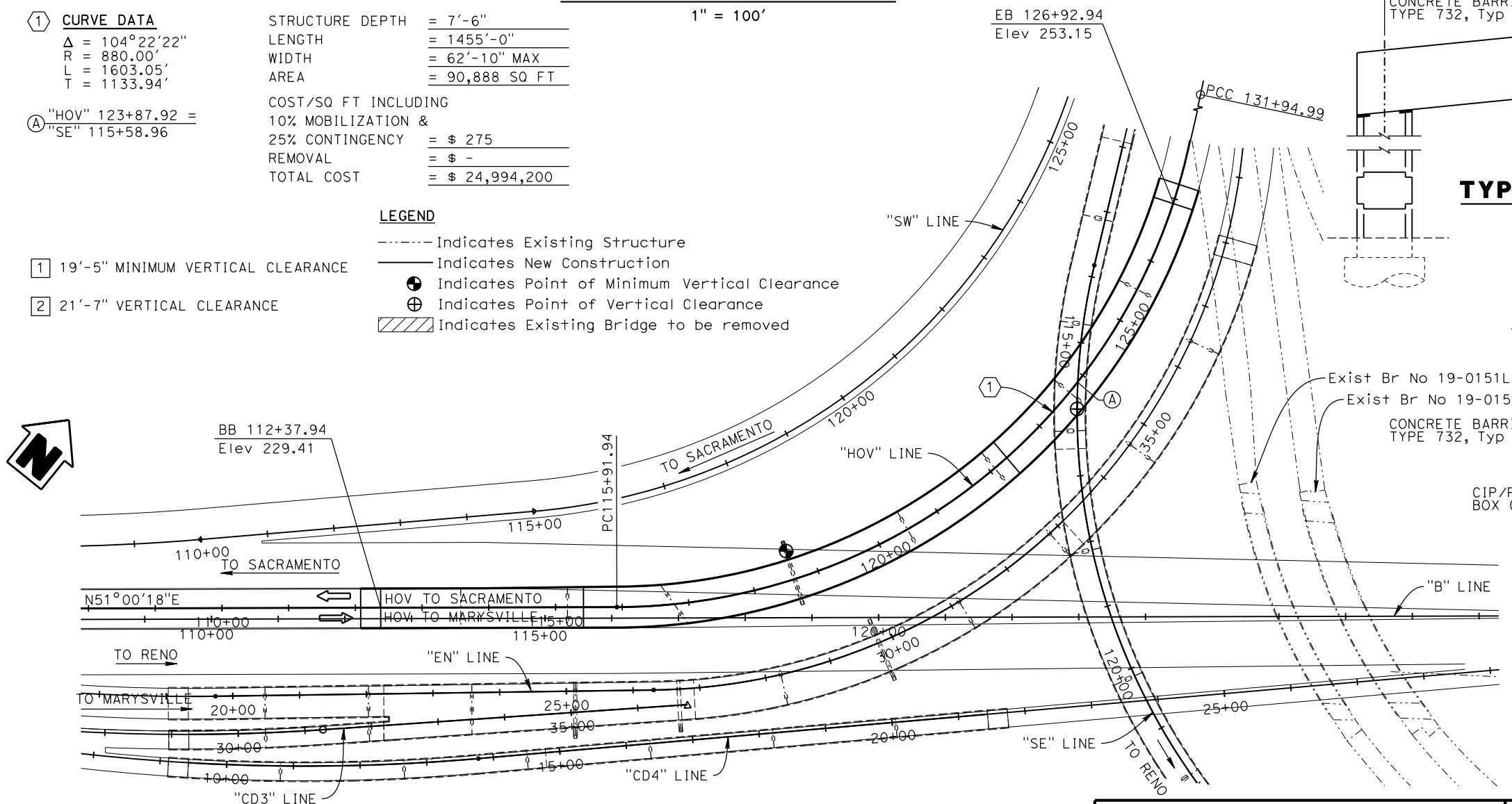
(A) "HOV" 123+87.92 = "SE" 115+58.96

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1455'-0"
WIDTH	= 62'-10" MAX
AREA	= 90,888 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL	= $ -
TOTAL COST	= $ 24,994,200

[1] 19'-5" MINIMUM VERTICAL CLEARANCE

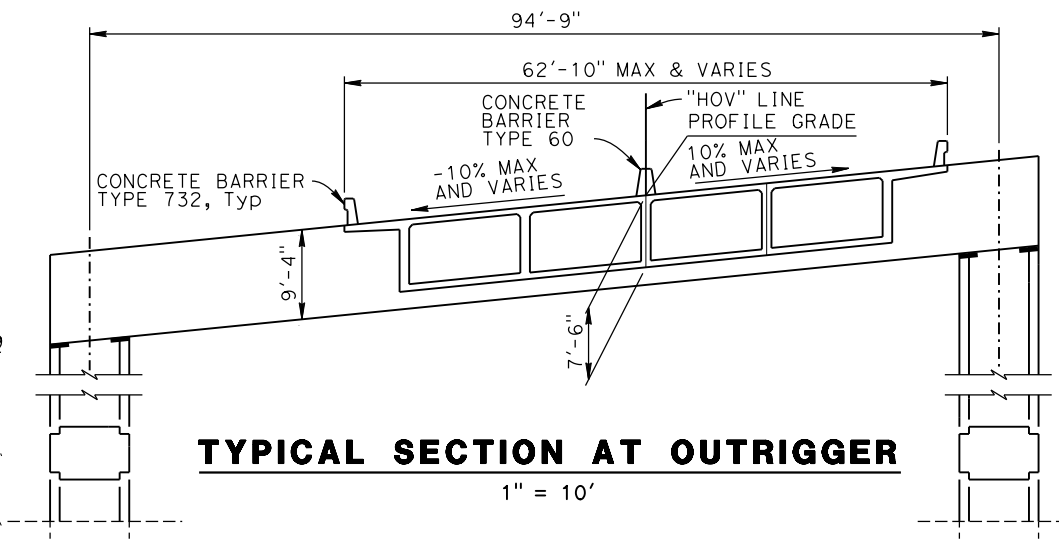
[2] 21'-7" VERTICAL CLEARANCE

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Bridge to be removed



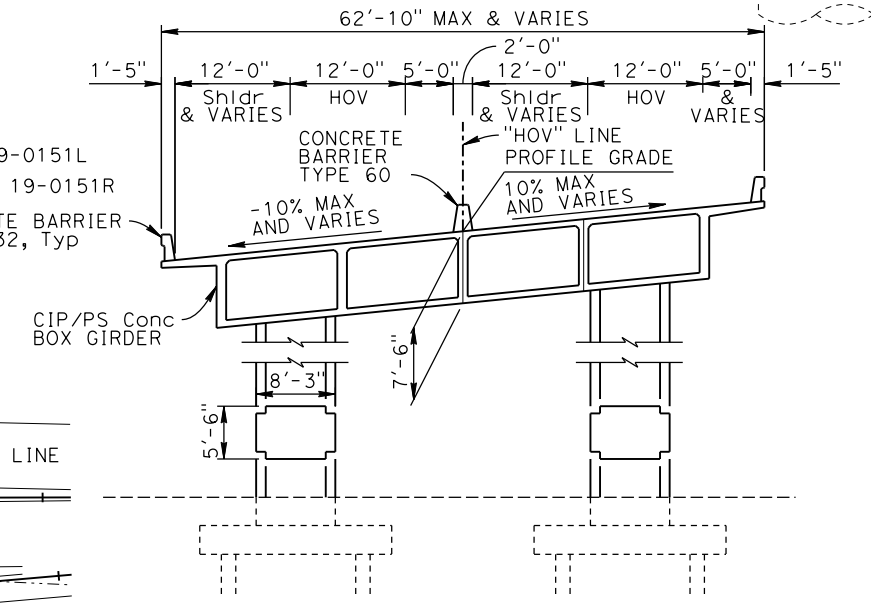
PLAN

1" = 100'



TYPICAL SECTION AT OUTRIGGER

1" = 10'



TYPICAL SECTION

1" = 10'

ALTERNATIVE 2

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

PLANNING STUDY

80/65 HOV CONNECTOR

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

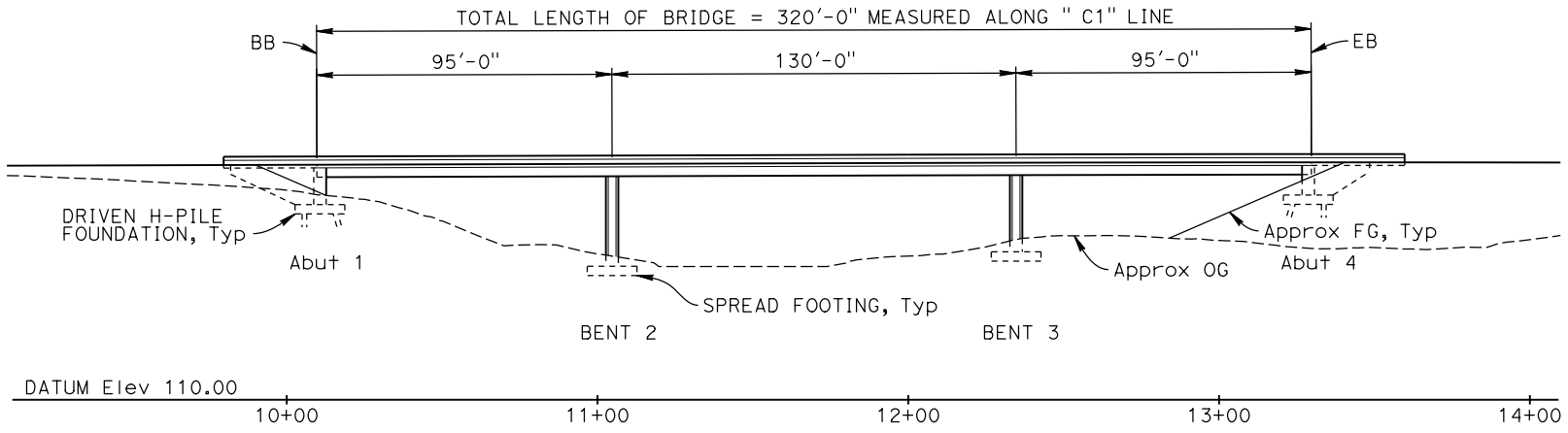
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:15

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

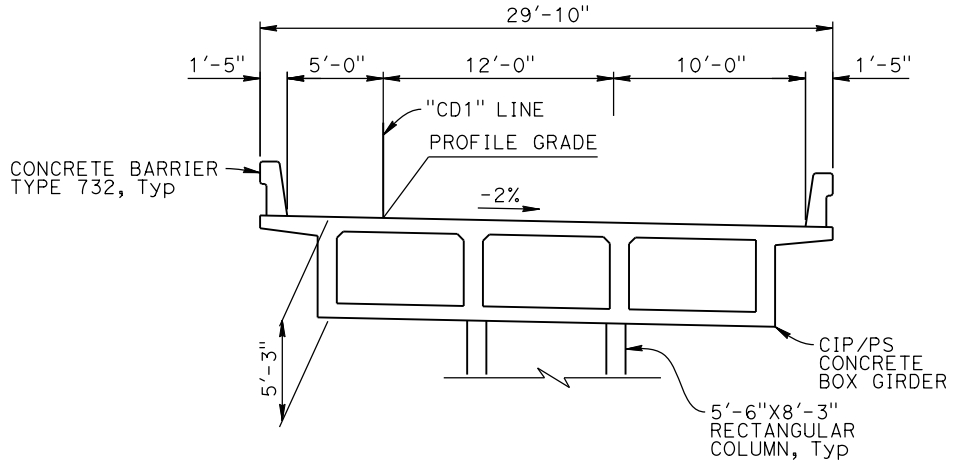
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 30'

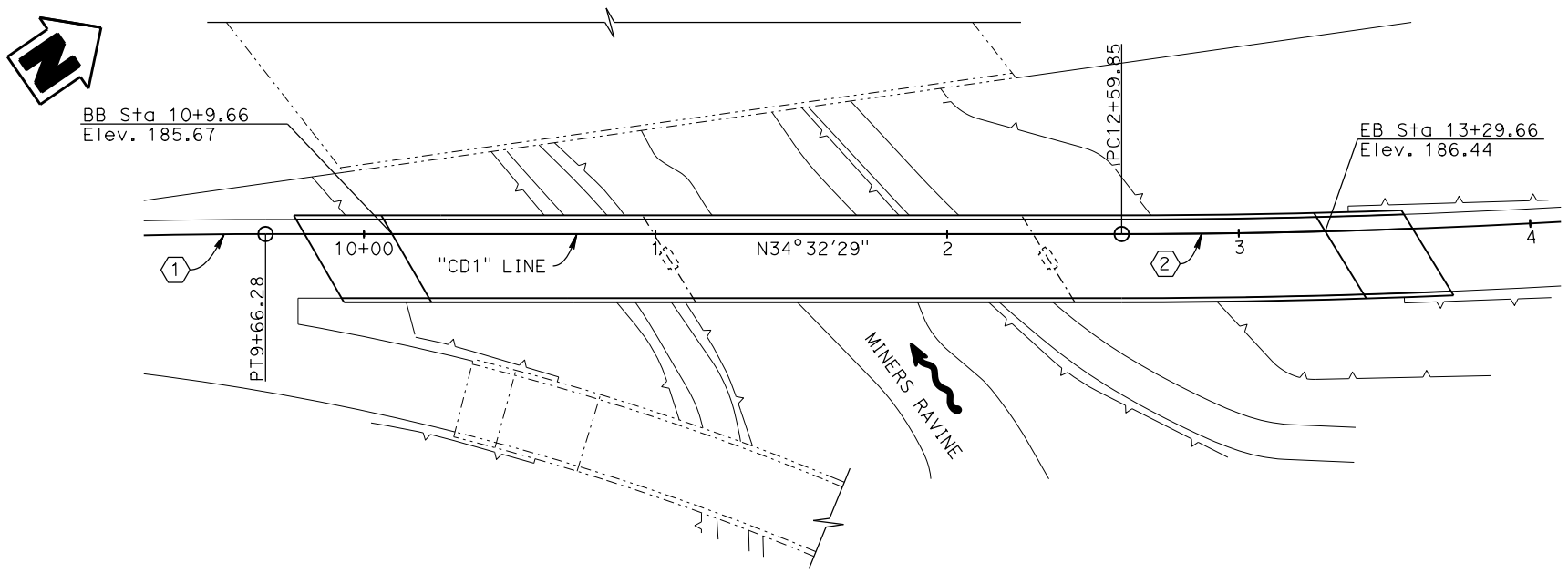


TYPICAL SECTION

1" = 5'-0"

(1) CURVE DATA
Δ = 6°0'57"
R = 1900.00'
L = 199.49'
T = 99.84'

(2) CURVE DATA
Δ = 6°51'47"
R = 2700.00'
L = 1043.29'
T = 161.90'



PLAN

1" = 30'

STRUCTURE DEPTH	= 5'-3"
LENGTH	= 320'-0"
WIDTH	= 29'-10"
AREA	= 9,547 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
TOTAL COST	= $ 2,625,400

LEGEND

-·-·-·- Indicates Existing Structure

——— Indicates New Construction

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2

PLANNING STUDY

MINERS RAVINE BRIDGE

BRIDGE NO.	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_MR-a-gp01.dgn

CONTRACT NO.: X

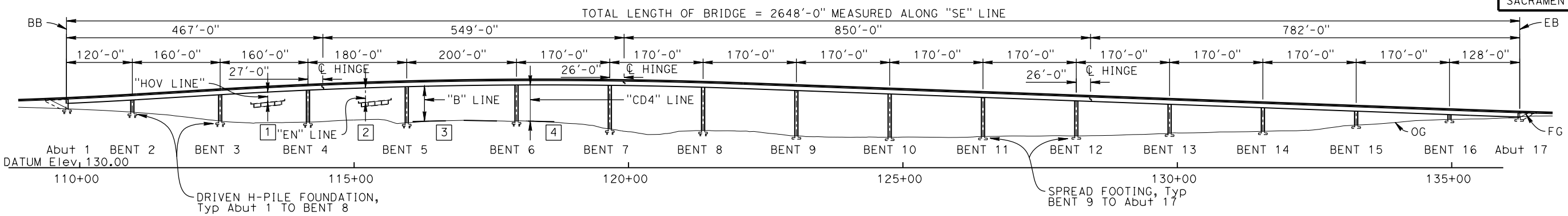
USERNAME =>jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:16

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



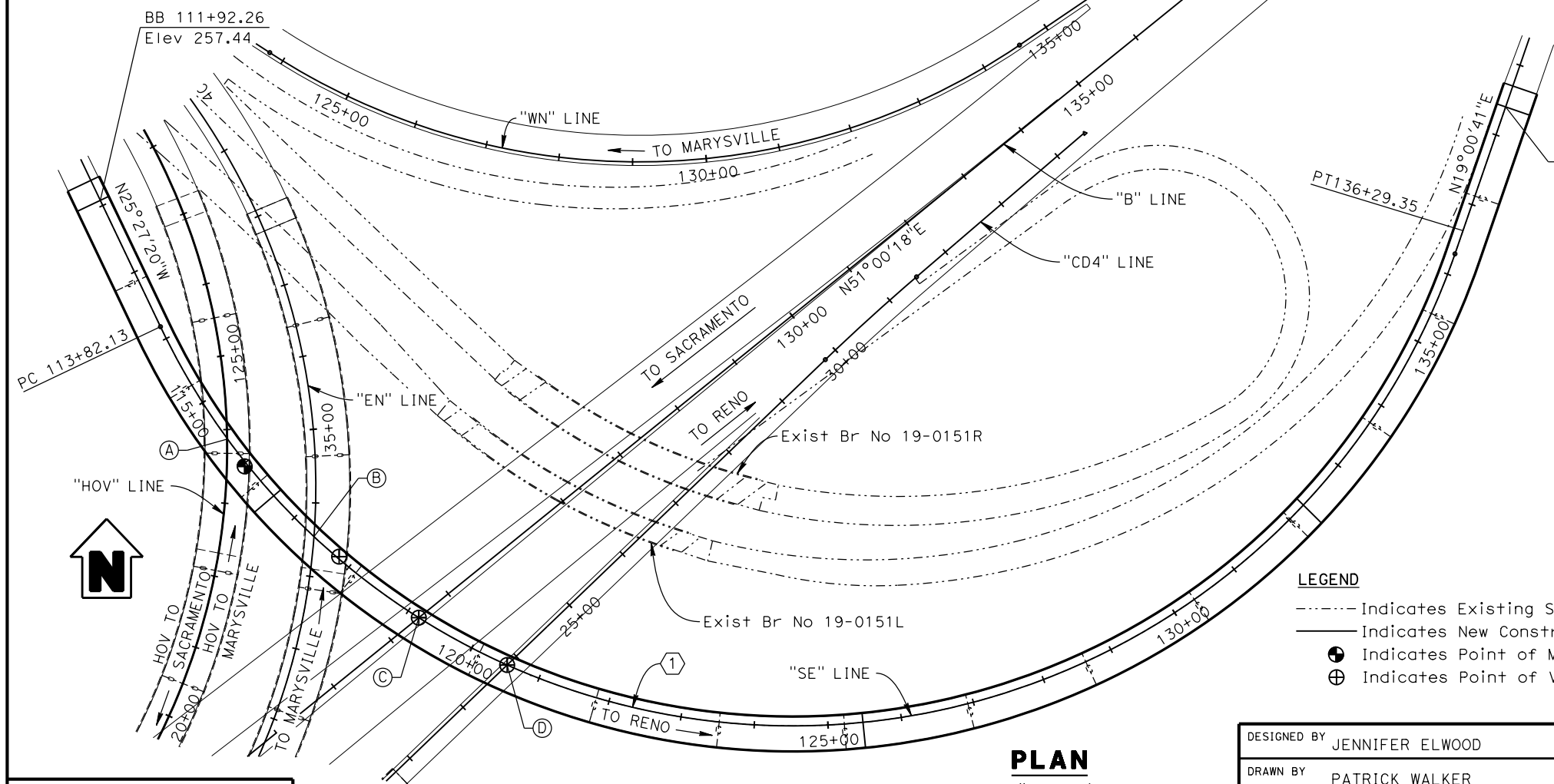
DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 135°31'58"
R = 950.00'
L = 2247.22'
T = 2315.30'

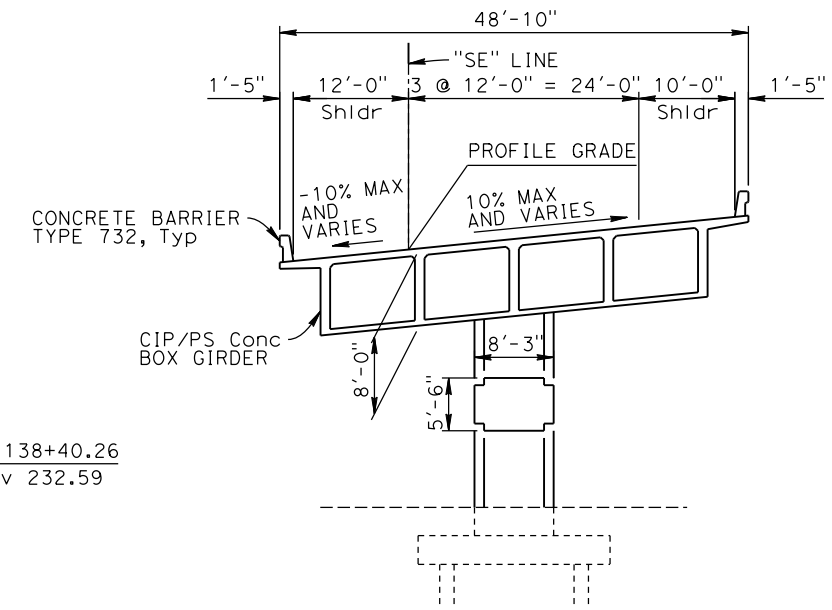
Ⓐ "SE" 115+58.96 = "HOV" 123+87.92
Ⓑ "SE" 117+37.08 = "EN" 33+54.17
Ⓒ "SE" 119+17.08 = "B" 123+48.55
Ⓓ "SE" 120+53.16 = "CD4" 23+82.92

1 21'-7" MINIMUM VERTICAL CLEARANCE
2 23'-3" VERTICAL CLEARANCE
3 61'-11" VERTICAL CLEARANCE
4 65'-1" VERTICAL CLEARANCE



PLAN

1" = 100'



TYPICAL SECTION

1" = 10'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 2437'-0"
WIDTH	= 48'-10"
AREA	= 130,581 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA *	= 9,222 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 36,048,100

* REMOVAL OF BR. NO. 19-0151L

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
S65/E80 CONNECTOR

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

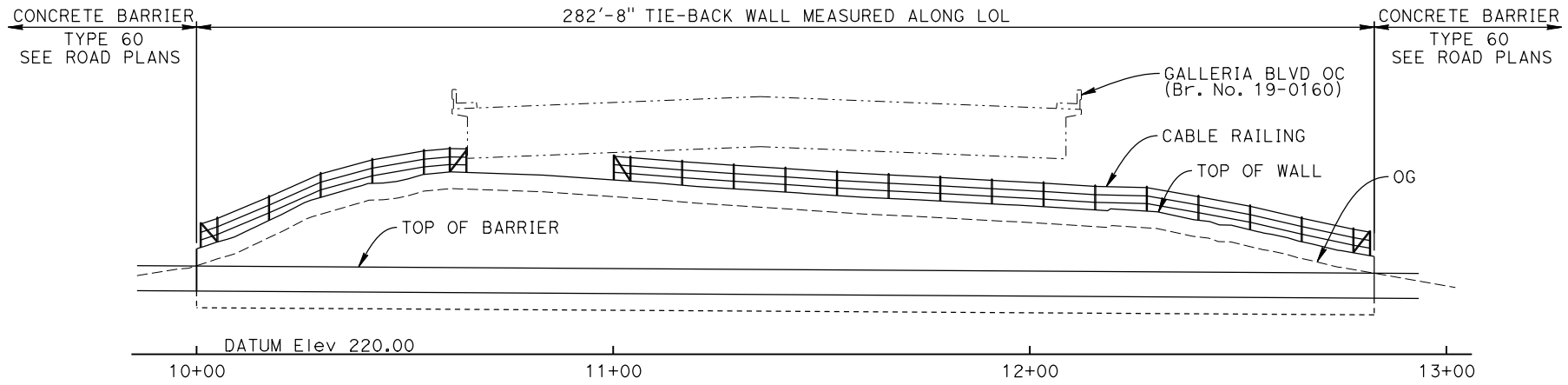
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:16

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

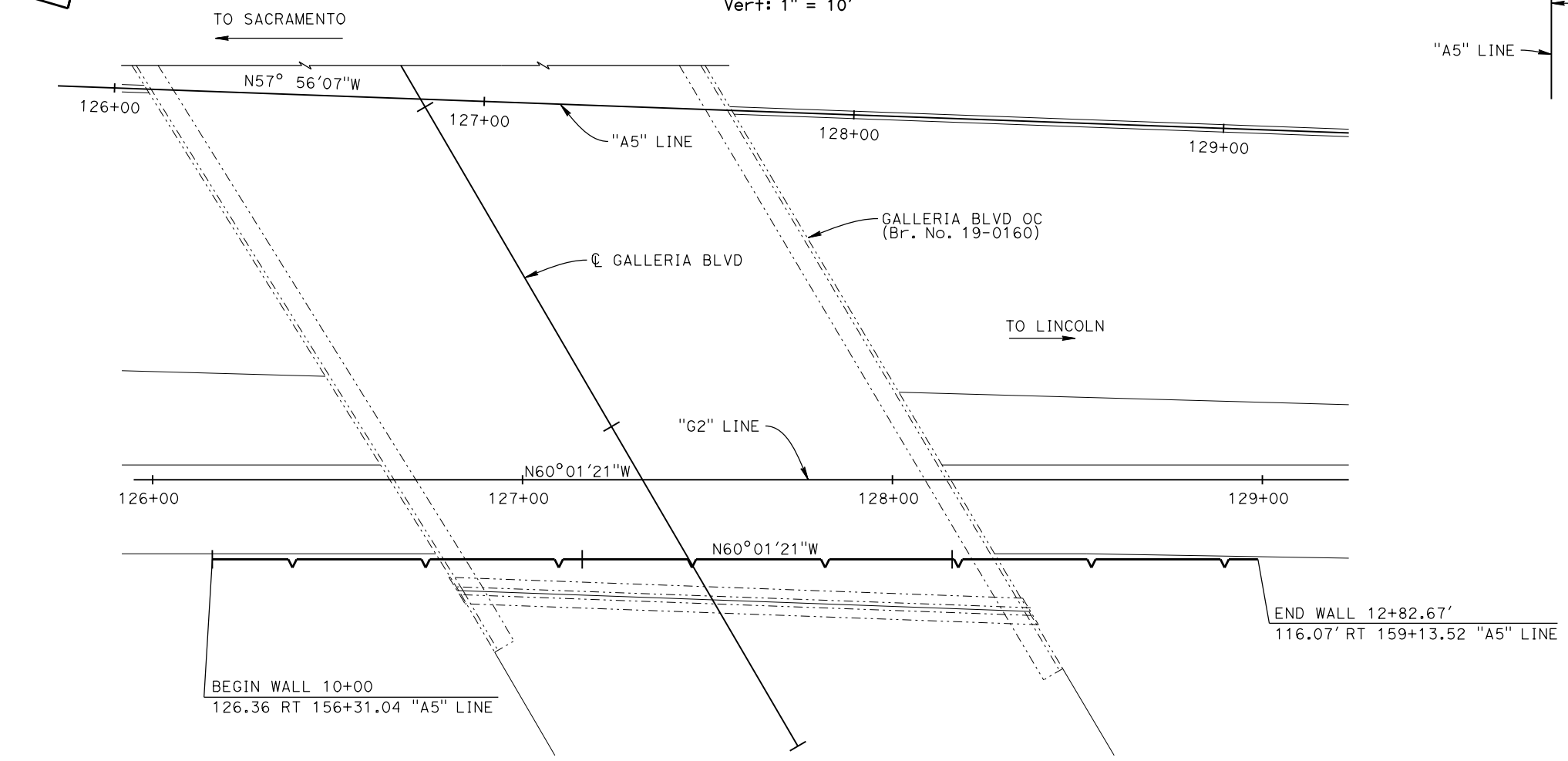
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



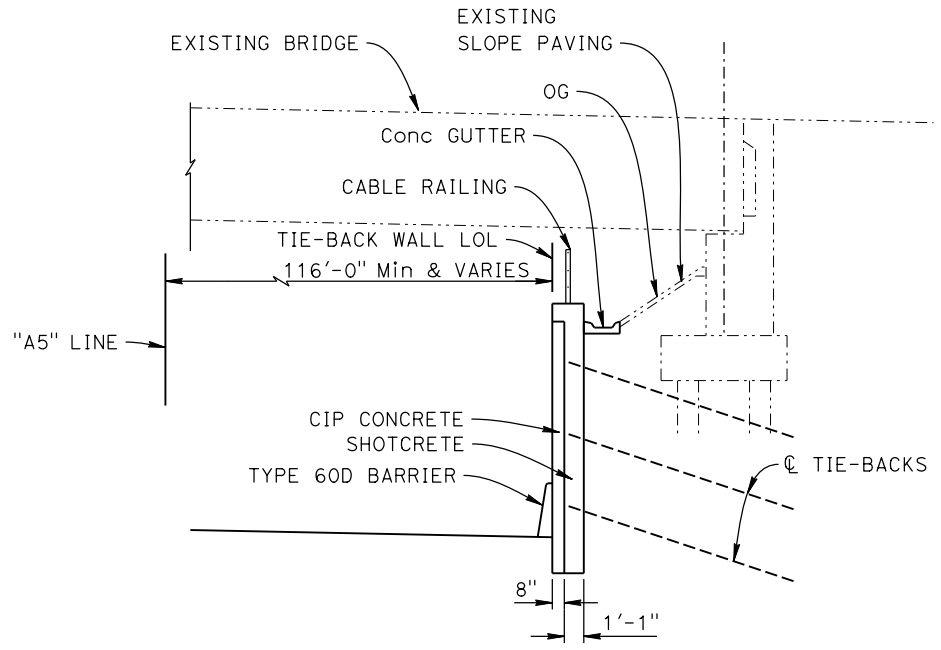
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



PLAN

1" = 20'



TYPICAL SECTION

3/16" = 1'

STRUCTURE LENGTH = 282'-8"
HEIGHT = 5'-0" TO 16'-6"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 125
TOTAL COST = $ 461,700

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
GALLERIA BLVD TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

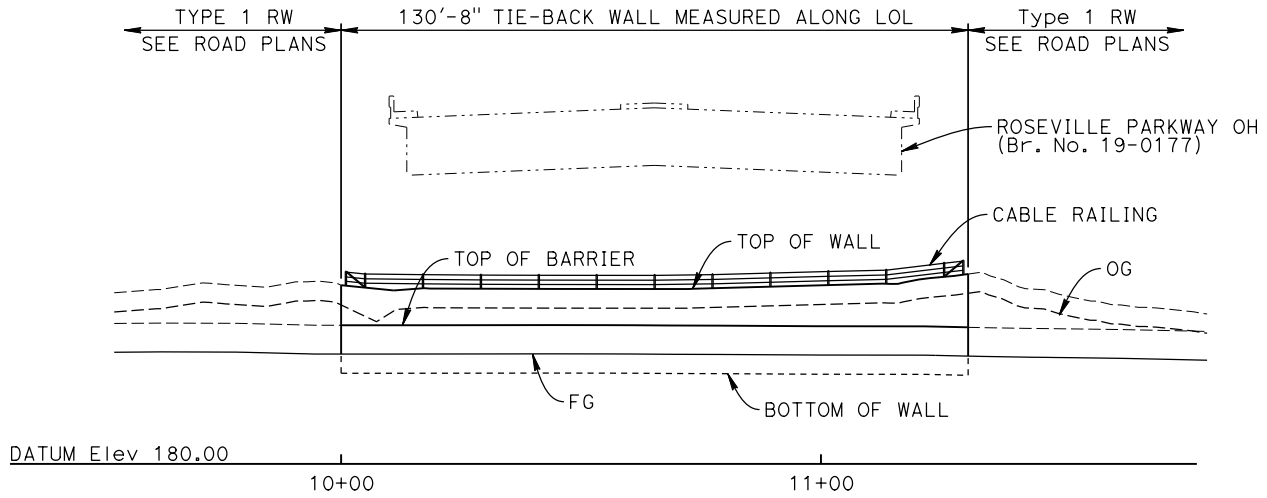
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:52

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

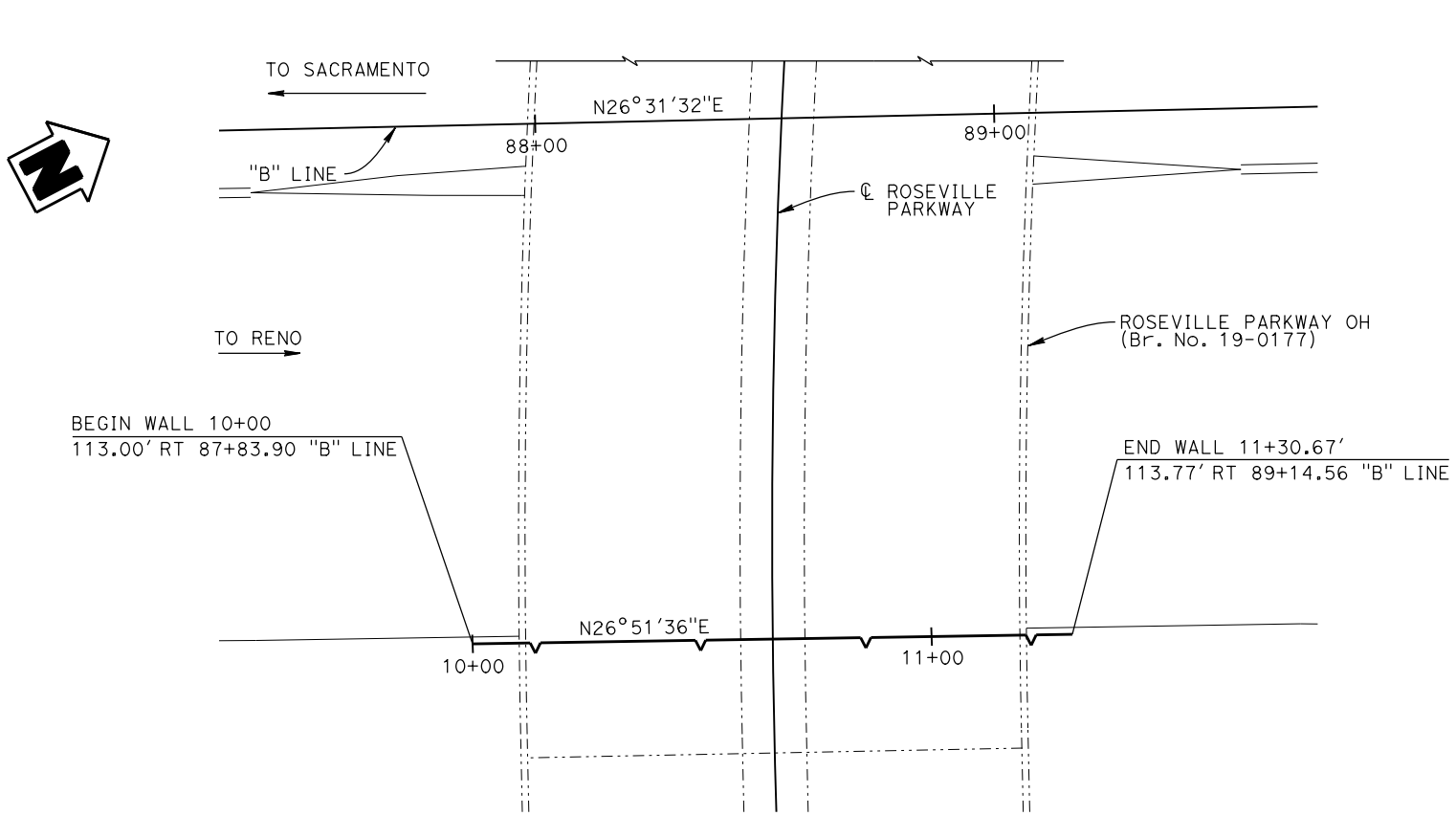
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



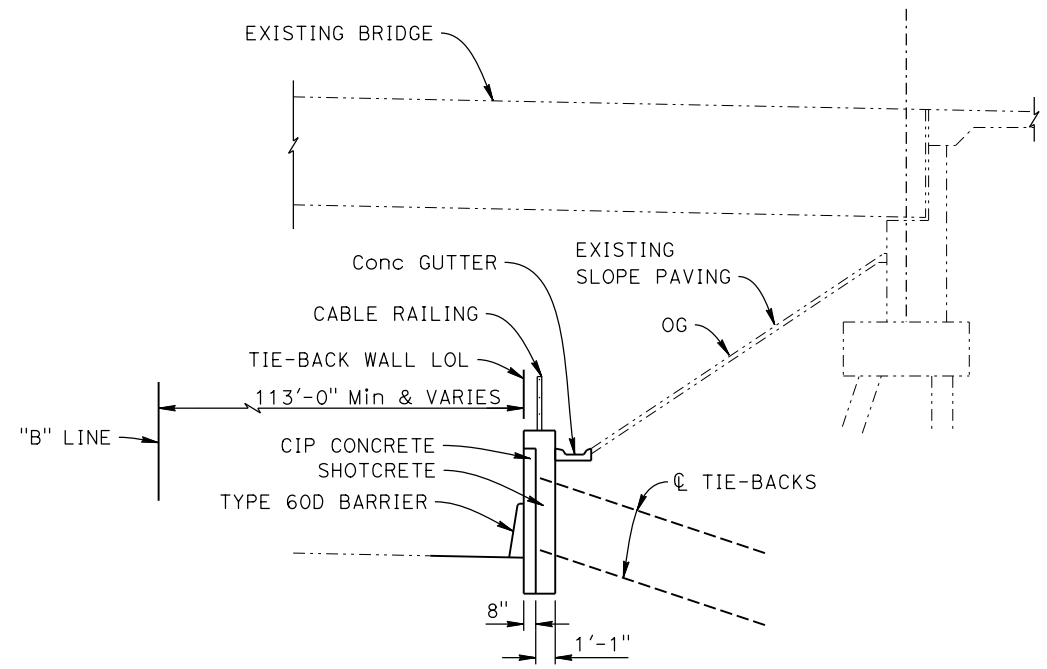
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



PLAN

1" = 20'



TYPICAL SECTION

3/16" = 1'

STRUCTURE LENGTH = 130'-8"
HEIGHT = 8'-0" TO 8'-6"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 125
TOTAL COST = $ 148,000

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2

PLANNING STUDY

ROSEVILLE PKWY TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:16

FILE => 418554_alt2_TB_RosevillePky.dgn

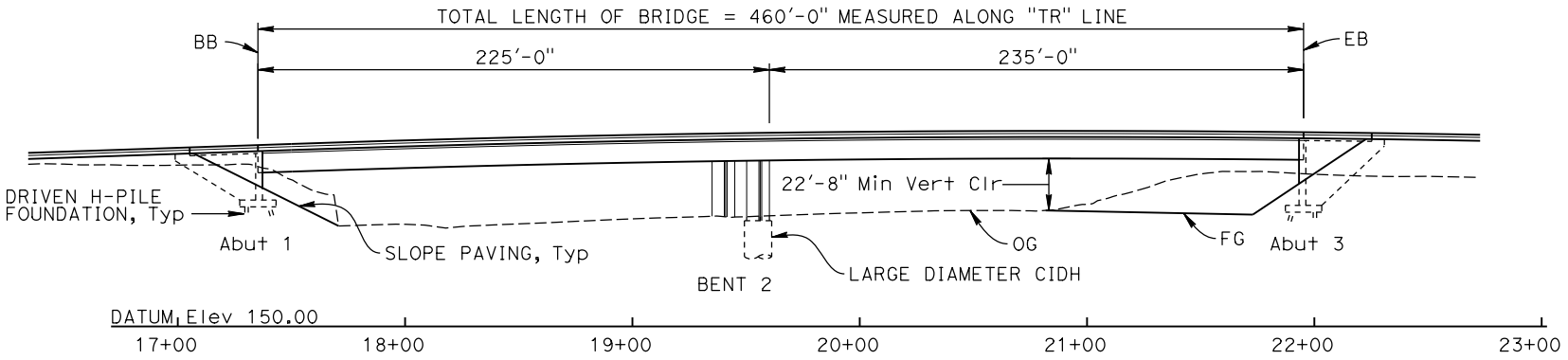
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

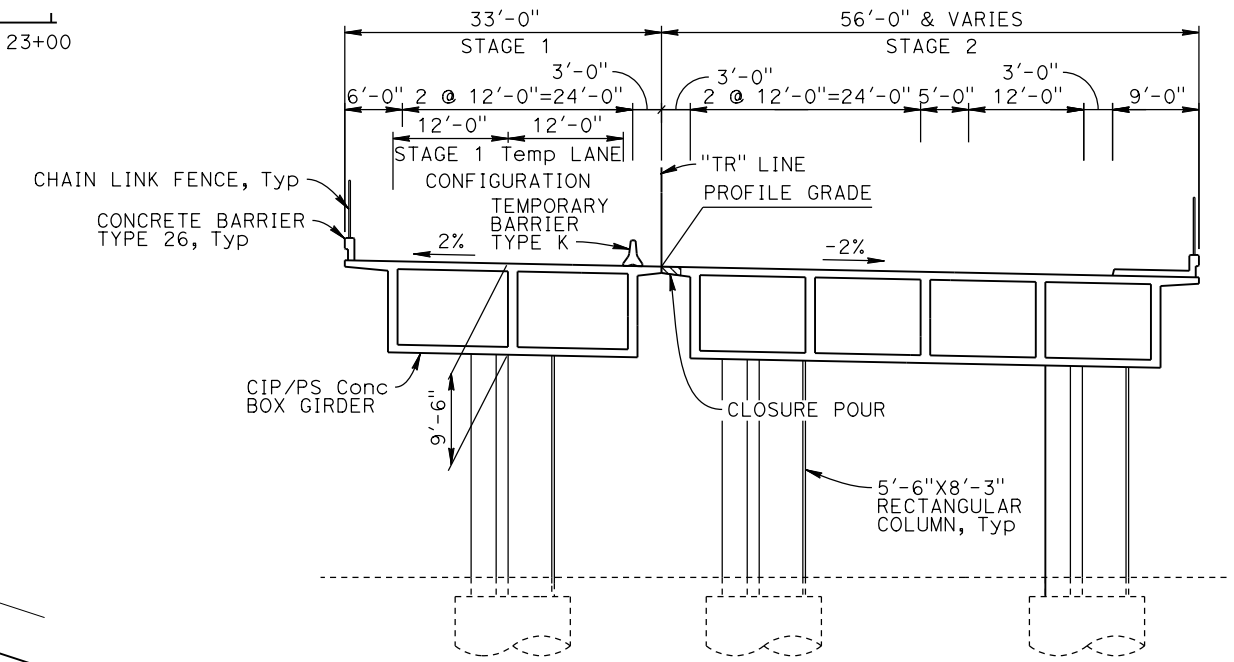
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 40'

STRUCTURE DEPTH	= 9'-6"
LENGTH	= 460'-0"
WIDTH	= 89'-0" & VARIES
AREA	= 41,177 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA	= 22,570 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 11,662,300

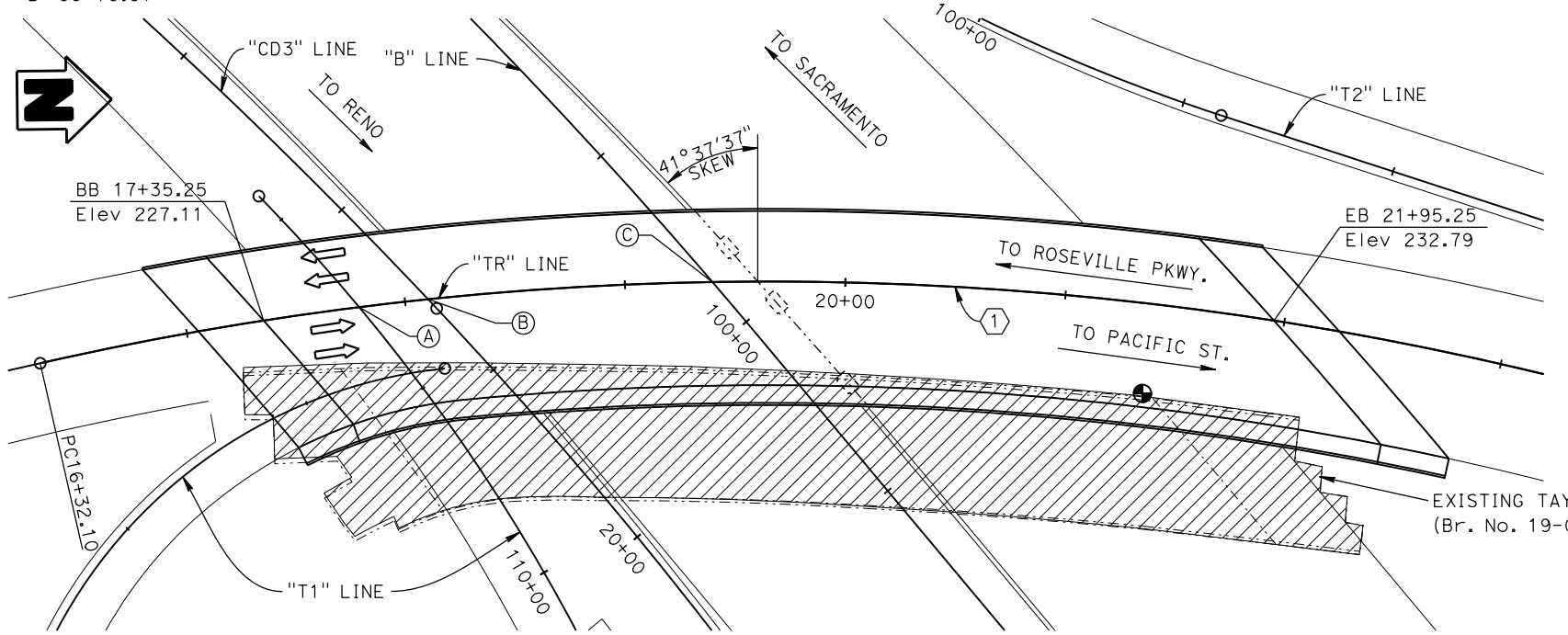


TYPICAL SECTION

1" = 10'

① CURVE DATA
Δ = 28°26'05"
R = 1491.00'
L = 739.96'
T = 377.76'

Ⓐ "TR" 17+79.01 = "T1" 108+53.14
Ⓑ "TR" 18+10.46 = "CD3" 18+56.35
Ⓒ "TR" 19+39.71 = "B" 99+76.31



PLAN

1" = 40'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge to be removed

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

ALTERNATIVE 2

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14	MARK S. BRADY PROJECT ENGINEER	PLANNING STUDY
DRAWN BY PATRICK WALKER	DATE 07/24/14		TAYLOR ROAD OC (REPLACE)
CHECKED BY MARK BRADY	DATE 07/24/14		BRIDGE NO. 19-XXXX / UNIT:
APPROVED	DATE		SCALE: AS NOTED / PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_glt2_TR-a-gp01.dgn

CONTRACT NO.: X

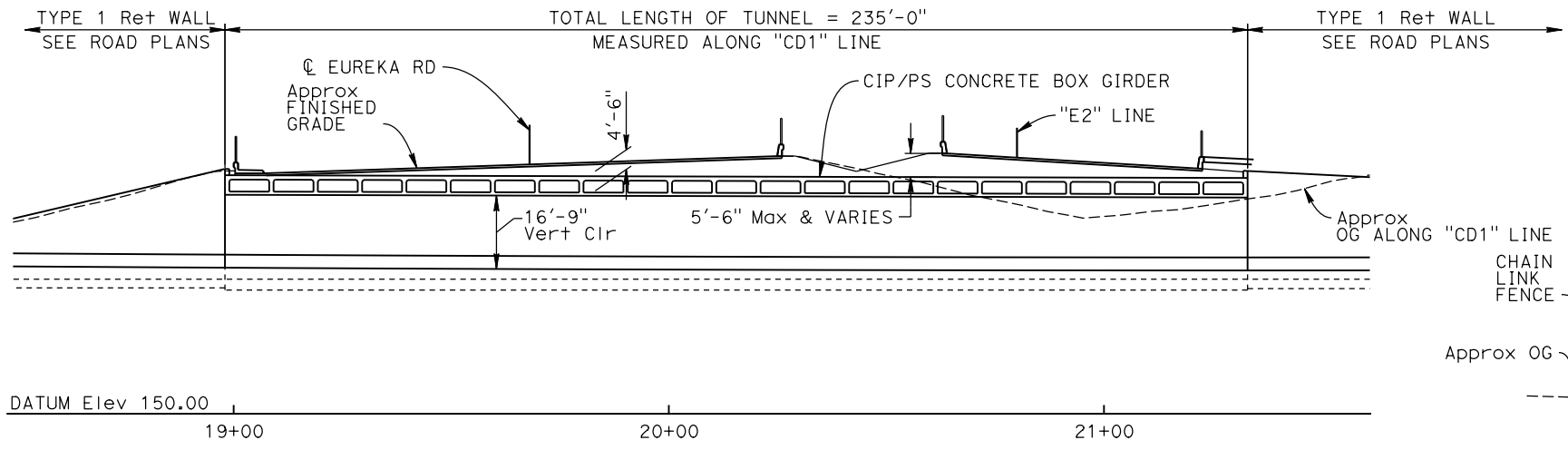
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:16

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

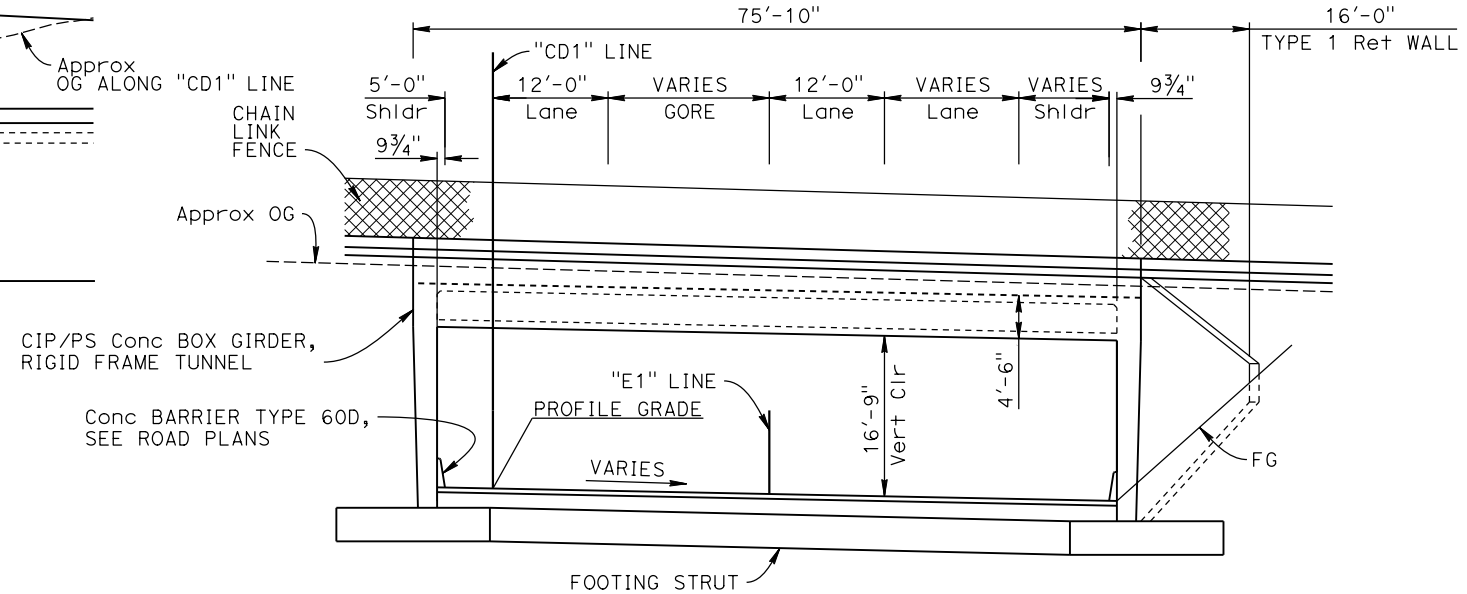
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



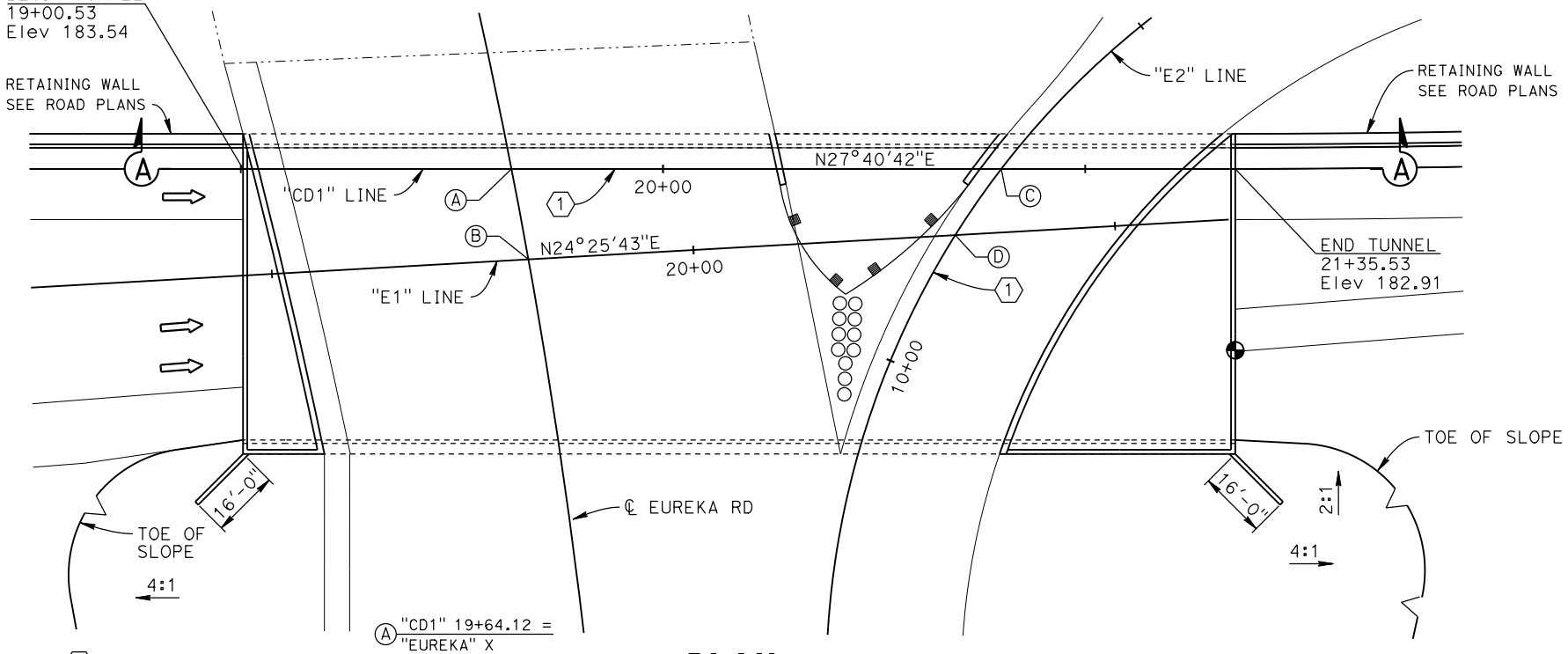
SECTION A-A

1" = 20'



TYPICAL SECTION AT OPENING

1" = 10'



① CURVE DATA
Δ = 85°00'54"
R = 200.00'
L = 296.76'
T = 183.31'

Ⓐ "CD1" 19+64.12 = "EUREKA" X

Ⓑ "E1" 19+60.86 = "EUREKA" X

Ⓒ "CD1" 20+80.12 = "E2" 10+52.59

Ⓓ "E1" 20+62.10 = "E2" 10+33.49

PLAN

1" = 20'

STRUCTURE DEPTH	= 4'-6"
LENGTH	= 235'-0"
WIDTH	= 75'-10"
AREA	= 17,820 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 350
TOTAL COST	= $ 6,237,000

LEGEND

-·-·-·- Indicates Existing Structure

——— Indicates New Construction

Indicates Point of Minimum Vertical Clearance

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	MARK BRADY	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	JENNIFER ELWOOD	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
EUREKA RD ON RAMP UC

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_Tunnel-a-gp01.dgn

CONTRACT NO.: X

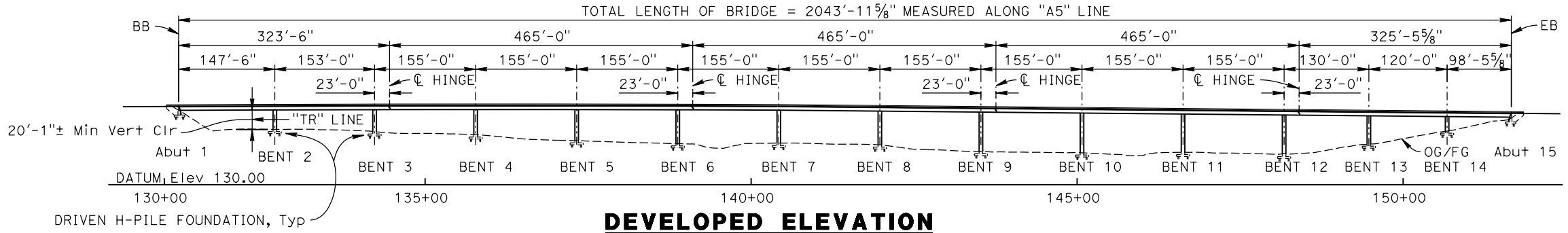
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:16

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

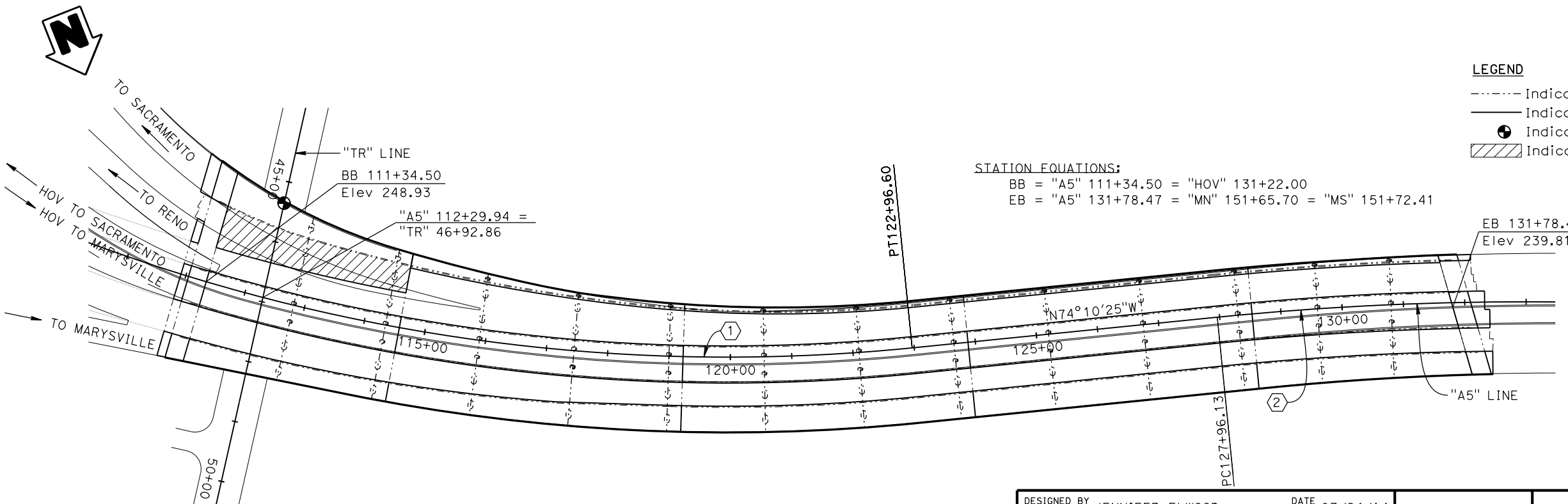


DEVELOPED ELEVATION
1" = 100'

STRUCTURE DEPTH	= 6'-0"
LENGTH	= 2043'-11⅝"
WIDTH LEFT	= 10'-9" TO 68'-6"
WIDTH CENTER	= 60'-6"
WIDTH RIGHT	= 18'-11" TO 40'-7"
AREA LEFT	= 49,918 SQ FT
AREA CENTER	= 124,074 SQ FT
AREA RIGHT	= 84,424 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 250
REMOVAL AREA	= 36,893 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 65,157,400

① **CURVE DATA**
Δ = 35°10'43"
R = 3000.00'
L = 1841.95'
T = 951.04'

② **CURVE DATA**
Δ = 16°14'18"
R = 5000.00'
L = 1417.06'
T = 713.31'



PLAN
1" = 100'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge Removal

STATION EQUATIONS:
BB = "A5" 111+34.50 = "HOV" 131+22.00
EB = "A5" 131+78.47 = "MN" 151+65.70 = "MS" 151+72.41

NOTE:
For Typical Sections, see E. Roseville Viaduct Widen (2 of 2).

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 2
PLANNING STUDY
E. ROSEVILLE VIADUCT (WIDEN) 1 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_VIADUCT-a-gp01.dgn

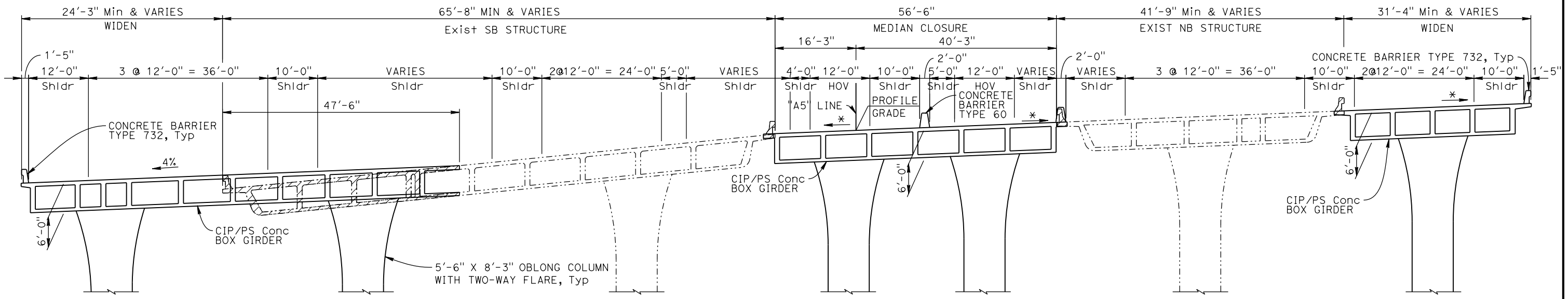
USERNAME =>jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:17

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

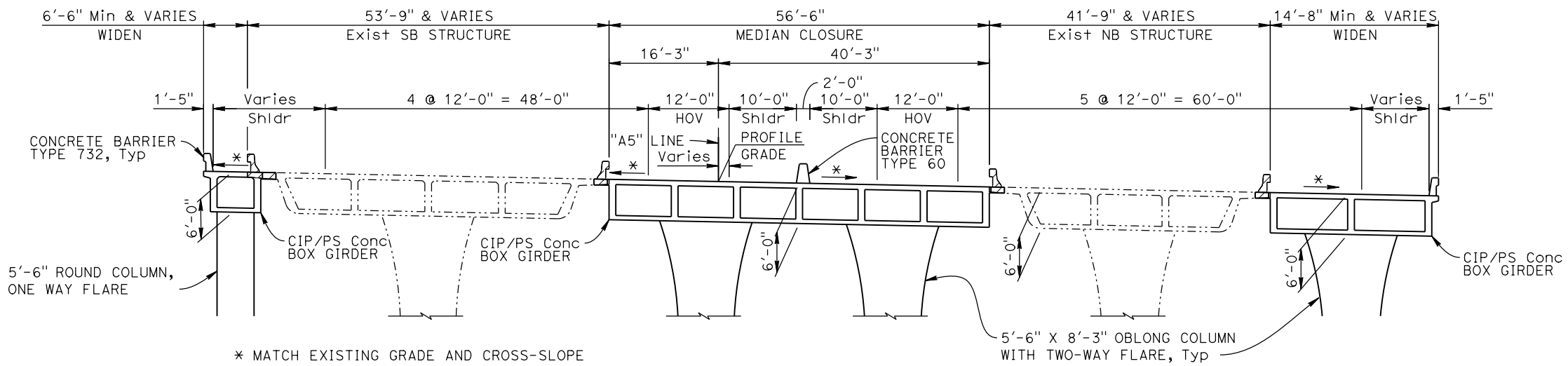
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION-FRAME 1

1" = 10'



TYPICAL SECTION-FRAMES 2,3,4,5

1" = 10'

LEGEND

- Indicates Existing Structure
- Indicates New Construction
- Indicates Existing Bridge Removal

ALTERNATIVE 2

PLANNING STUDY

E. ROSEVILLE VIADUCT (WIDEN) 2 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14	MARK S. BRADY PROJECT ENGINEER
DRAWN BY PATRICK WALKER	DATE 07/24/14	
CHECKED BY MARK BRADY	DATE 07/24/14	
APPROVED	DATE	

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt2_VIADUCT-a-gp02.dgn

CONTRACT NO.: X

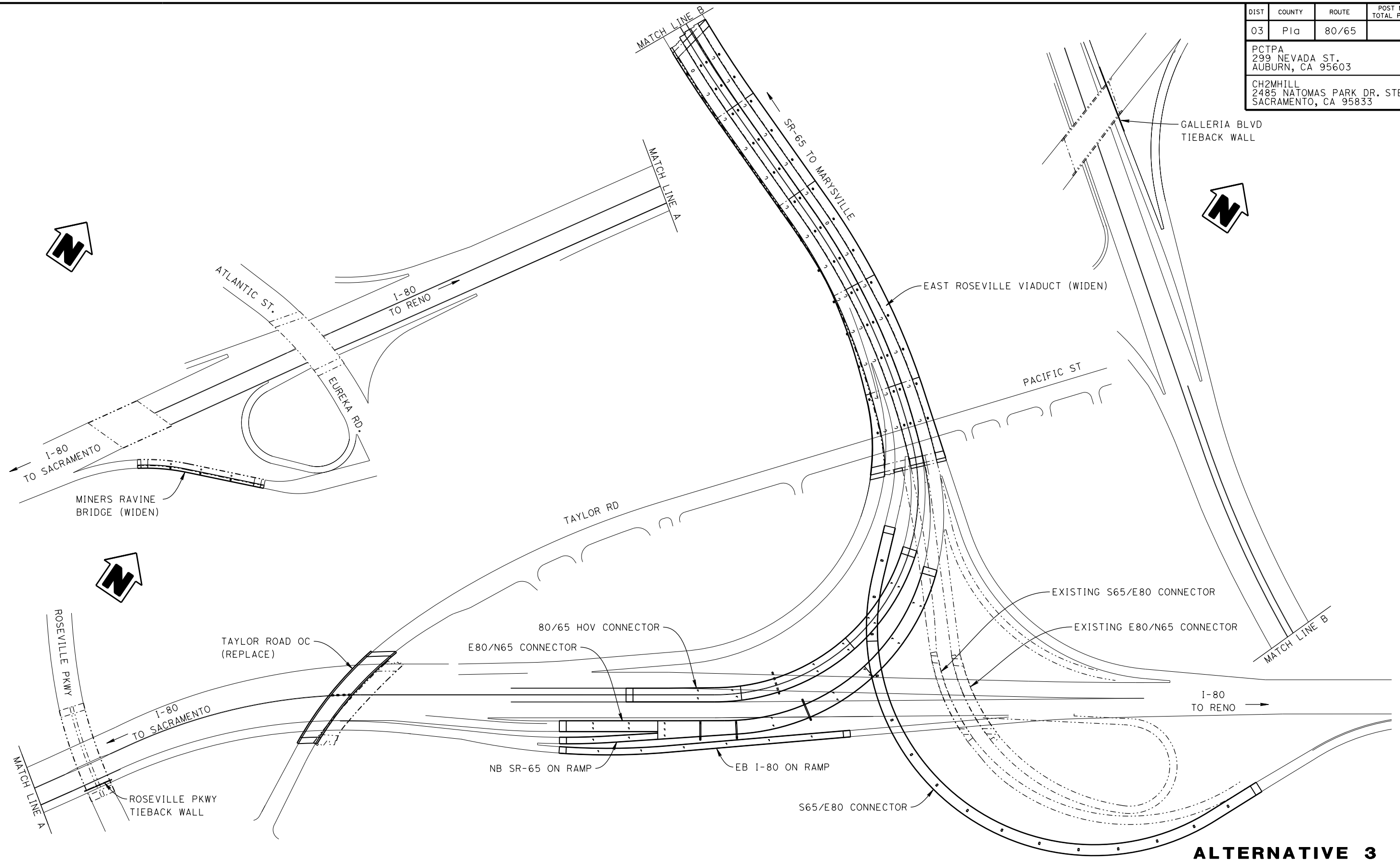
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 12:17

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



ALTERNATIVE 3
PLANNING STUDY
LOCATION MAP

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO.	UNIT:
SCALE: 1"=200'	PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_A_LOCATION MAP.dgn

CONTRACT NO.: X

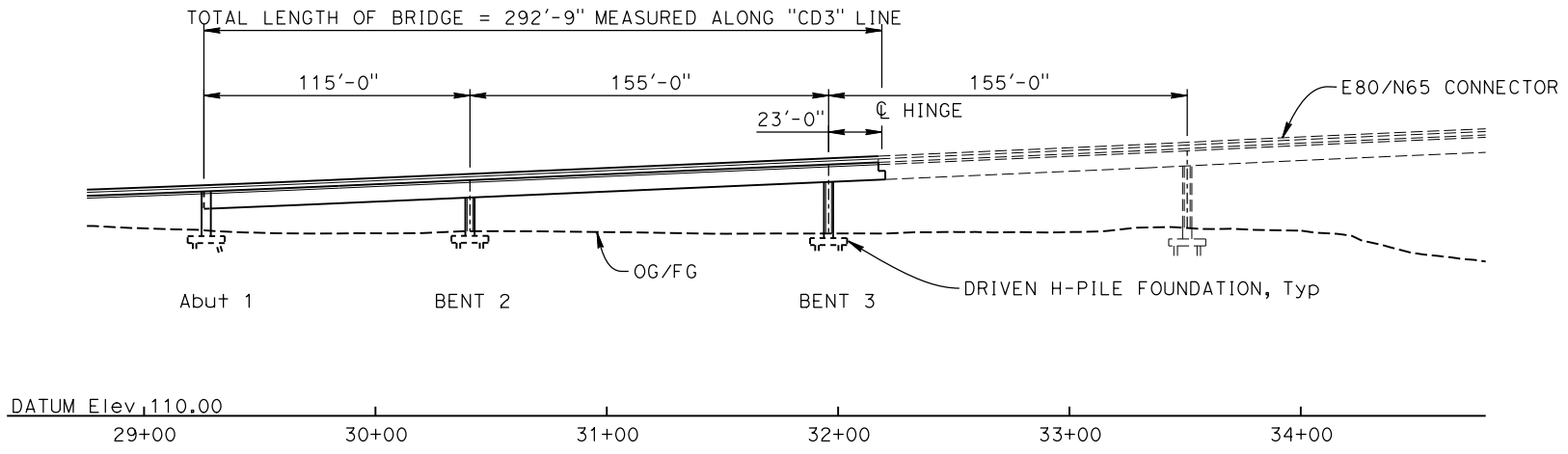
USERNAME =>jjoomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:36

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

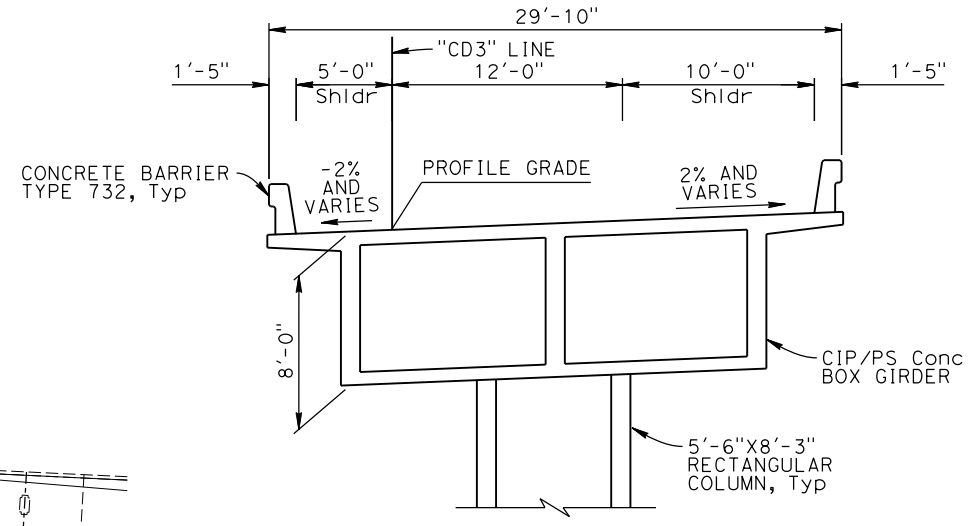
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



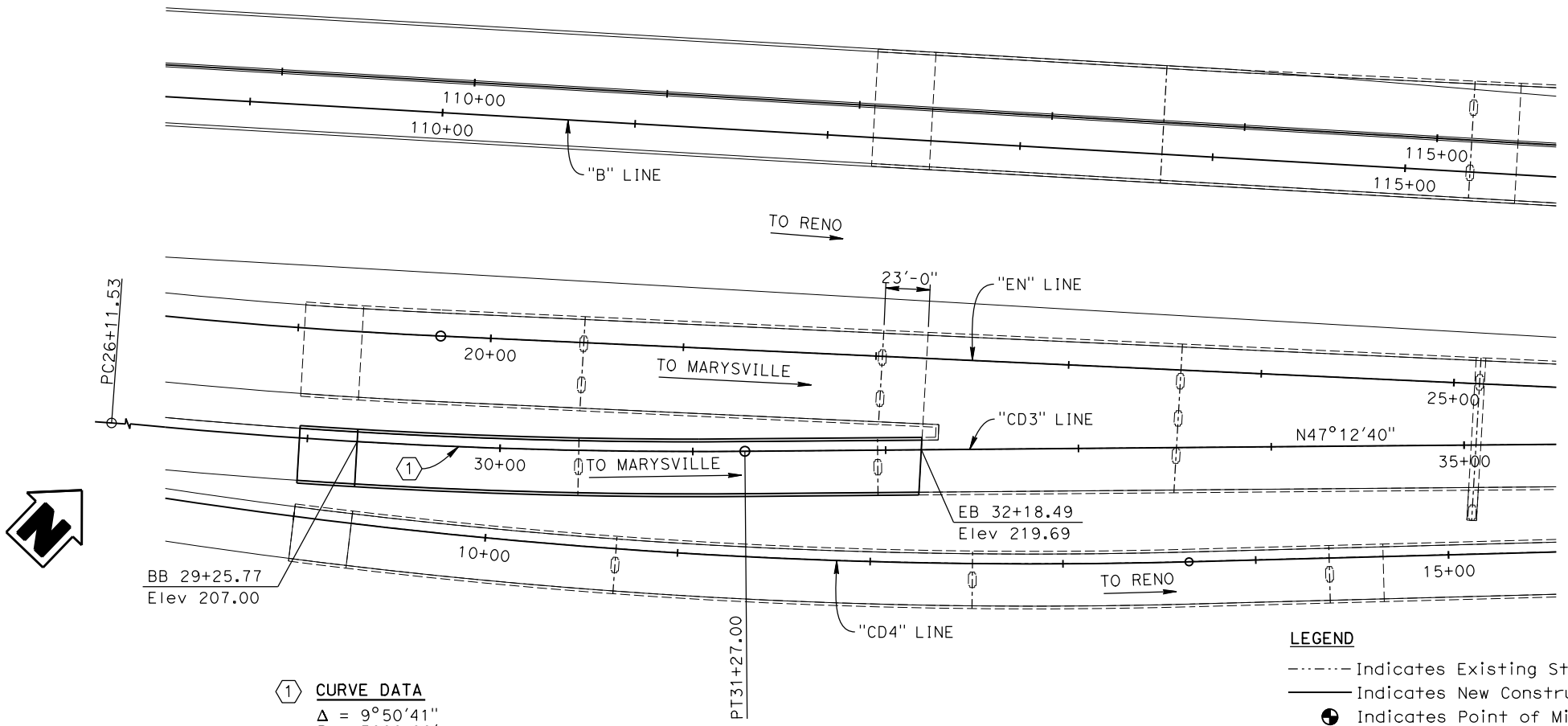
DEVELOPED ELEVATION

1" = 40'



TYPICAL SECTION

1" = 5'



1 CURVE DATA
Δ = 9°50'41"
R = 3000.00'
L = 515.47'
T = 258.37'

PLAN

1" = 40'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 292'-9"
WIDTH	= 29'-10"
AREA	= 8,736 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL COST	= $ -
TOTAL COST	= $ 2,402,400

ALTERNATIVE 3

PLANNING STUDY

NB SR-65 ON RAMP

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

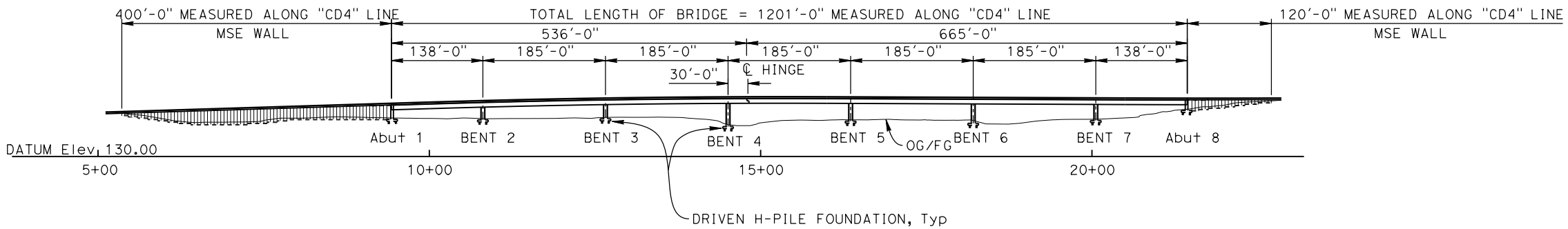
USERNAME => jloomis DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:47

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

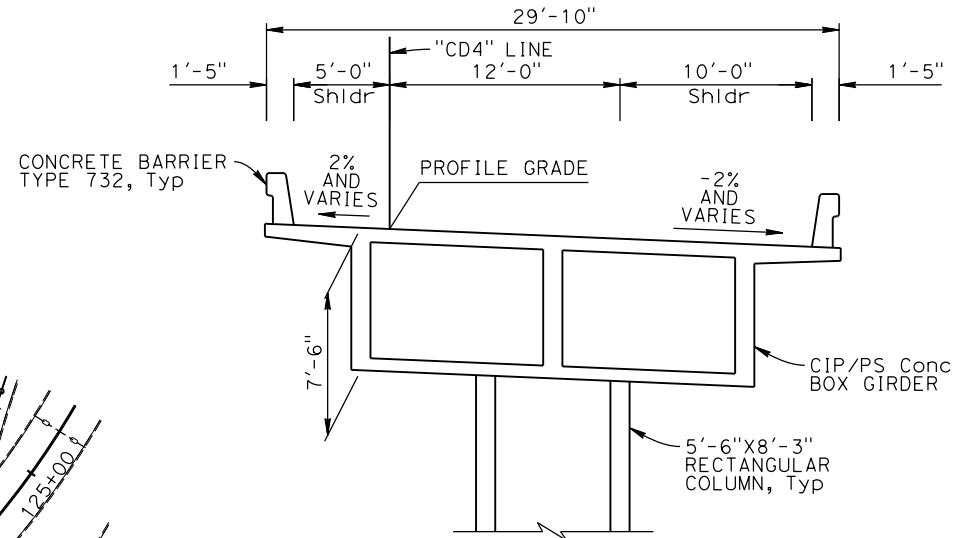
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'



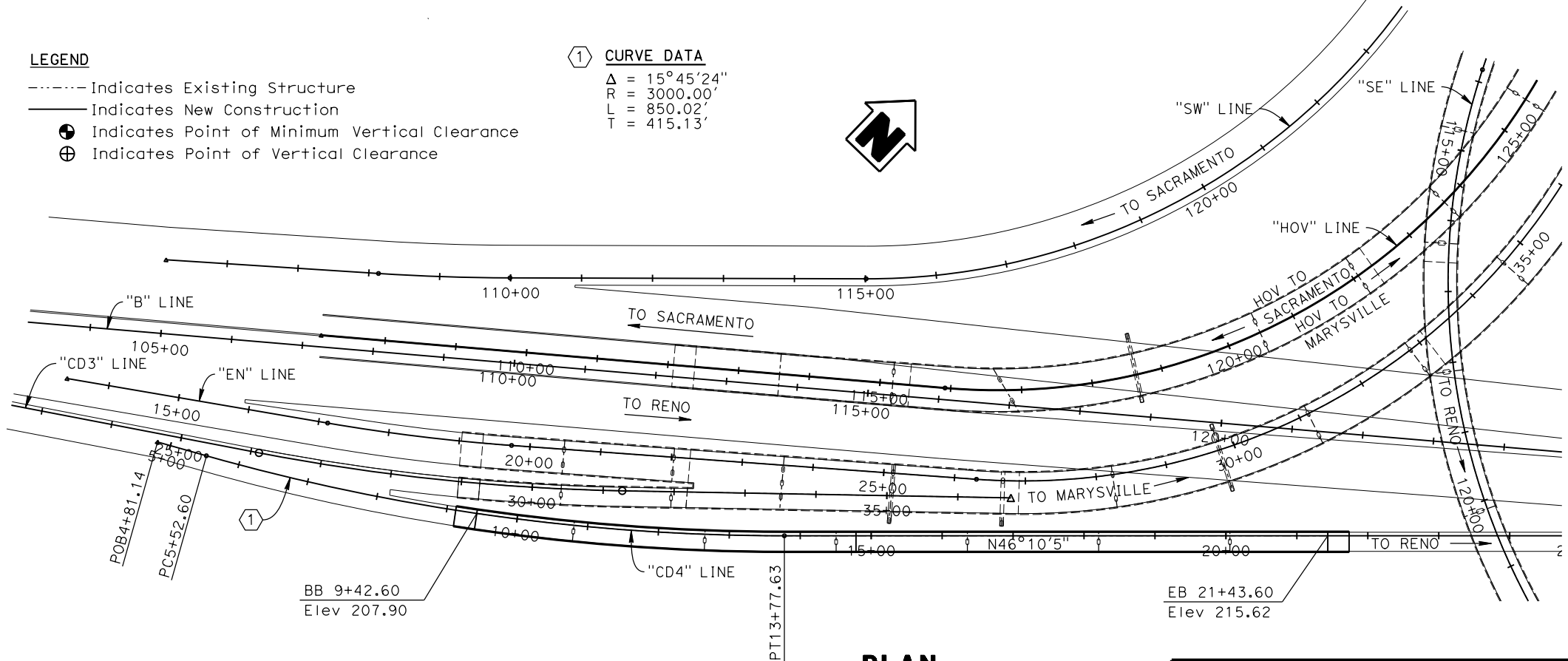
TYPICAL SECTION

1" = 5'

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1201'-0"
WIDTH	= 29'-10"
AREA	= 35,867 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL COST	= $ -
TOTAL COST	= $ 9,863,400

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

(1) CURVE DATA
Δ = 15°45'24"
R = 3000.00'
L = 850.02'
T = 415.13'



PLAN

1" = 100'

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
EB I-80 ON RAMP

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

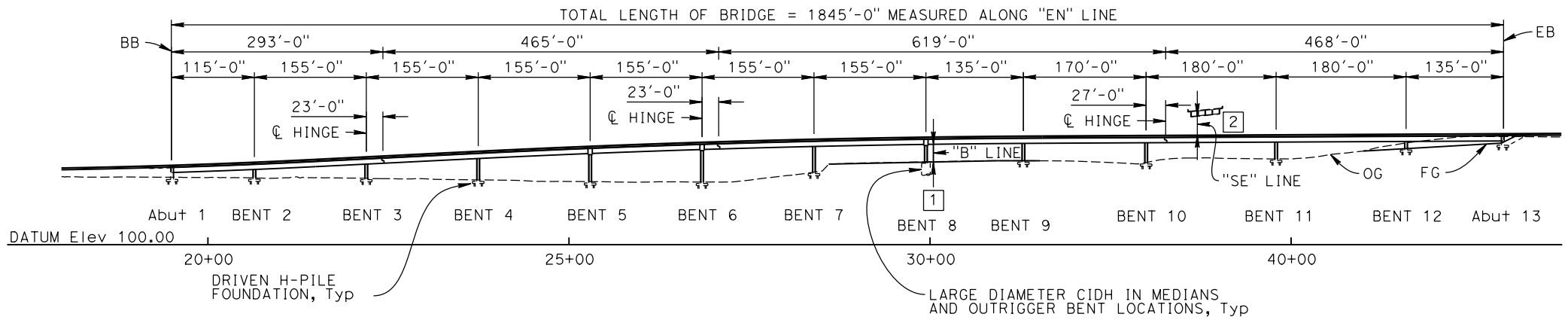
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:36

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833

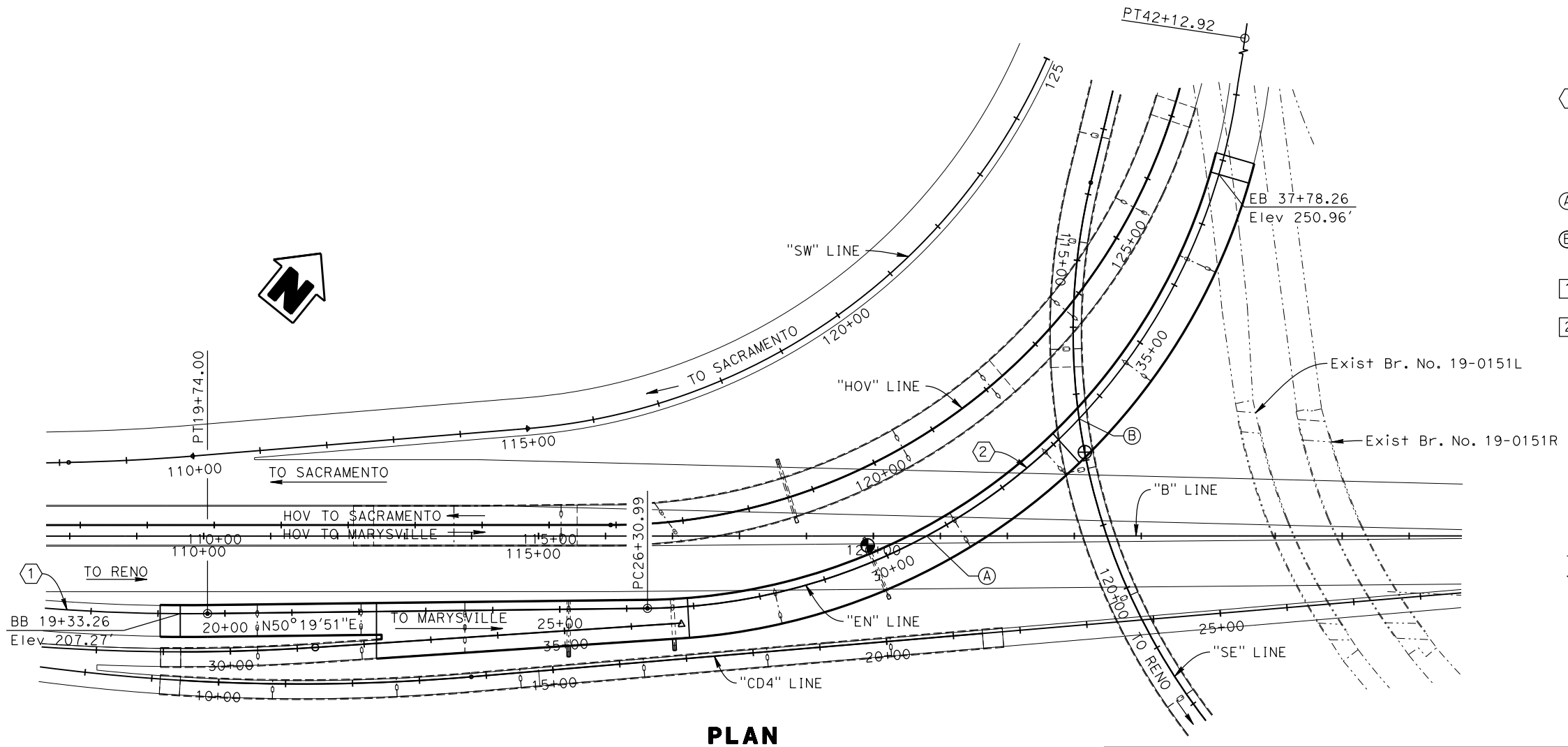


DEVELOPED ELEVATION

1" = 100'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 1845'-0"
WIDTH	= 48'-11" TO 84'-6"
AREA	= 115,185 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA *	= 12,702 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 31,866,400

* REMOVAL OF BR. NO. 19-0151R



PLAN

1" = 100'

1 CURVE DATA
Δ = 5°32'35"
R = 2700.00'
L = 261.21'
T = 130.71'

2 CURVE DATA
Δ = 100°42'31"
R = 900.00'
L = 1581.93'
T = 1086.15'

Ⓐ "EN" 30+65.84 = "B" 120+79.55

Ⓑ "EN" 33+54.17 = "SE" 117+37.08

1 20'-2" MINIMUM VERTICAL CLEARANCE

2 23'-3" VERTICAL CLEARANCE

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
E80/N65 CONNECTOR (1 OF 2)

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => jjloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:36

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_EN-a-gp01.dgn

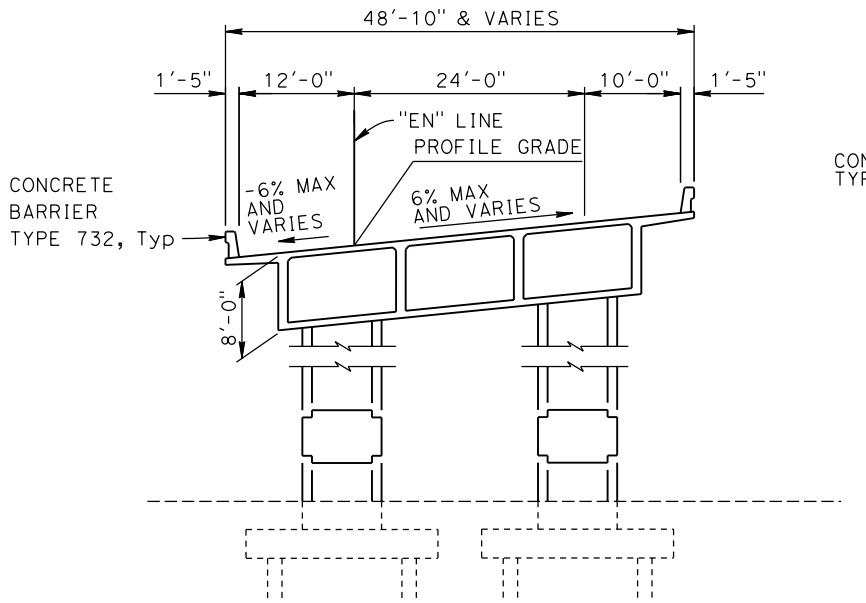
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

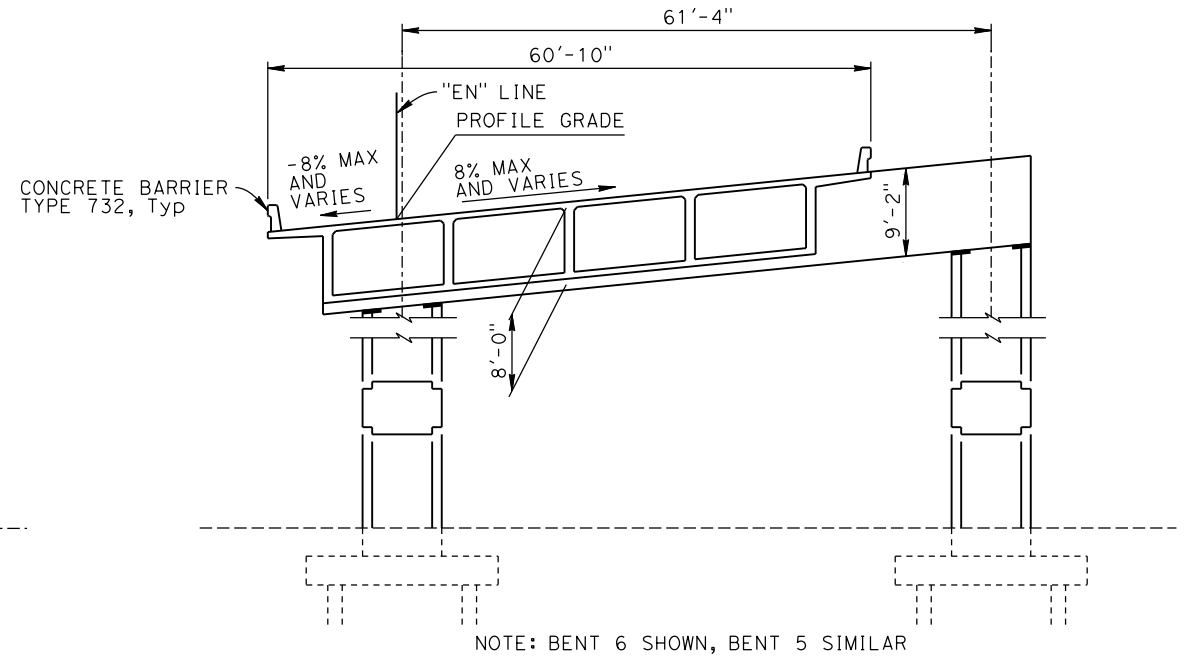
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION - FRAME 1

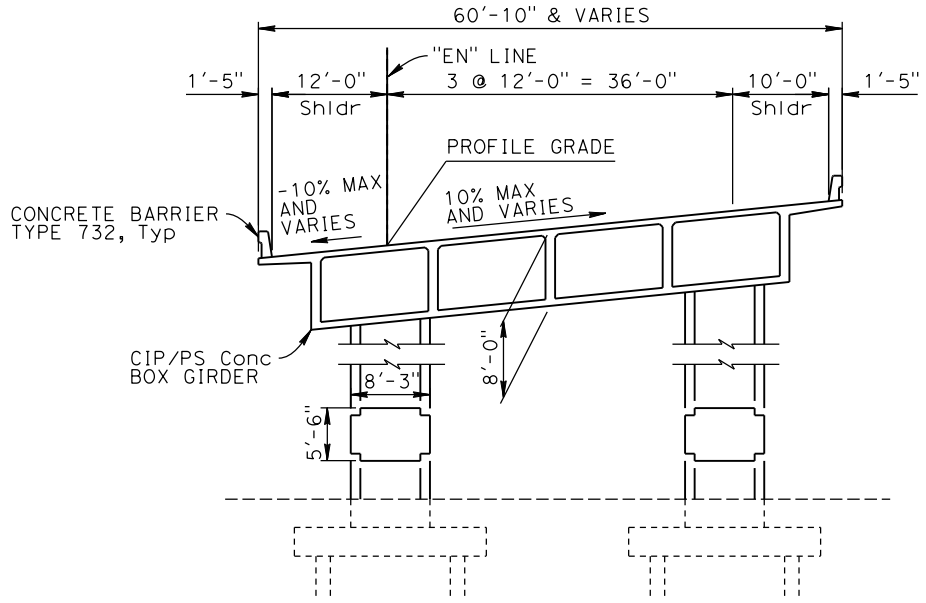
1" = 10'



NOTE: BENT 6 SHOWN, BENT 5 SIMILAR

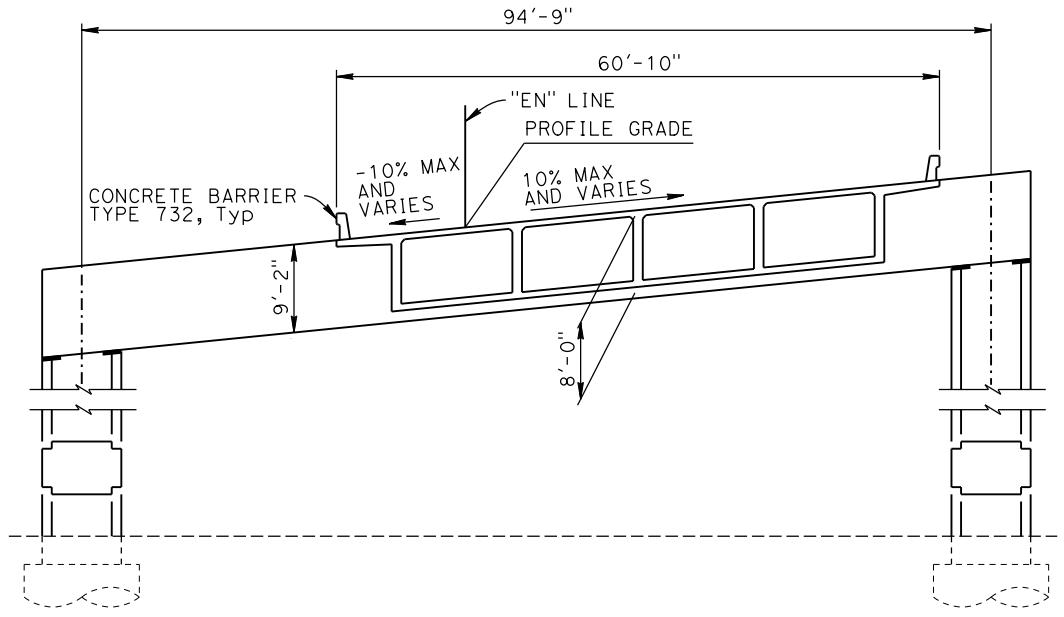
TYPICAL SECTION AT BENT 6

1" = 10'



TYPICAL SECTION - FRAMES 2,3,4

1" = 10'



TYPICAL SECTION AT BENT 8

1" = 10'

LEGEND

Indicates Existing Structure

Indicates New Construction

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3

PLANNING STUDY

E80/N65 CONNECTOR (2 OF 2)

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:36

FILE => 418554_alt3_EN-a-gp02.dgn

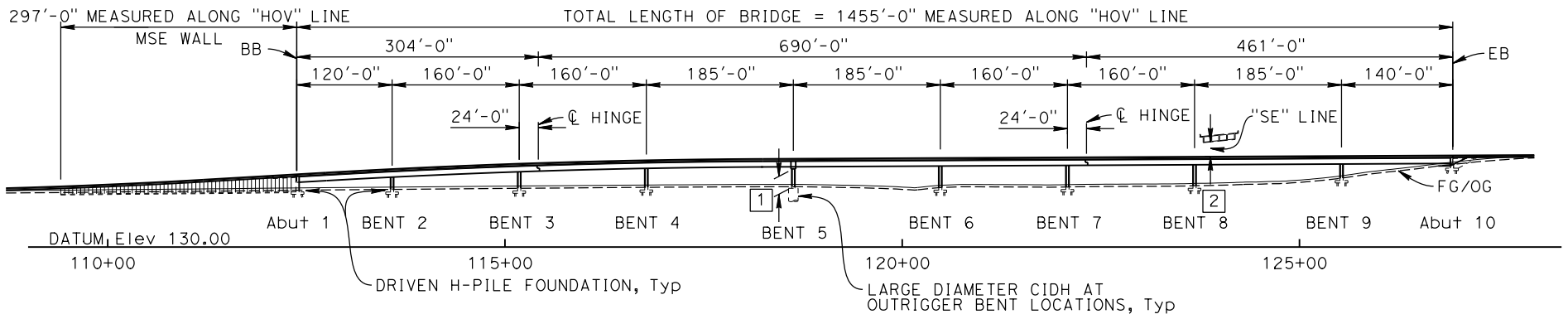
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 104°22'22"
R = 880.00'
L = 1603.05'
T = 1133.94'

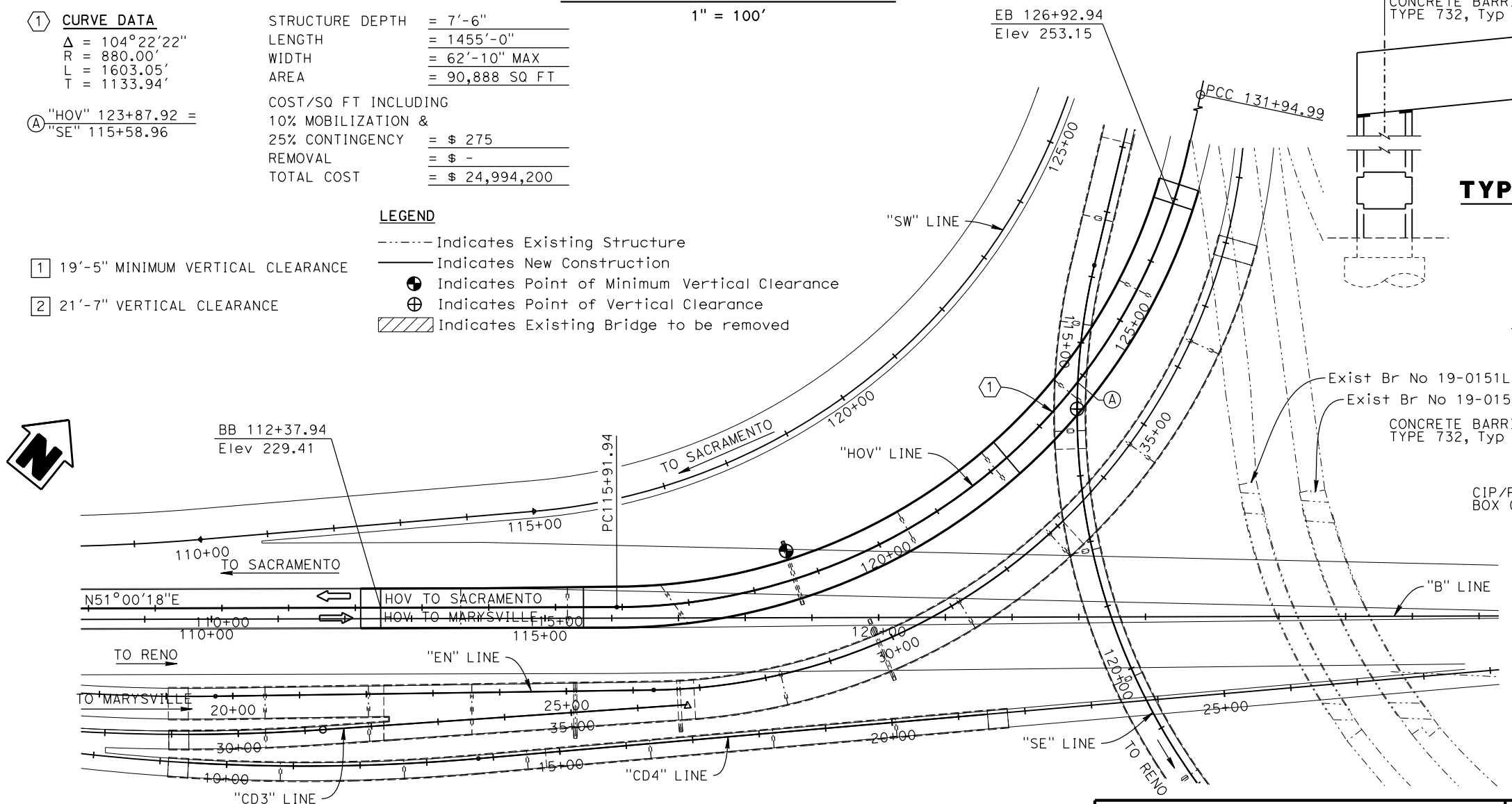
(A) "HOV" 123+87.92 = "SE" 115+58.96

STRUCTURE DEPTH	= 7'-6"
LENGTH	= 1455'-0"
WIDTH	= 62'-10" MAX
AREA	= 90,888 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL	= $ -
TOTAL COST	= $ 24,994,200

[1] 19'-5" MINIMUM VERTICAL CLEARANCE

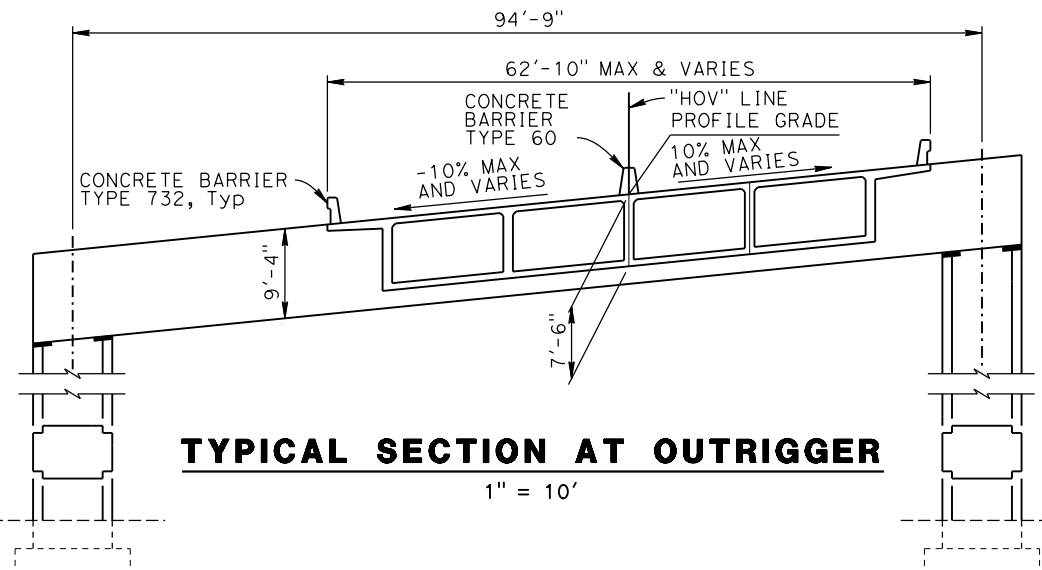
[2] 21'-7" VERTICAL CLEARANCE

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance
- Indicates Existing Bridge to be removed



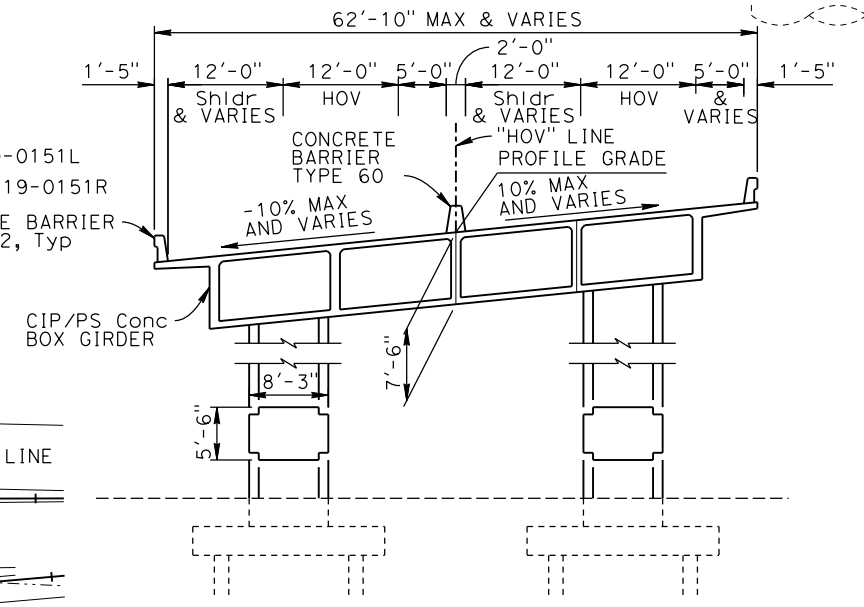
PLAN

1" = 100'



TYPICAL SECTION AT OUTRIGGER

1" = 10'



TYPICAL SECTION

1" = 10'

ALTERNATIVE 3

PLANNING STUDY

80/65 HOV CONNECTOR

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGNED BY	JENNIFER ELWOOD	DATE 07/24/14
DRAWN BY	PATRICK WALKER	DATE 07/24/14
CHECKED BY	MARK BRADY	DATE 07/24/14
APPROVED		DATE

MARK S. BRADY
PROJECT ENGINEER

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

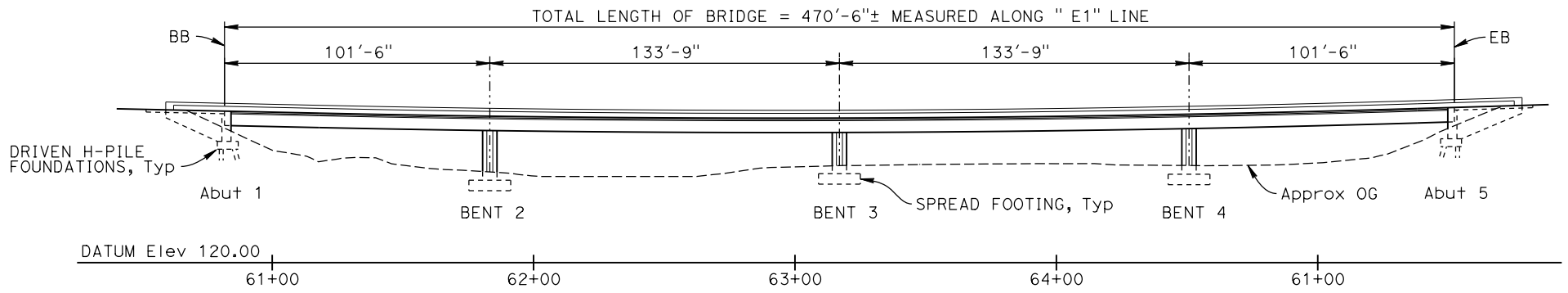
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:36

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

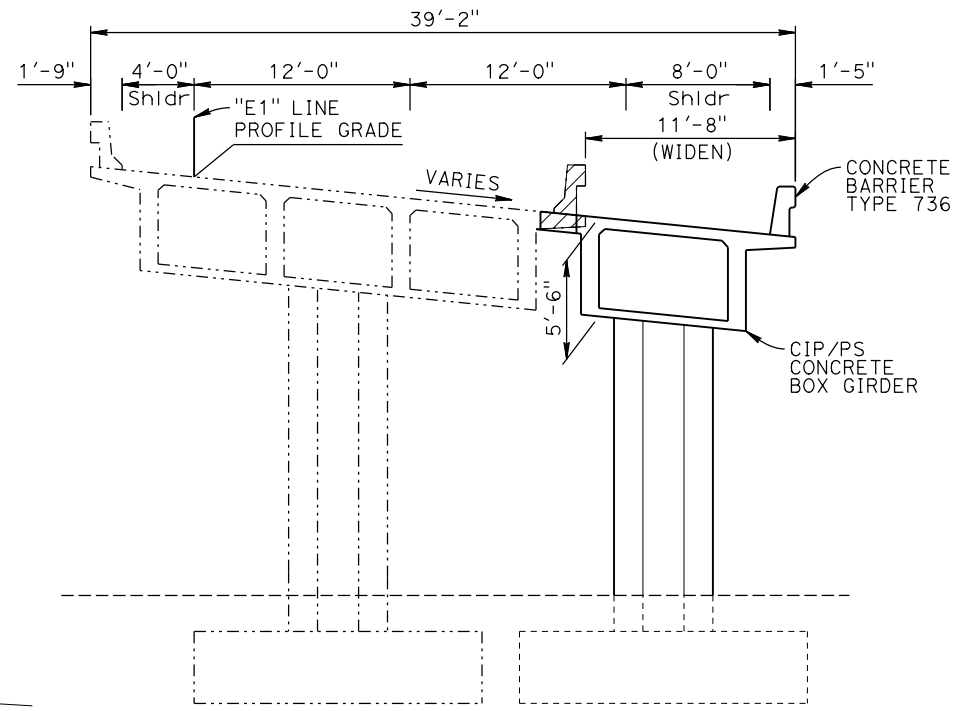
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



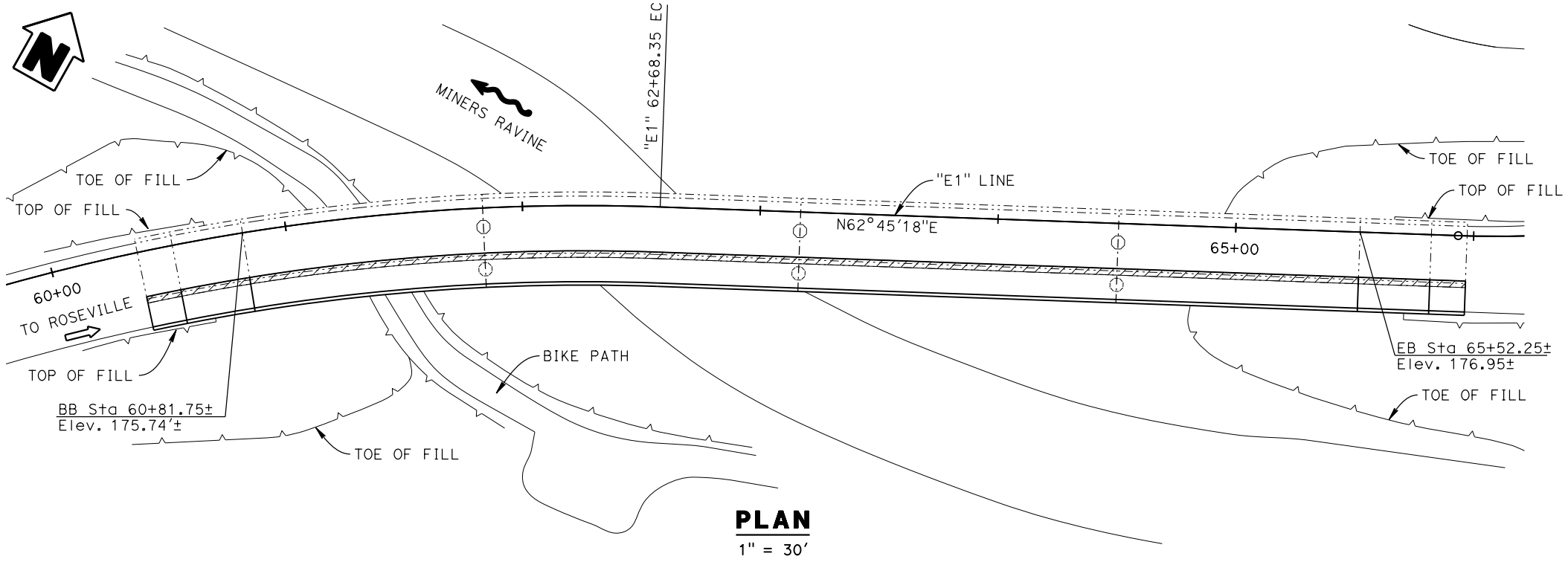
DEVELOPED ELEVATION

1" = 30'



TYPICAL SECTION

3/16" = 1'-0"



PLAN

1" = 30'

STRUCTURE DEPTH	= 5'-9"
LENGTH	= 470'-6"±
WIDTH	= 14'-2"
AREA	= 6,665 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 250
REMOVAL AREA	= 939 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 1,680,300

LEGEND

- Indicates Existing Structure
- Indicates New Construction
- Indicates Existing Bridge Removal

ALTERNATIVE 3

PLANNING STUDY

MINERS RAVINE BRIDGE (WIDEN) OFF RAMP

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14
DRAWN BY PATRICK WALKER	DATE 07/24/14
CHECKED BY MARK BRADY	DATE 07/24/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-0056S | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

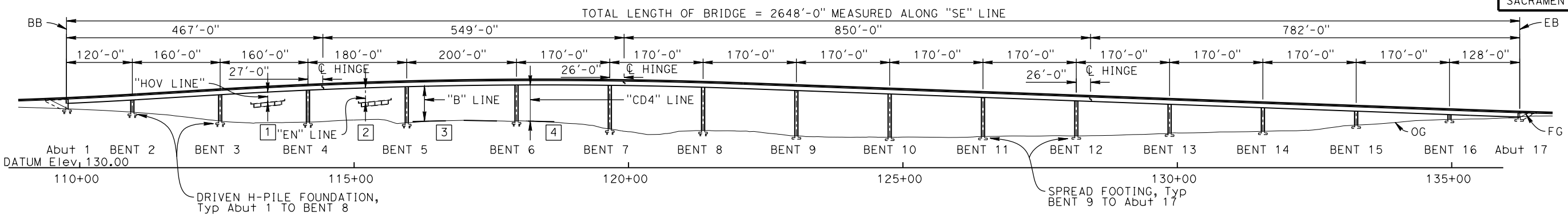
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:37

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



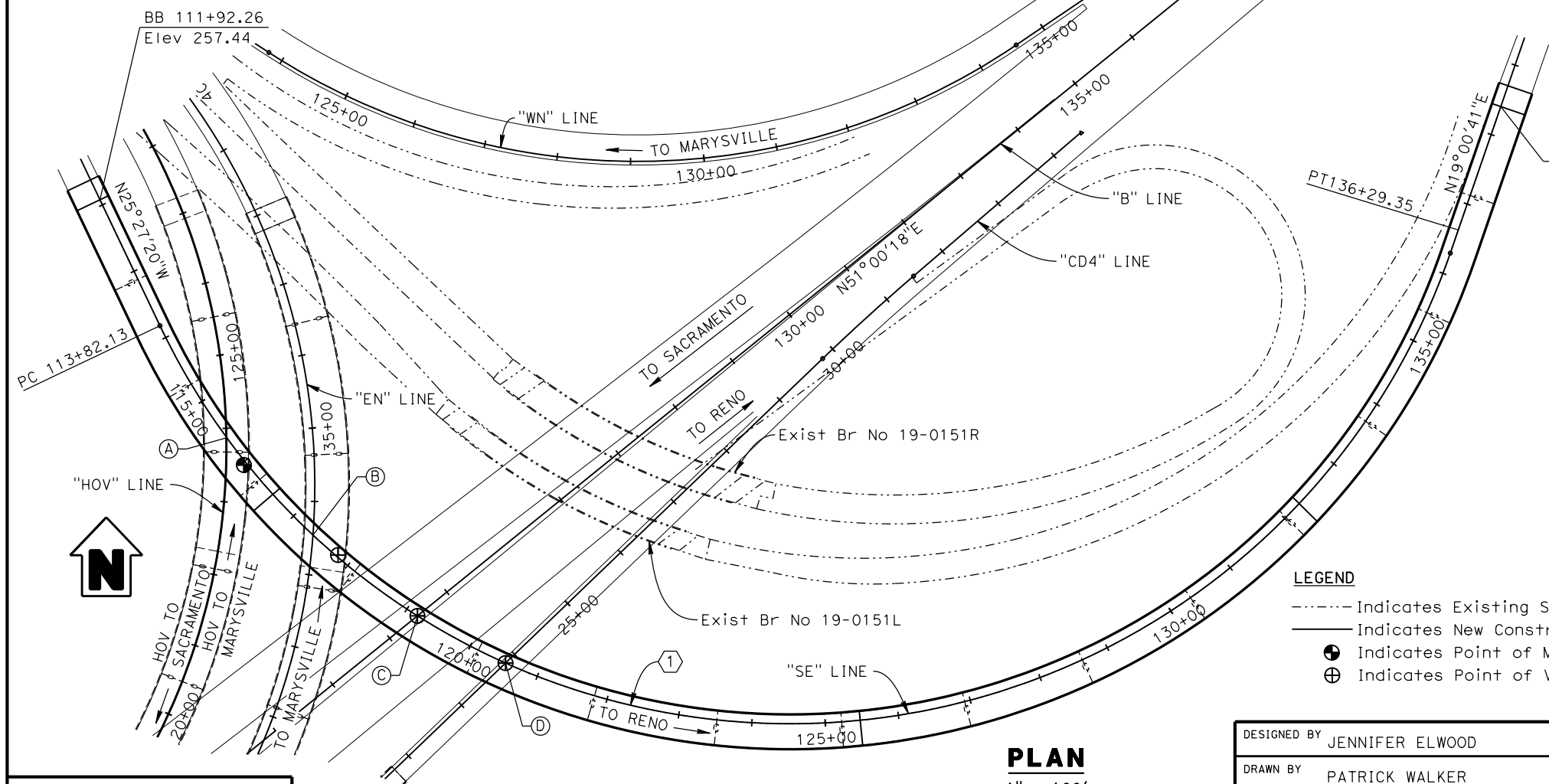
DEVELOPED ELEVATION

1" = 100'

(1) CURVE DATA
Δ = 135°31'58"
R = 950.00'
L = 2247.22'
T = 2315.30'

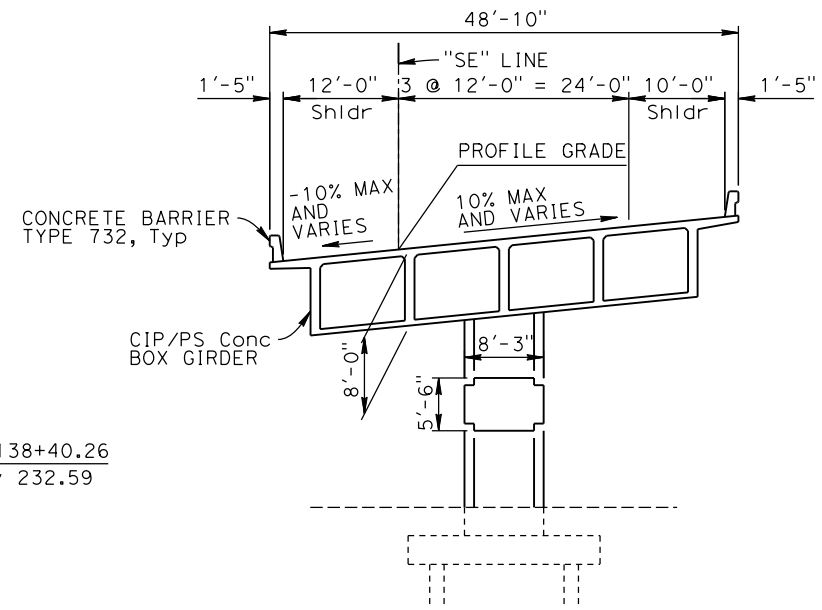
Ⓐ "SE" 115+58.96 = "HOV" 123+87.92
Ⓑ "SE" 117+37.08 = "EN" 33+54.17
Ⓒ "SE" 119+17.08 = "B" 123+48.55
Ⓓ "SE" 120+53.16 = "CD4" 23+82.92

1 21'-7" MINIMUM VERTICAL CLEARANCE
2 23'-3" VERTICAL CLEARANCE
3 61'-11" VERTICAL CLEARANCE
4 65'-1" VERTICAL CLEARANCE



PLAN

1" = 100'



TYPICAL SECTION

1" = 10'

STRUCTURE DEPTH	= 8'-0"
LENGTH	= 2437'-0"
WIDTH	= 48'-10"
AREA	= 130,581 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA *	= 9,222 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 36,048,100

* REMOVAL OF BR. NO. 19-0151L

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Point of Vertical Clearance

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
S65/E80 CONNECTOR

BRIDGE NO. 19-xxxx | UNIT:
SCALE: AS NOTED | PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => 418554_alt3_SE-a-gp01.dgn

CONTRACT NO.: X

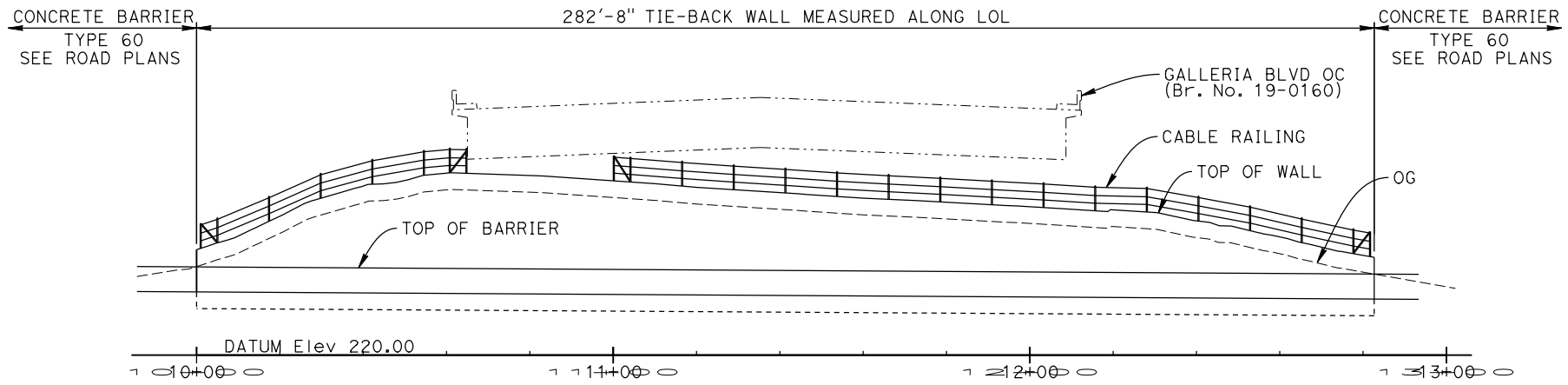
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:37

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

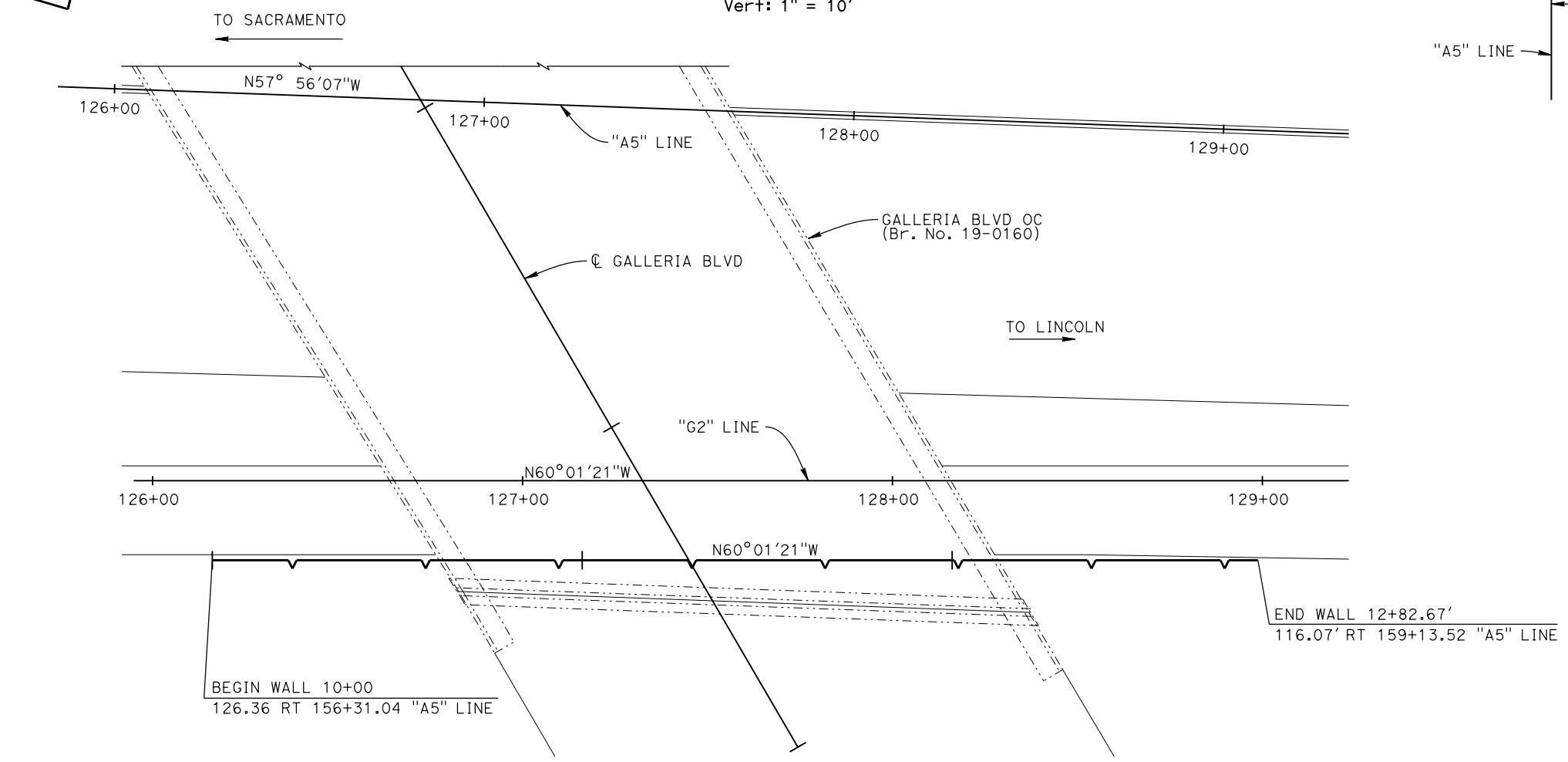
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



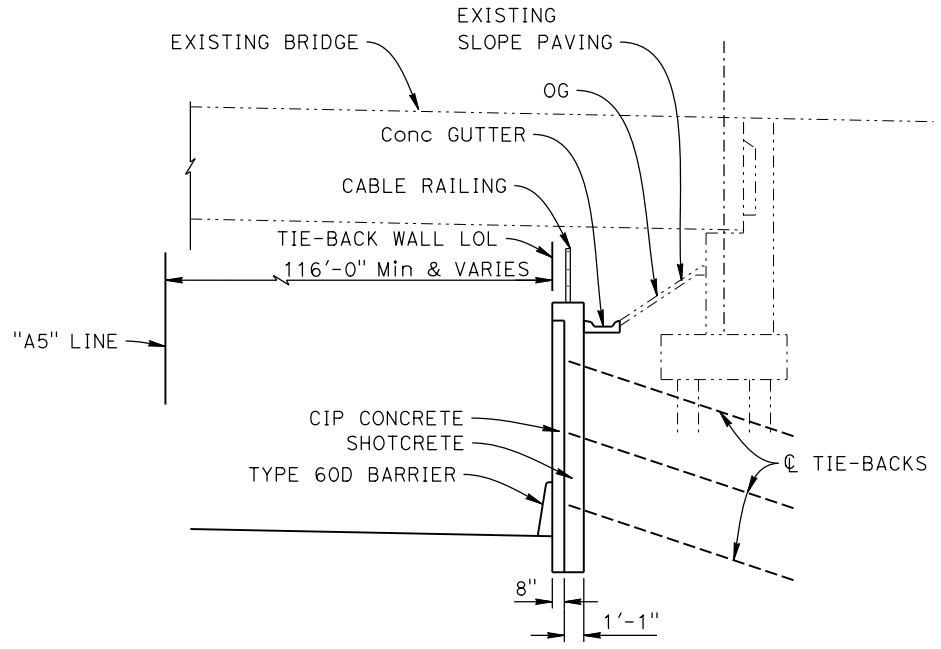
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



PLAN

1" = 20'



TYPICAL SECTION

3/16" = 1'

STRUCTURE LENGTH = 282'-8"
HEIGHT = 5'-0" TO 16'-6"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 125
TOTAL COST = $ 461,700

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
GALLERIA BLVD TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

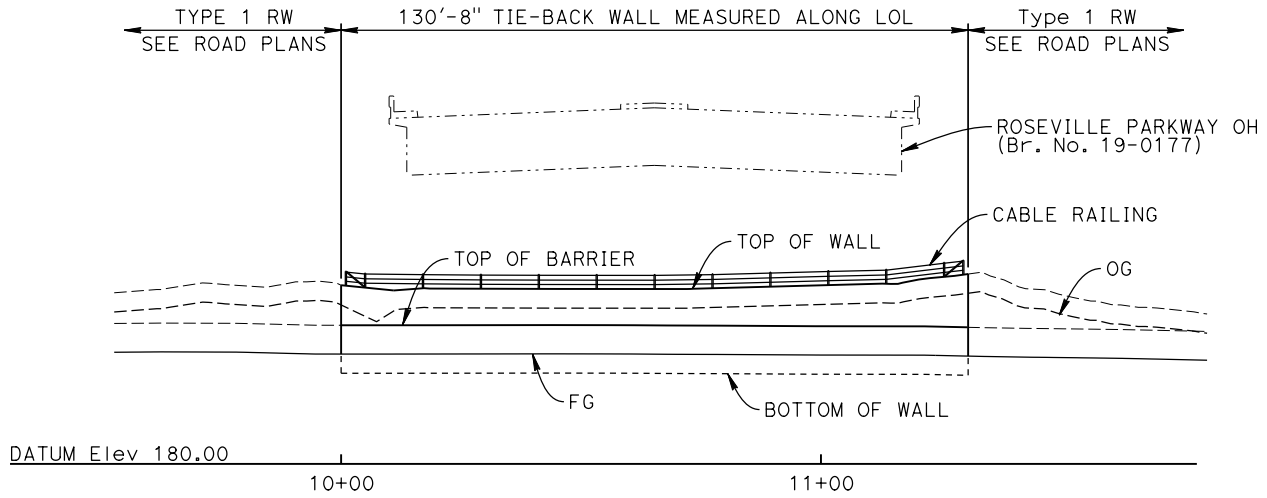
USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:50

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

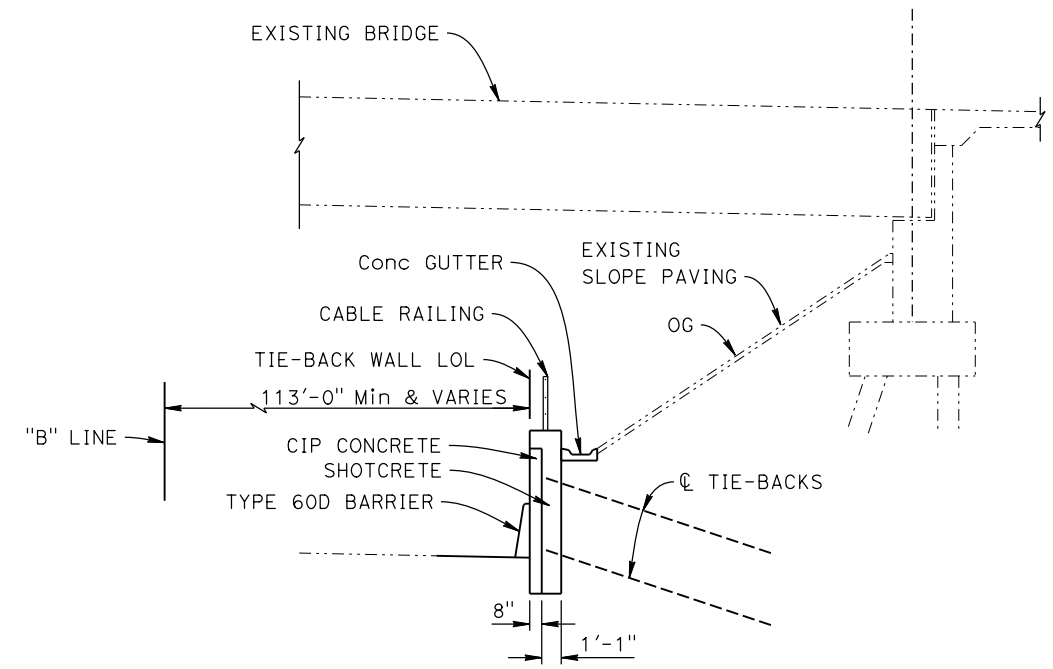
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



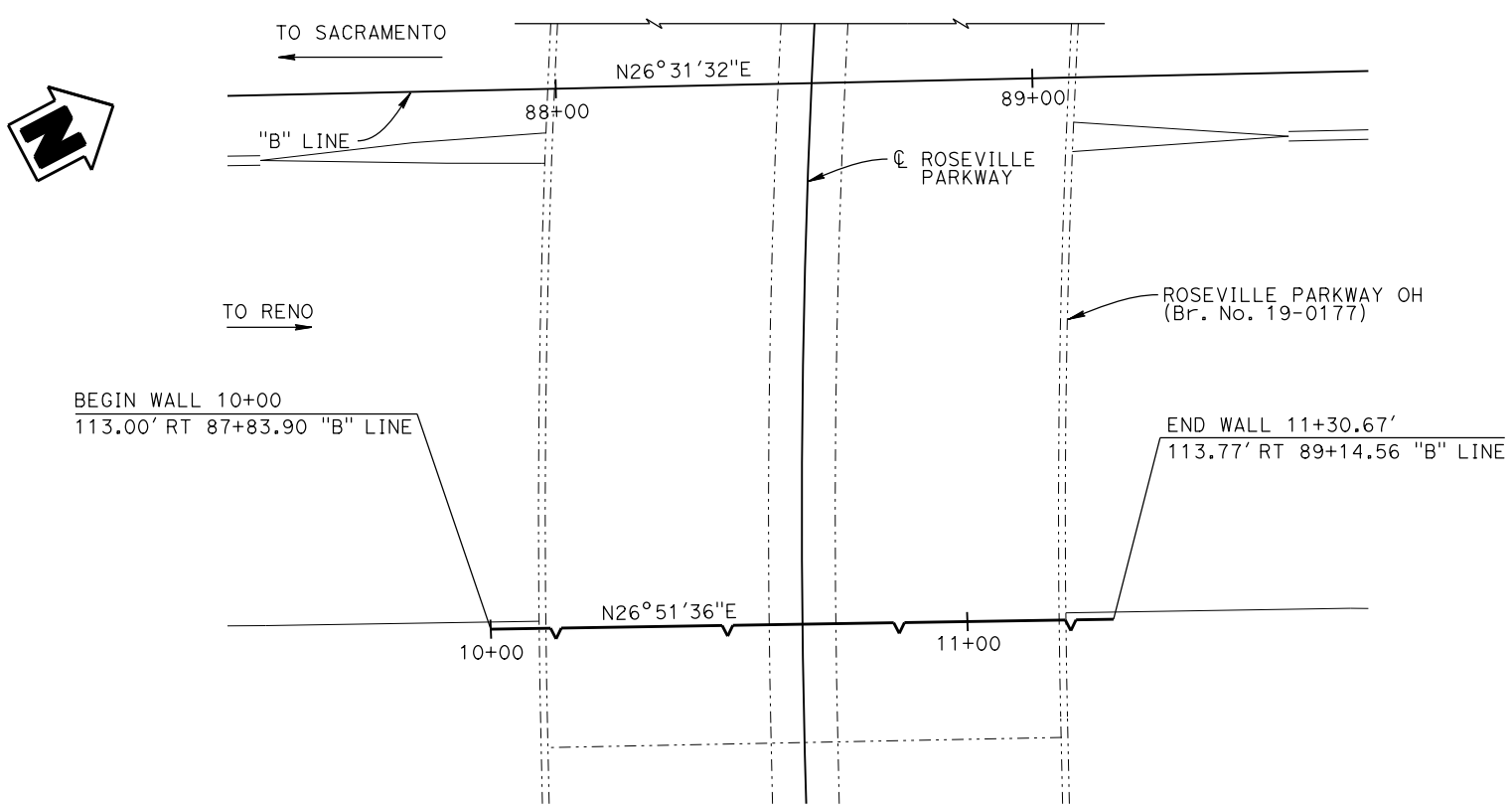
MIRRORED ELEVATION

Horiz: 1" = 20'
Vert: 1" = 10'



TYPICAL SECTION

3/16" = 1'



PLAN

1" = 20'

STRUCTURE LENGTH = 130'-8"
HEIGHT = 8'-0" TO 8'-6"

COST/SQ FT INCLUDING
10% MOBILIZATION &
25% CONTINGENCY = $ 125
TOTAL COST = $ 148,000

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
ROSEVILLE PKWY TIEBACK WALL

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

USERNAME => jloomis1 DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:37

FILE => 418554_alt3_TB_RosevillePky.dgn

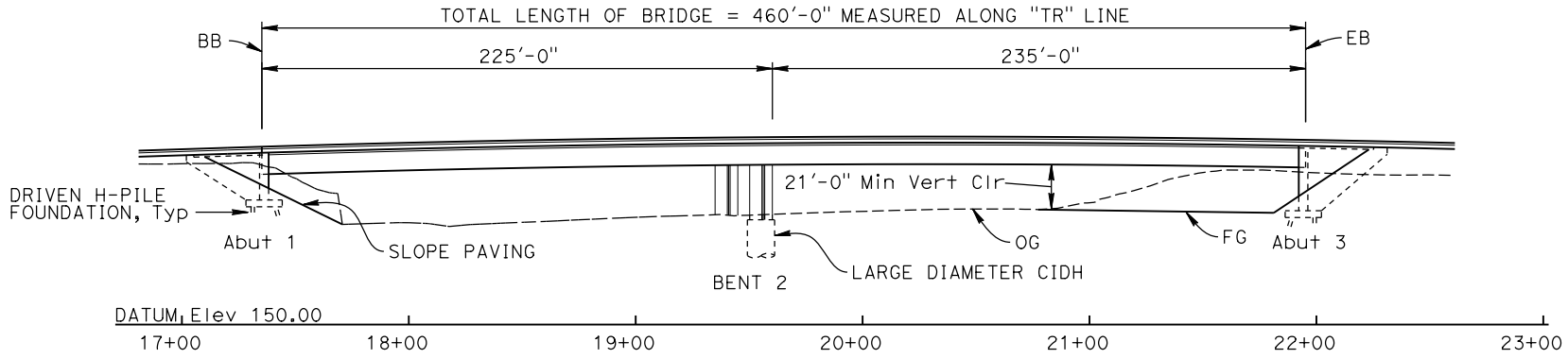
CONTRACT NO.: X

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

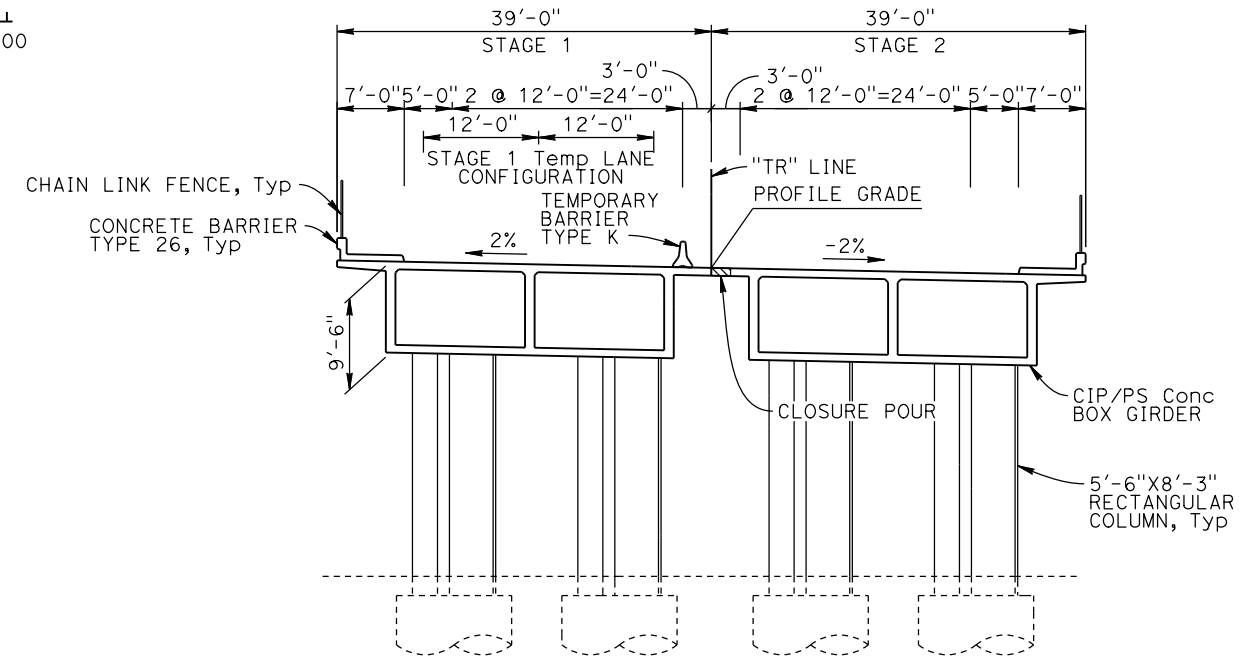
CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



DEVELOPED ELEVATION

1" = 40'

STRUCTURE DEPTH	= 9'-6"
LENGTH	= 460'-0"
WIDTH	= 78'-0"
AREA	= 35,840 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 275
REMOVAL AREA	= 22,570 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 10,194,600

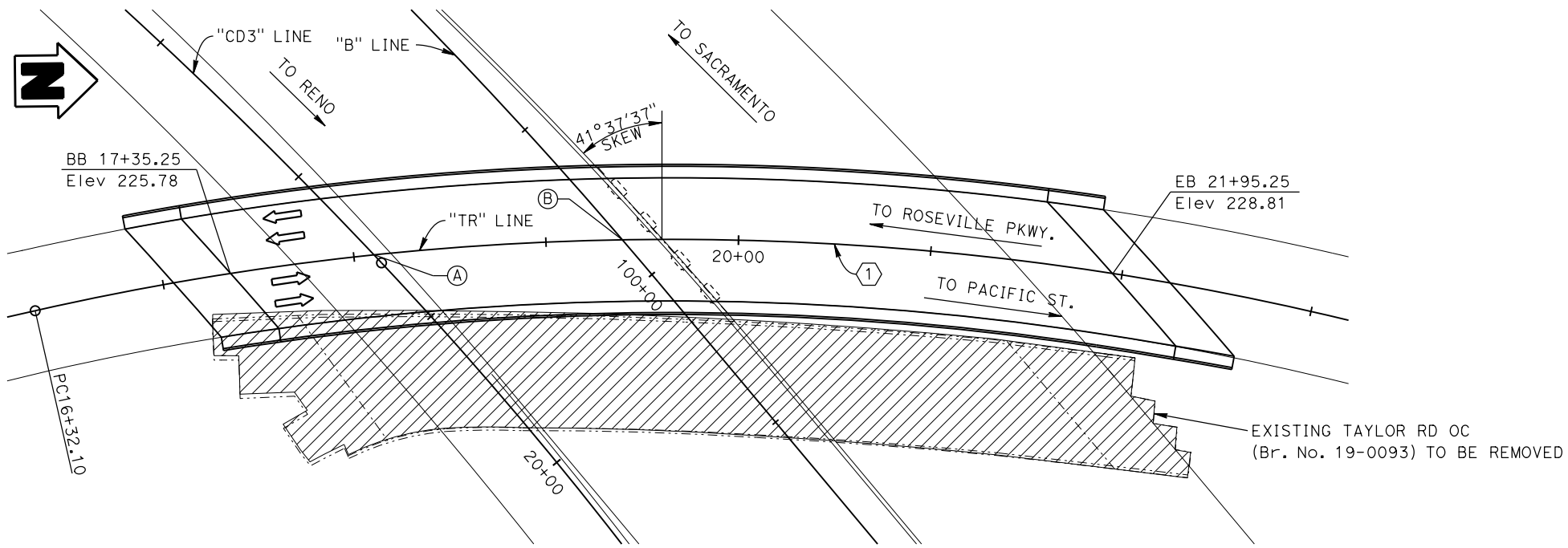


TYPICAL SECTION

1" = 10'

① CURVE DATA
Δ = 28°26'05"
R = 1491.00'
L = 739.96'
T = 377.76'

Ⓐ "TR" 18+10.46 = "CD3" 18+56.35
Ⓑ "TR" 19+39.71 = "B" 99+76.31



PLAN

1" = 40'

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge to be removed

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

X
DESIGN OVERSIGHT
X
SIGN OFF DATE

ALTERNATIVE 3

PLANNING STUDY

TAYLOR ROAD OC (REPLACE)

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14
DRAWN BY PATRICK WALKER	DATE 07/24/14
CHECKED BY MARK BRADY	DATE 07/24/14
APPROVED	DATE

MARK S. BRADY
PROJECT ENGINEER

BRIDGE NO. 19-XXXX	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

CONTRACT NO.: X

FILE => 418554_alt3_TR-a-gp01.dgn

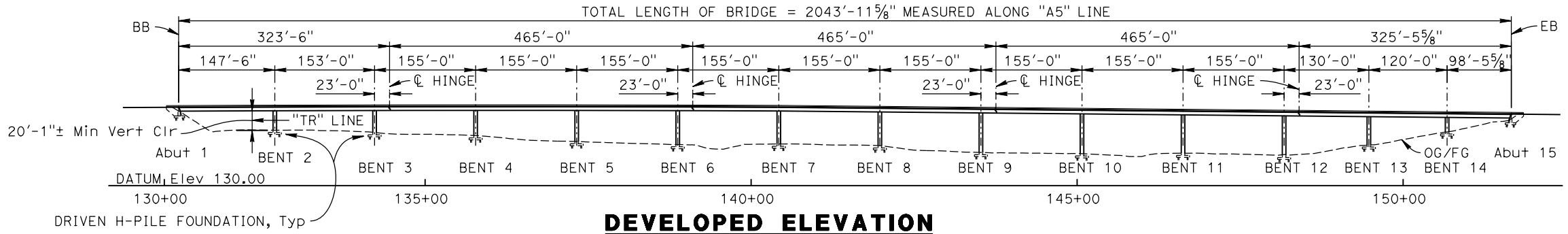
USERNAME => jjoomisi DATE PLOTTED => 24-JUL-2014 TIME PLOTTED => 14:37

PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



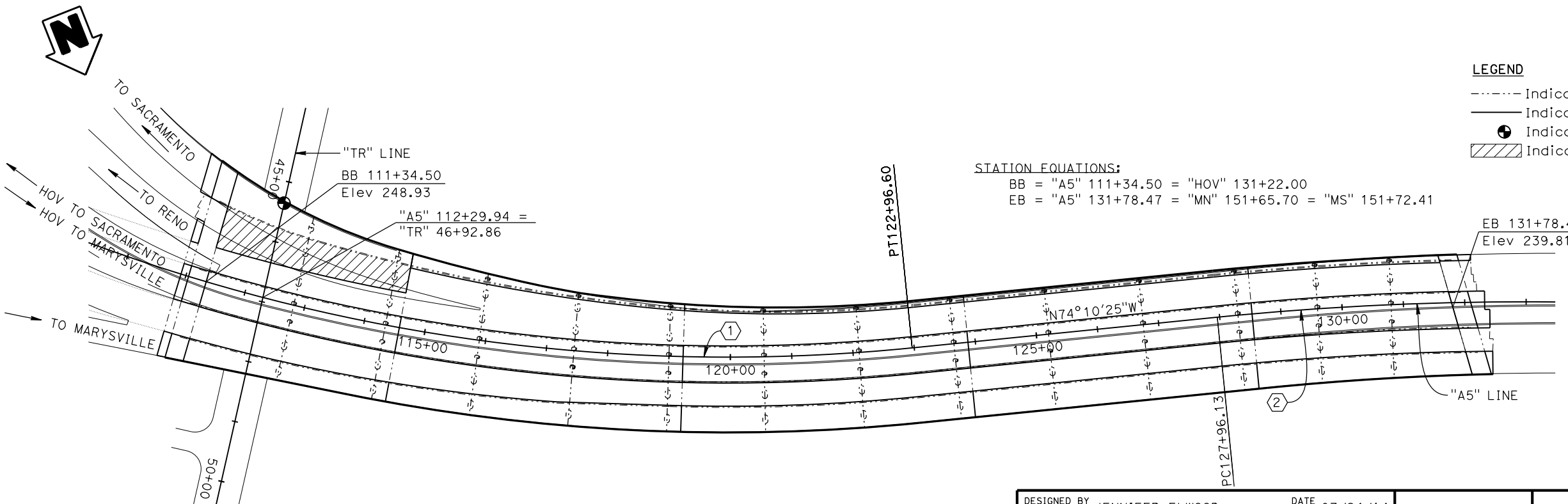
DEVELOPED ELEVATION

1" = 100'

STRUCTURE DEPTH	= 6'-0"
LENGTH	= 2043'-11⅝"
WIDTH LEFT	= 10'-9" TO 68'-6"
WIDTH CENTER	= 60'-6"
WIDTH RIGHT	= 18'-11" TO 40'-7"
AREA LEFT	= 49,918 SQ FT
AREA CENTER	= 124,074 SQ FT
AREA RIGHT	= 84,424 SQ FT
COST/SQ FT INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	= $ 250
REMOVAL AREA	= 36,893 SQ FT
REMOVAL COST / SQ FT	= $ 15
TOTAL COST	= $ 65,157,400

① **CURVE DATA**
Δ = 35°10'43"
R = 3000.00'
L = 1841.95'
T = 951.04'

② **CURVE DATA**
Δ = 16°14'18"
R = 5000.00'
L = 1417.06'
T = 713.31'



PLAN

1" = 100'

STATION EQUATIONS:
BB = "A5" 111+34.50 = "HOV" 131+22.00
EB = "A5" 131+78.47 = "MN" 151+65.70 = "MS" 151+72.41

LEGEND
- Indicates Existing Structure
- Indicates New Construction
- Indicates Point of Minimum Vertical Clearance
- Indicates Existing Bridge Removal

NOTE:
For Typical Sections, see E. Roseville Viaduct Widen (2 of 2).

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY	JENNIFER ELWOOD	DATE	07/24/14
DRAWN BY	PATRICK WALKER	DATE	07/24/14
CHECKED BY	MARK BRADY	DATE	07/24/14
APPROVED		DATE	

MARK S. BRADY
PROJECT ENGINEER

ALTERNATIVE 3
PLANNING STUDY
E. ROSEVILLE VIADUCT (WIDEN) 1 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

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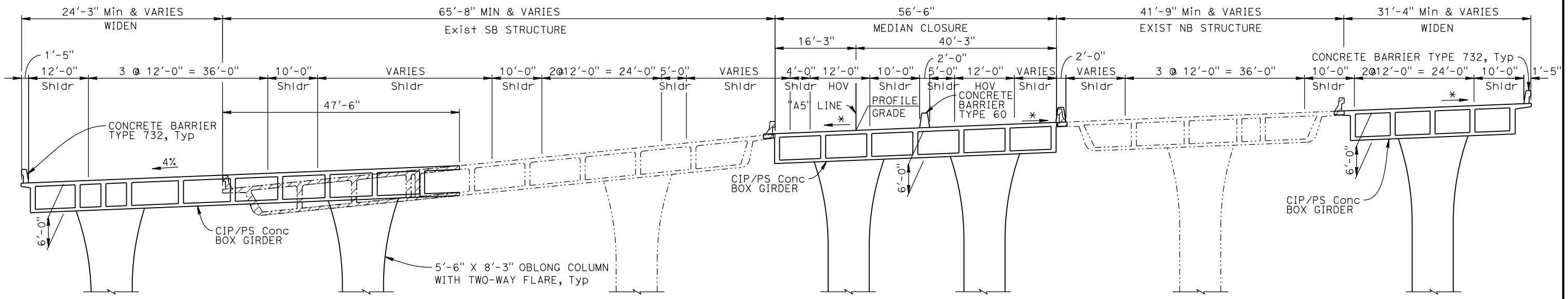
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
03	Pla	80/65	

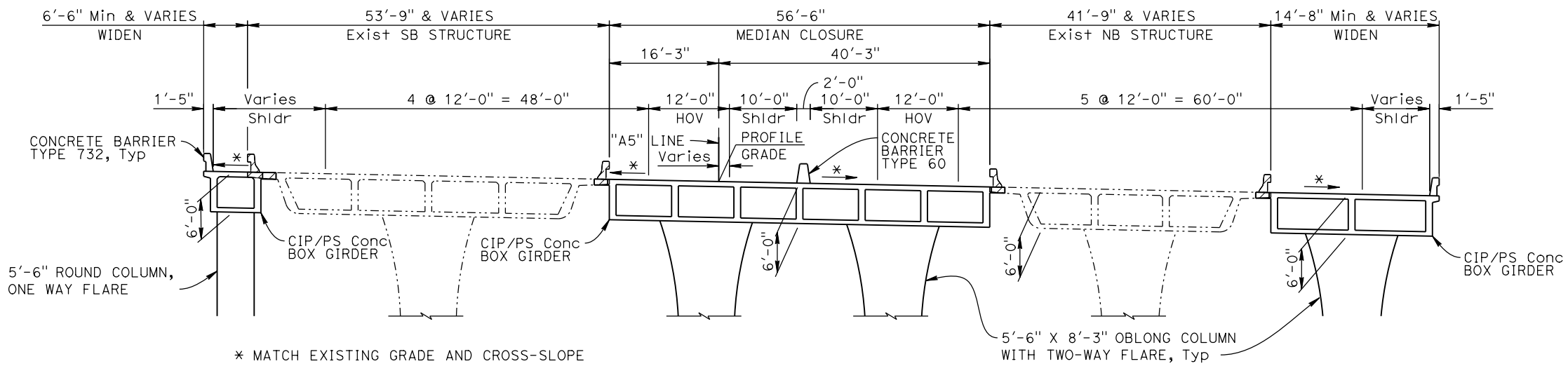
PCTPA
299 NEVADA ST.
AUBURN, CA 95603

CH2MHILL
2485 NATOMAS PARK DR. STE 600
SACRAMENTO, CA 95833



TYPICAL SECTION-FRAME 1

1" = 10'



TYPICAL SECTION-FRAMES 2,3,4,5

1" = 10'

LEGEND

- Indicates Existing Structure
- Indicates New Construction
- Indicates Existing Bridge Removal

ALTERNATIVE 3

PLANNING STUDY

E. ROSEVILLE VIADUCT (WIDEN) 2 OF 2

BRIDGE NO. 19-xxxx	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

X
DESIGN OVERSIGHT

X
SIGN OFF DATE

PRELIMINARY - NOT FOR CONSTRUCTION, SUBJECT TO INDEPENDENT VERIFICATION PRIOR TO FINAL DESIGN

DESIGNED BY JENNIFER ELWOOD	DATE 07/24/14	MARK S. BRADY PROJECT ENGINEER
DRAWN BY PATRICK WALKER	DATE 07/24/14	
CHECKED BY MARK BRADY	DATE 07/24/14	
APPROVED	DATE	

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

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I-80/SR 65 Interchange Improvements

Transportation Analysis Report

Placer County, CA

03-PLA-80-PM 1.9 to 6.1
03-PLA-65-PM R4.8 to R7.3

EA 03-4E3200
Project ID 0300000696

May 2014

Caltrans

PLACER COUNTY TRANSPORTATION PLANNING AGENCY

DRAFT

Transportation Analysis Report

I-80/SR 65 Interchange Improvements

03-PLA-80-PM 1.9 to 6.1
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EA 03-4E3200
Project ID 0300000696

May 2014

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Date: April 4, 2014

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Location Roseville, CA

Planning
Approved By: _____ Date: _____
Name, Title

Phone Number _____
Office Name _____
District/Region _____

Traffic Operations
Approved By: _____ Date: _____
Name, Title

Phone Number _____
Office Name _____
District/Region _____

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Chapter 1. Introduction

This transportation analysis report was prepared for the Interstate 80 (I-80)/State Route 65 (SR 65) interchange improvements project. The report contains the results and findings of the traffic forecasts and traffic operation analysis, while the detailed analysis calculations are compiled in the separately bound Technical Appendix.

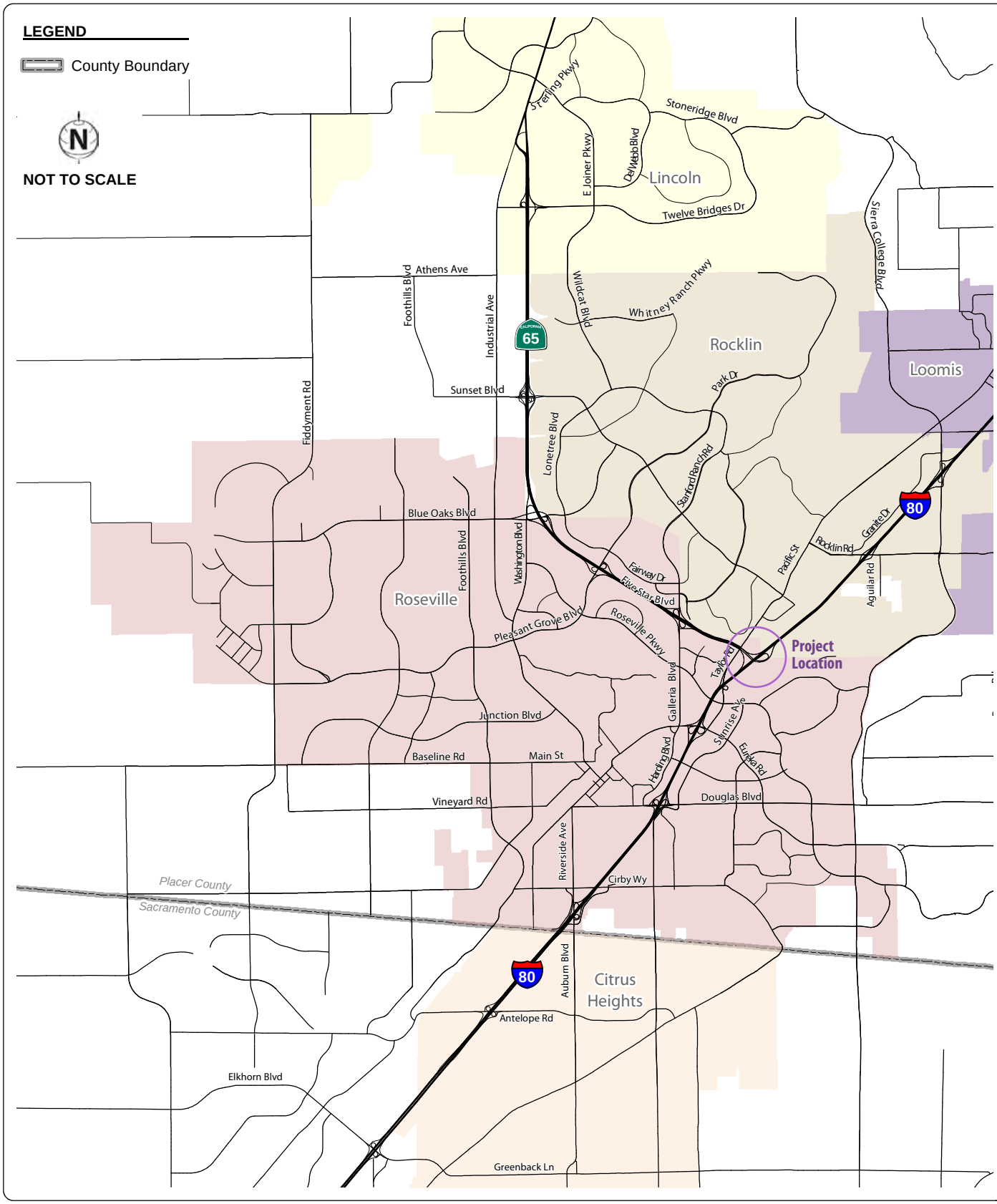
1.1. Purpose of the Transportation Analysis Report

The purpose of this report is to analyze project design alternatives and their effects on the highway and arterial transportation network. The report focuses on a comparison of alternatives that are each designed to improve future traffic operations and safety at the I-80/SR 65 interchange consistent with the purpose and need statement. Portions of the analysis results will also be used to comply with environmental impact analysis requirements for the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

1.2. Project Description

The proposed project is located at the I-80/SR 65 freeway-to-freeway interchange in Placer County. Figure 1 shows the project vicinity and location map. The project would increase capacity at the interchange with the following actions.

- Replace the eastbound I-80 to northbound SR 65 two-lane loop off-ramp with a three-lane direct flyover ramp.
- Construct new median direct connectors from eastbound I-80 to northbound SR 65 and from southbound SR 65 to westbound I-80. The median connectors would be restricted to high occupancy vehicles (HOVs) – vehicles with two or more occupants, motorcycles, or registered "Clean Air Vehicles" – during the AM and PM peak periods (weekdays 6:00 to 10:00 AM and 3:00 to 7:00 PM) to conform to HOV lane operation elsewhere in the Sacramento region. During off-peak times, the HOV lane would be available to all vehicles (except commercial trucks, which are restricted to the outside lanes).
- Widen the southbound SR 65 connector to westbound I-80 to three lanes, widen the southbound SR 65 connector to eastbound I-80 to two lanes, and widen the westbound I-80 connector to northbound SR 65 to two lanes.
- Taylor Road would be widened to four lanes from Roseville Parkway to the Rocklin city limits.



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PROJECT VICINITY

FIGURE 1

Widening or expansion of the adjacent freeway mainline segments and interchanges would be needed to facilitate some of these changes.

1.3. **Project Purpose and Need**

The current purpose and need statement for the I-80/SR 65 interchange improvements project is provided below.

The project is needed for the following reasons:

- Recurring morning and evening peak period demand exceeds the current design capacity of the I-80/SR 65 interchange and adjacent transportation facilities, which creates traffic operations and safety issues. These issues result in high delays, wasted fuel, and excessive air pollution and greenhouse gas emissions, which will be exacerbated by traffic from future population and employment growth.
- Interchange design features do not comply with current Caltrans design standards for safe and efficient traffic operations and limit existing community access to nearby uses.
- Travel choices are limited in the project because the transportation network does not include facilities for all modes and users consistent with the complete streets policies of Caltrans and local agencies.

The project objectives are listed as follows:

- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to reduce no build traffic congestion.
- Upgrade the I-80/SR 65 interchange and adjacent transportation facilities to comply with current Caltrans and local agency design standards for safer and more efficient traffic operations while maintaining and, if feasible, improving the current level of community access, at a minimum.
- Consider all travel modes and users in developing project alternatives.

1.3.1. Logical Termini and Independent Utility

Project limits for proposed improvements were developed through an iterative process involving engineering design and traffic operations analysis. Preliminary design concepts were tested with the traffic operations analysis model to evaluate how lane transitions and weaving influenced peak hour conditions. Refinements were made to ensure that mainline lane balance was logical and that transitions did not cause unacceptable traffic operations such as extensive queuing or reduced speeds.

1.4. **Project Alternatives**

The concept presented in the PSR replaced the eastbound to northbound loop ramp with a flyover ramp and added median HOV ramps from eastbound to northbound and southbound to westbound. Through an alternative generation and screening process, the project development team (PDT) developed and reviewed several alternatives. The final set of alternatives is listed below.

1. Taylor Road Full Access Interchange
2. Collector-Distributor System Ramps
3. Taylor Road Interchange Eliminated
4. Transportation System Management (TSM)
5. No Build

Each of the alternatives is described below.

The Taylor Road Full Access Interchange Alternative includes the I-80/SR 65 interchange expansion with a new Taylor Road interchange that has all four movements to and from I-80. A detailed drawing of this alternative is shown in Figure 2. The Taylor Road interchange would be co-located with the I-80/SR 65 interchange. The ramp connections to eastbound I-80 would be in approximately the same location as the existing SR 65 connector ramps. The westbound ramps would have a Tight Diamond configuration. To fit the Taylor Road ramps within the I-80/SR 65 interchange requires adjusting the location of the freeway-to-freeway connectors compared to the Collector-Distributor System Ramps and Taylor Road Interchange Eliminated Alternatives. Due to the close ramp spacing, traffic to and from the Eureka Road/Atlantic Street interchange on I-80 and the Galleria Boulevard/Stanford Ranch Road interchange on SR 65 would be prohibited from using the HOV direct connector ramps at the I-80/SR 65 interchange.

Figure 3 shows the Collector-Distributor System Ramps Alternative. In this alternative, the existing Taylor Road ramps are maintained. In the eastbound direction, a collector-distributor roadway would be constructed between the Eureka Road/Atlantic Street, Taylor Road, and SR 65 interchanges. The eastbound to northbound connector would start as two lanes at the I-80 mainline and a third lane would be added from the collector-distributor roadway. On-ramp traffic from Eureka Road/Atlantic Street would join the eastbound mainline between the SR 65 off-ramp and on-ramp connectors. In the westbound direction, the Taylor Road on-ramp would be maintained in its existing location.

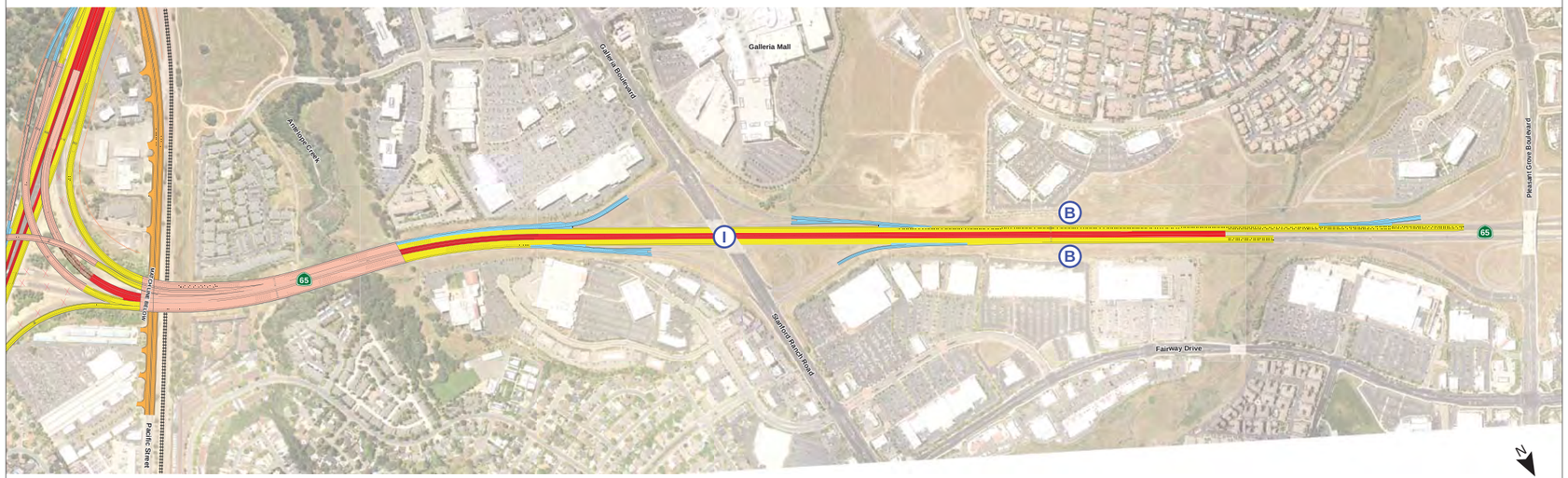
Alternative 1 Improvements:

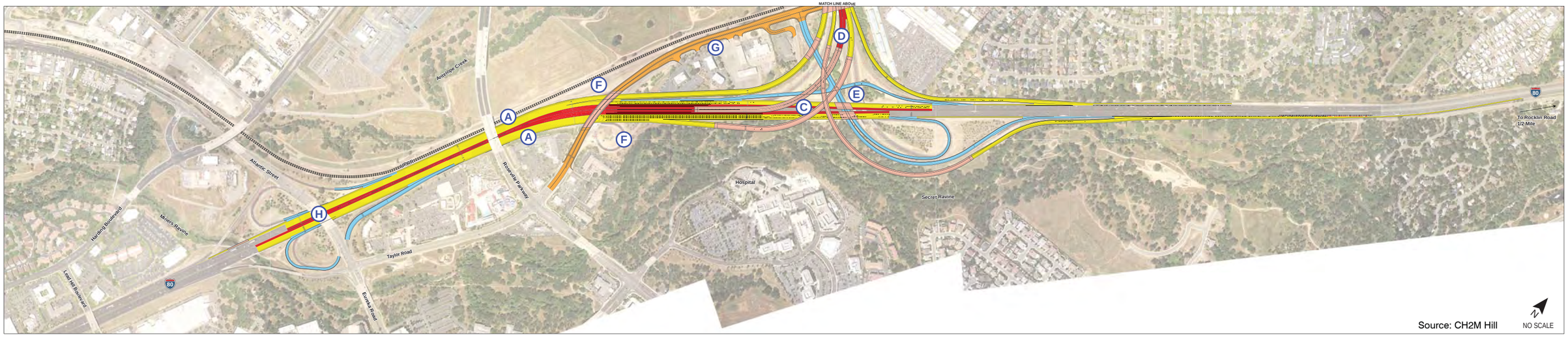
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 - add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange – add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Add a full access local interchange connection for I-80/Taylor Road
- (F) Remove existing I-80/Taylor Road ramp connections
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/ Stanford Ranch Road Interchange

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





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TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)

FIGURE 2

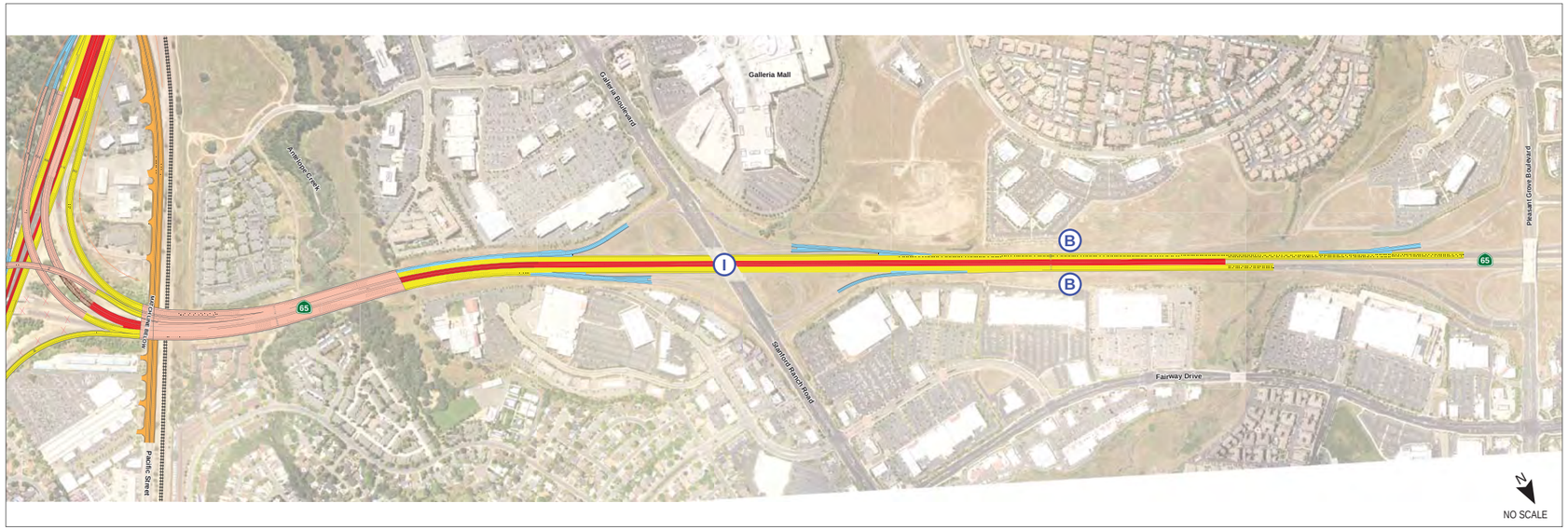
Alternative 2 Improvements:

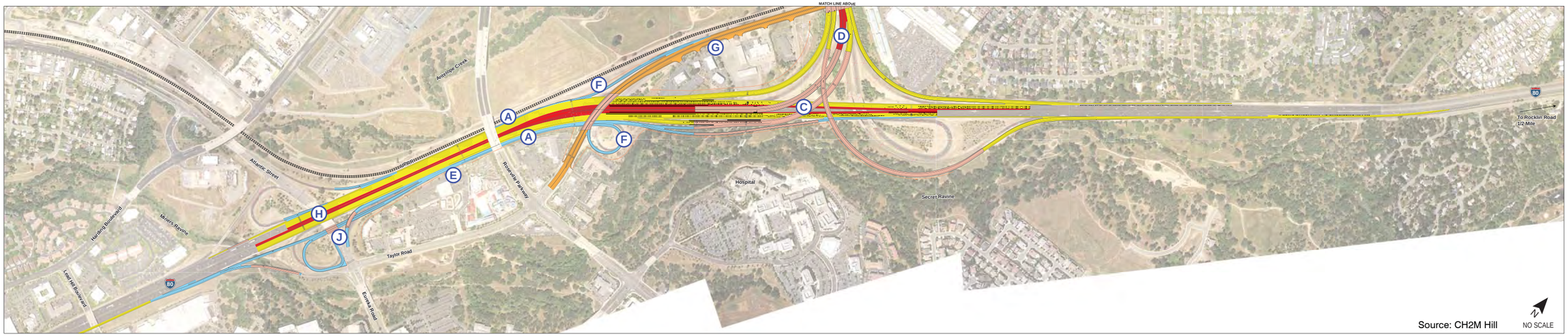
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 - add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange – add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Add eastbound collector-distributor road, separated from eastbound I-80
- (F) Modify ramps at I-80/Taylor Road Interchange
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/Stanford Ranch Road Interchange
- (J) Modify the eastbound I-80/Eureka Road ramps as part of the collector-distributor road

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





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COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)

FIGURE 3

The Taylor Road Interchange Eliminated Alternative is shown in Figure 4. The alternative is similar to the Collector-Distributor Roadway System Ramps Alternative. The primary difference is that the Taylor Road ramps are removed. As a result, the eastbound collector-distributor roadway starts further east at the Eureka Road/Atlantic Street on-ramps. To handle the traffic diverted from the closure of the Taylor Road ramps, two intersections would be widened. The Eureka Road/Taylor Road/I-80 Eastbound Ramps intersection would be widened to add a second northbound left turn lane and a second southbound right turn lane. At the Taylor Road/Roseville Parkway intersection, a second westbound right turn lane would be added.

The Transportation System Management Alternative would add operational enhancements to the planned transportation network. As shown in Figure 5, these enhancements include auxiliary lanes, increased ramp meter storage, signal coordination, and greater access control along major arterials.

Under the No Build (or No Project) Alternative, no improvements would be made at the I-80/SR 65 interchange. However, numerous transportation capacity expansion projects are planned to be constructed within the study area under construction year (2020) and design year (2040) conditions as displayed in Figures 6 and 7, respectively. All of these projects are assumed to be in place under all alternatives.

1.5. **Design Options**

As part of the alternative development process, two design options were evaluated at a conceptual level. The first option was the extension Antelope Creek Drive from its current terminus west of the Union Pacific Railroad to Taylor Road near I-80. This option would improve the efficiency of local circulation and access (that is, reduce VMT) and divert some traffic from the freeway.

The Antelope Creek Drive extension could be constructed in addition to any of the build alternatives. Design year traffic forecasts and meso-scale network performance measures were prepared for the Taylor Road Full Access Interchange Alternative with this design option as reported in the Technical Appendix. The diversion of freeway traffic would not affect bottleneck locations, so the option would not provide substantial congestion relief to the I-80 and SR 65 freeway mainline beyond that of the build alternatives. This option would be costly to construct given the railroad overpass, and its alignment would conflict with a recently approved development. For these reasons, this option was not justified for detailed analysis, but it could be pursued as a separate local project.

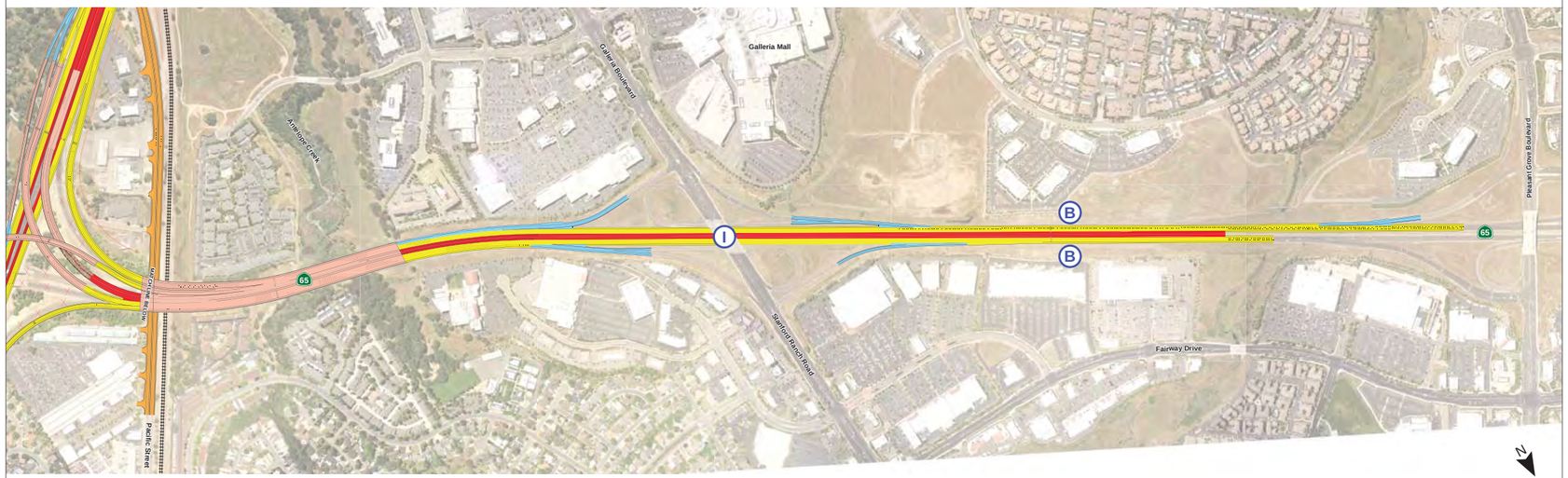
Alternative 3 Improvements:

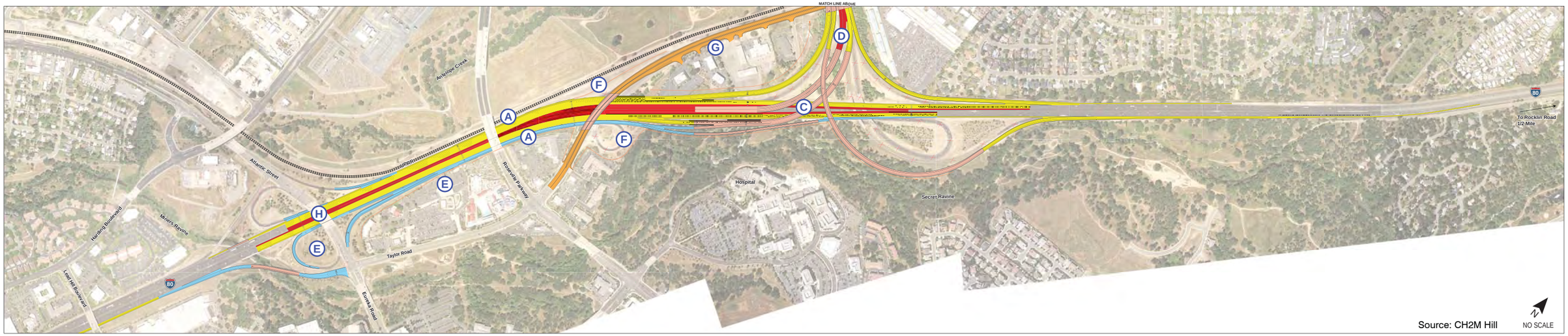
- (A) Widen I-80 - add mixed-flow and auxiliary lanes
- (B) Widen SR 65 – add HOV, mixed-flow, and auxiliary lanes
- (C) Improve I-80/SR 65 Interchange - add ramp lanes and realign the eastbound I-80 to northbound SR 65 loop ramp
- (D) Add direct connecting HOV ramp between I-80 and SR 65
- (E) Modify the eastbound I-80/Eureka Road ramps to be separated from I-80. Access to Taylor Road would be accommodated by the adjacent local interchanges
- (F) Remove existing I-80/Taylor Road ramp connections
- (G) Improve Taylor Road
- (H) Modify ramps and intersections at I-80/Eureka Road/Atlantic Street Interchange
- (I) Modify ramps and intersections at SR 65/Galleria Boulevard/Stanford Ranch Road Interchange

LEGEND

- Mainline General Purpose Lane
- High Occupancy Vehicle (HOV)/Carpool Lane
- Structures
- Local Street Improvements
- Local Interchange
- To Be Removed
- Union Pacific Railroad (UPRR)

NOTE: Colored lines represent limits of proposed improvements. See legend for type of improvement.





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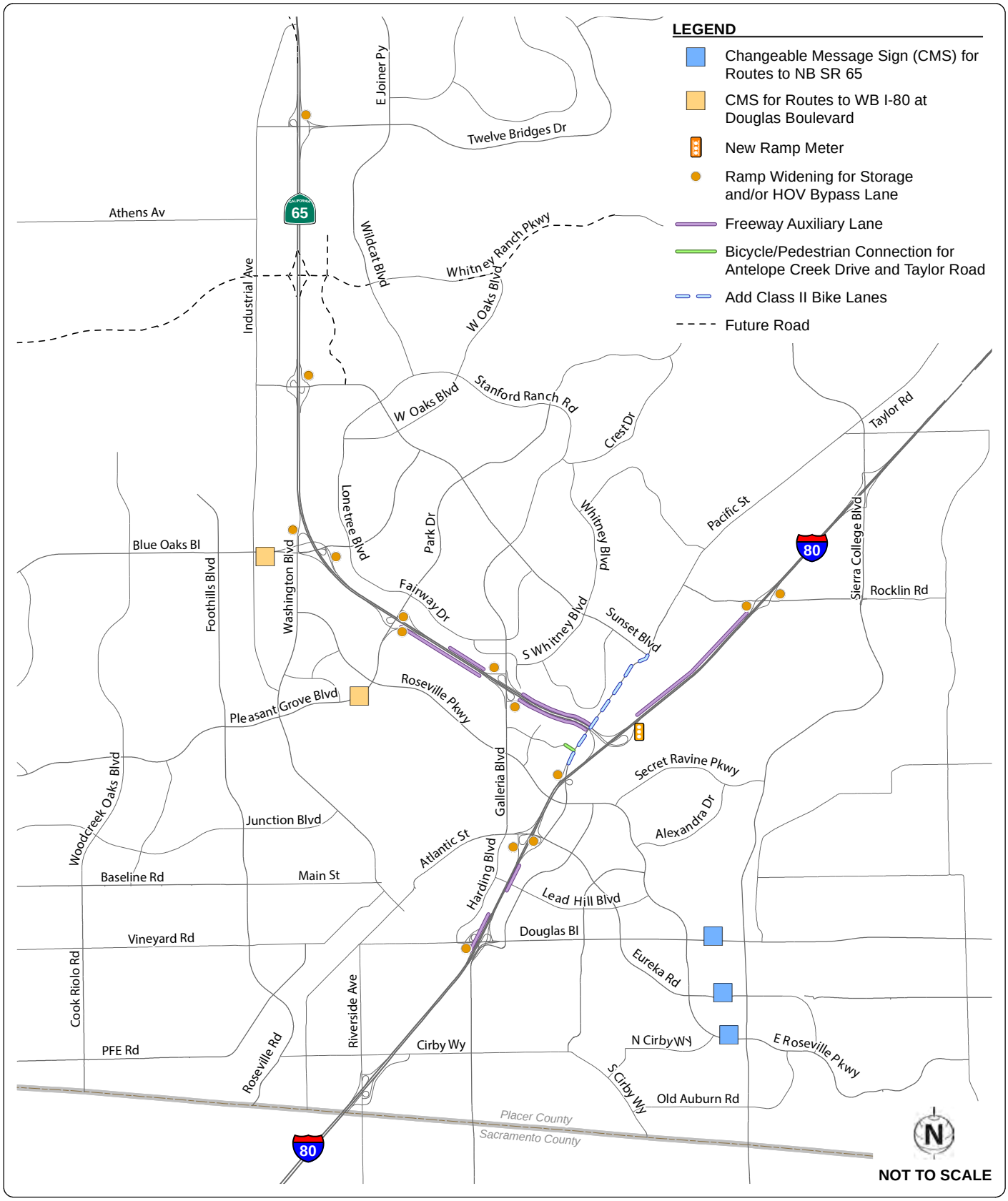
TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)

FIGURE 4



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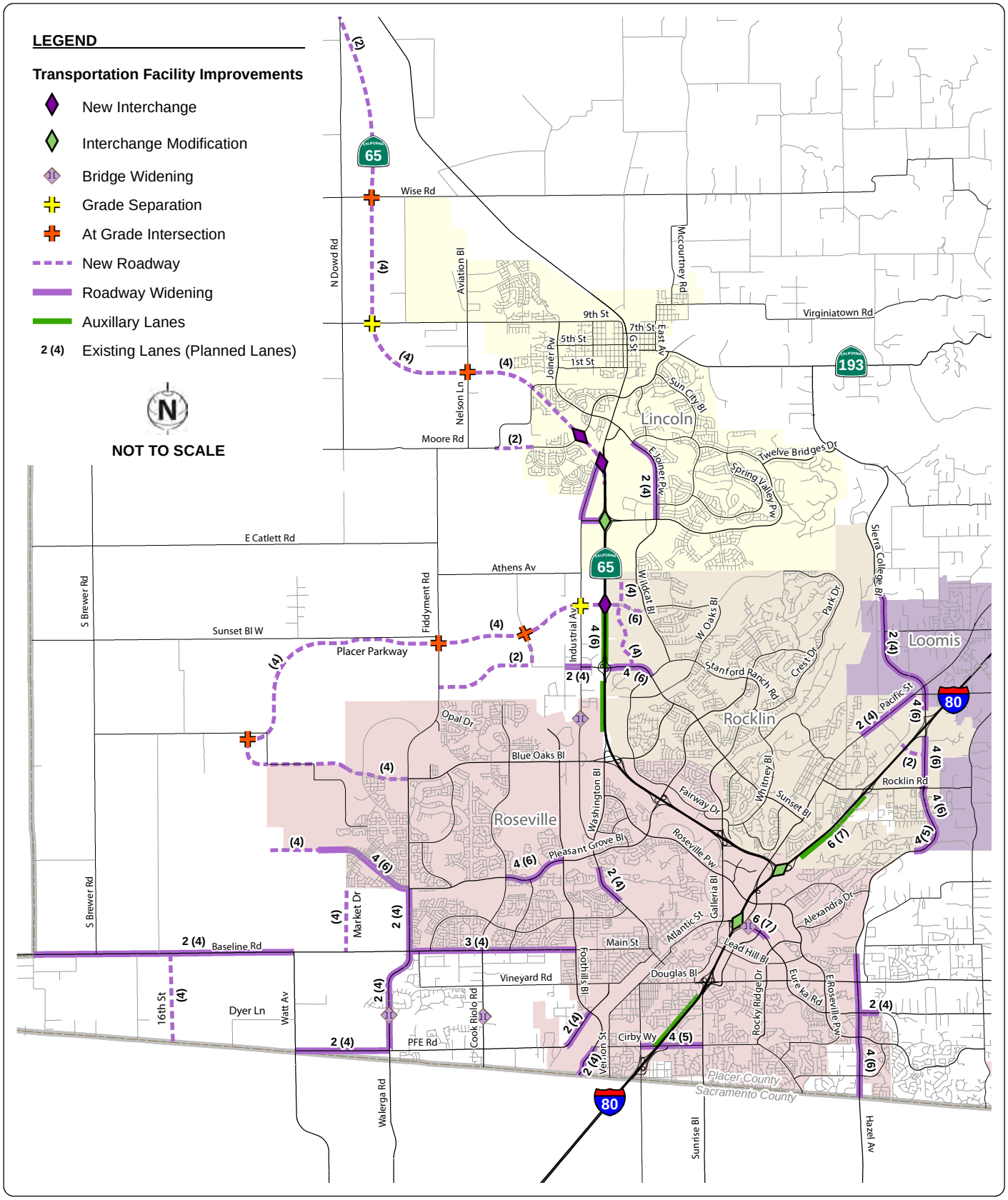
TRANSPORTATION SYSTEM MANAGEMENT (ALTERNATIVE 4)

FIGURE 5



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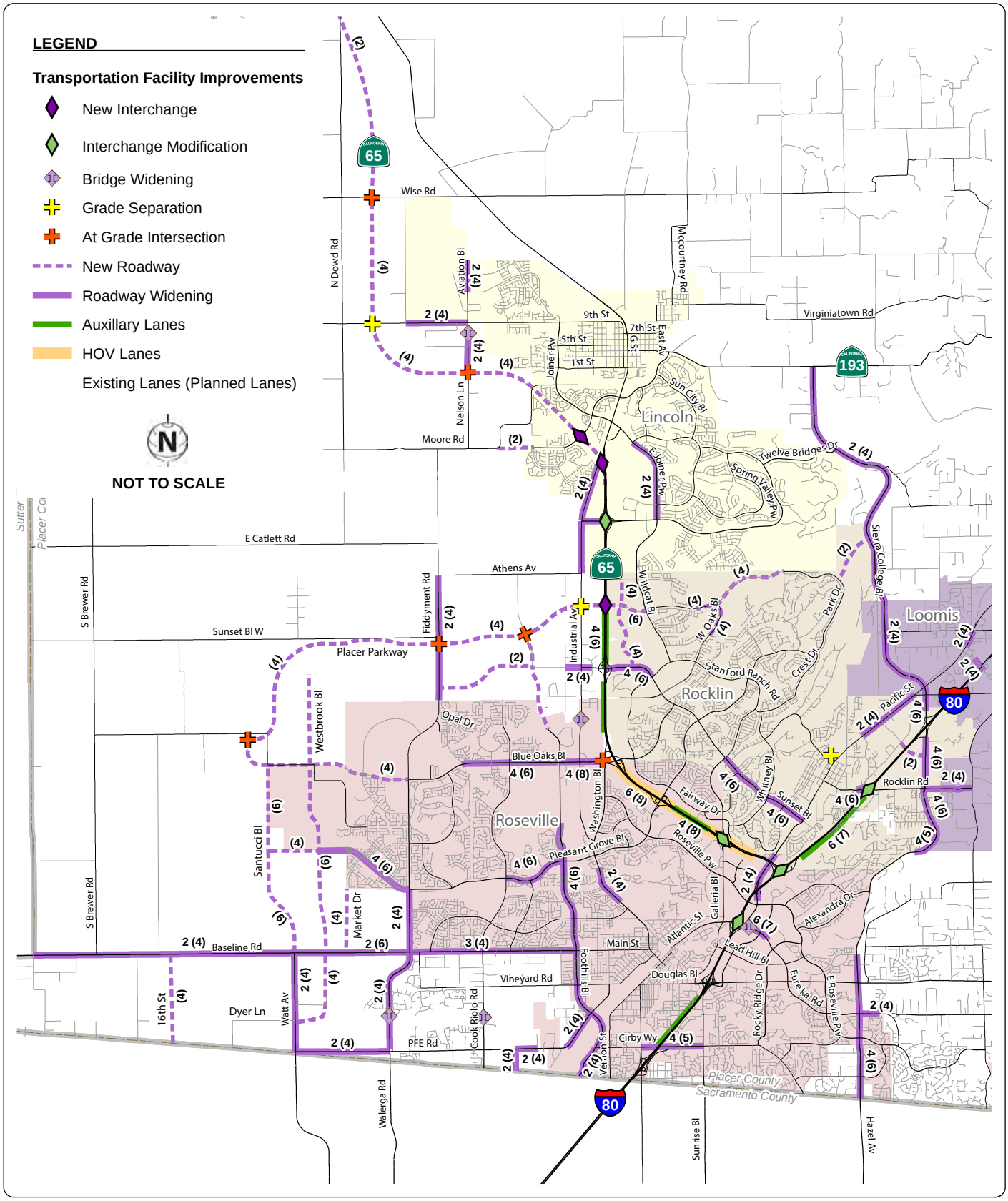
ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2020

FIGURE 6



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ROADWAY IMPROVEMENTS ASSUMED TO BE CONSTRUCTED BY 2040

FIGURE 7

The second design option would be to construct ramp meters on the freeway-to-freeway connectors at the I-80/SR 65 interchange. Elsewhere in California, ramp meters on freeway connectors are used to reduce congestion on downstream freeway corridors. A ramp meter on the southbound SR 65 connector to westbound I-80 was evaluated. A three-lane ramp meter would serve about 900 vehicles per hour per lane assuming the typical operation of two cars per green for high volume on-ramps. The design year demand volume ranges up to 3,700 vehicles per hour during the AM peak hour. With a metered flow rate of 2,700 vehicles per hour, this would result in a queue of approximately 1,000 vehicles, or 1.6 miles long during the peak hour. The ramp meter would cause severe queuing that would delay all movements on southbound SR 65 at I-80. The queuing would have substantial impacts to the interchange operations at Galleria Boulevard/Stanford Ranch Road, Pleasant Grove Boulevard, and Blue Oaks Boulevard.

Operations with three cars per green may provide up to 1,200 vehicles per hour per lane. Although not currently used in the Sacramento area, "three cars per green" operation is used on freeway connector ramp meters in Los Angeles (for example, I-105 to northbound I-405). With a higher throughput, the queues for southbound SR 65 could be managed such that effects on the upstream interchanges would be minor.

During project meetings, concerns were also raised about driver expectation, sight distance, and safety. As a result, the PDT directed that ramp meters not be included on the freeway connectors in the project alternatives.

1.6. **Sensitivity Tests**

The project alternatives were refined based in part on sensitivity testing of the freeway configuration of I-80 between Riverside Avenue and SR 65. The sensitivity analysis used the initial set of traffic forecasts prepared for the February 2013 draft transportation analysis report (see appendix). In this section, the results of four sensitivity tests are discussed. The technical details for these tests can be found in the appendix.

In the first test, an option for westbound I-80 at Atlantic Street was analyzed. In this option, the slip off-ramp would be closed and traffic re-routed to the loop off-ramp. The ramp terminal intersection would be re-built to accommodate the left-turn movement from the off-ramp. The option was analyzed using macro, rather than micro, level methodologies. The freeway weaving section from SR 65 to Atlantic Street was analyzed using the Leisch Method as recommended in the Highway Design Manual. The ramp terminal intersection was analyzed as an isolated intersection using the Highway Capacity Manual methods. The results showed that this configuration for Alternative 3 (Taylor Road Interchange Eliminated) would operate acceptably under design year peak hour conditions.

The second test used the Leisch Method to evaluate four I-80 weaving sections with Alternative 3 (Taylor Road Interchange Eliminated) under design year peak hour conditions: two eastbound sections – Douglas Boulevard to Eureka Road and Eureka Road to SR 65 – and two westbound sections – SR 65 to Atlantic Street and Douglas Boulevard to Riverside Avenue. All four segments operated acceptably using the forecasted travel volumes in the microsimulation analysis, but the Leisch Method reported LOS F for eastbound I-80 between Douglas Boulevard and Eureka Road. For the other segments, the volumes were adjusted by increasing the overall volume and by increasing the volume of weaving traffic (with a corresponding decrease in non-weaving traffic) to determine how close each segment was to reaching LOS F. The key location, eastbound I-80 between Eureka Road and SR 65, would have to have an overall growth of 25 percent or a shift in the percentage of on-ramp traffic going to the mainline from 27 to 63 percent before LOS F conditions would occur.

In the third test, the lane change distance for the eastbound SR 65 off-ramp in the microsimulation model was varied. For longer lane change distances, vehicles anticipate the off-ramp farther upstream. This can cause congestion in the right-hand lanes in the distance is longer than the length of the auxiliary lanes between Eureka Road and SR 65. This effect was already being captured in the model; increasing the lane change distance did not result in significantly different speeds for eastbound I-80.

The fourth test used the traffic forecasts presented in this report (see Chapter 4). Alternatives 2 (Collector-Distributor System Ramps) and 3 include the addition of an eastbound auxiliary lane from Douglas Boulevard to Eureka Road and a two-lane Eureka Road off-ramp. However, Alternative 1 (Taylor Road Full Access Interchange) does not. In the test, the eastbound auxiliary land and second off-ramp lane were added to Alternative 1 under design year PM peak period conditions. The additional lane improves the freeway operations in this section from LOS E to D, and increases the peak hour average speed from less than 60 to greater than 60 mph.

Chapter 2. Analysis Methodology

2.1. **Study Area**

The project study area for transportation analysis extends beyond the immediate vicinity of the I-80/SR 65 interchange as shown in Figure 8. The larger study area for transportation analysis purposes was based on two key factors.

1. The area needed to be large enough to capture the influence of potential changes at the I-80/ SR 65 interchange. This was determined through field observations and travel forecasting analysis that assessed traffic volume changes associated with the project's mixed-flow and HOV lane changes. This information revealed peak period traffic operations at the I-80/SR 65 interchange influence upstream and downstream conditions through multiple local interchanges.

2. The Placer County Transportation Planning Agency (PCTPA) wanted to develop travel forecasting and traffic operations model that would cover an area large enough for anticipated future projects such as Placer Parkway and the SR 65 mainline widening project between Lincoln and I-80.

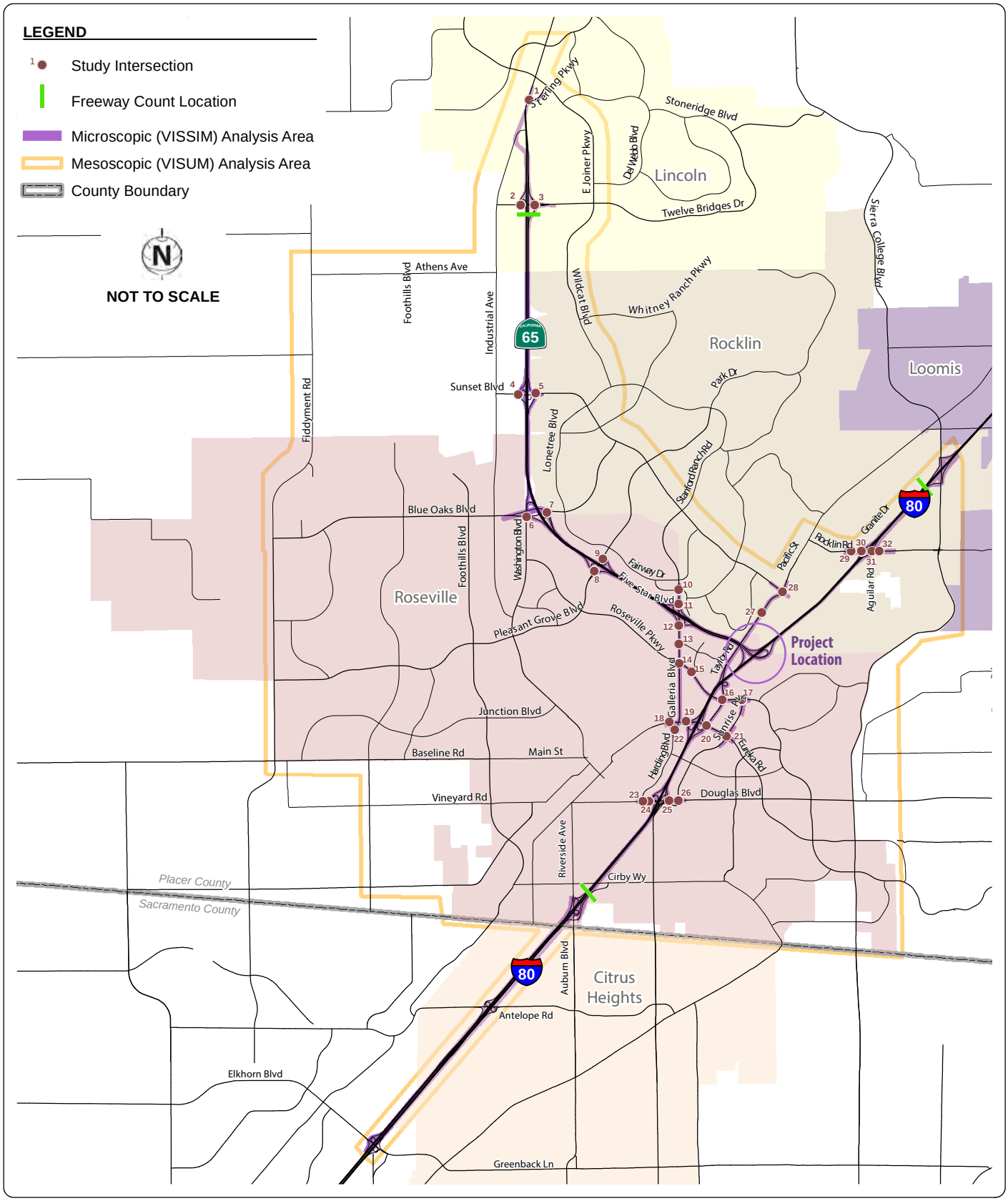
Depending on the analysis scenario, up to 155 individual analysis locations are included in the study area. These locations consist of freeway mainline segments, freeway ramp junctions, freeway weaving areas, and intersections. For a complete listing of all analysis locations, refer to the Technical Appendix.

2.2. **Data Collection Methods**

This section describes the data that were collected for use in the traffic analysis.

2.2.1. Geometric Data

Roadway geometric data were gathered using aerial photographs, design plans (for the I-80 HOV lane project), and field observations. The lane configurations that were taken initially from aerial photographs were confirmed or revised based on field observations.



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STUDY AREA
FIGURE 8

2.2.2. Traffic Control Data

Traffic control data (i.e., signal phasing/timings) were provided by the responsible operating agencies including Caltrans, the City of Roseville, the City of Rocklin, and Placer County. The Caltrans Traffic Operations Sacramento Area office provided timing information for the ramp meters that were operating when the traffic counts were collected. The posted speed limits for the network were collected during field observations.

Traffic signals are modeled as either free operation or coordinated according to the control plans specified in the controller. Traffic control at unsignalized intersections were taken from aerial photographs and confirmed during field observations.

2.2.3. Traffic Flow Data

Freeway and intersection traffic counts were collected in 15-minute intervals for the 6 to 10 AM and 3 to 7 PM peak periods during January and February 2012. At intersections, cars, trucks, bicycles, and pedestrians were counted by turning movement. For freeways, traffic counts include vehicle classification by number of occupants for passenger cars and vehicle type. Table 1 contains the hourly HOV and truck percentages at the freeway gateway locations from the traffic counts (complete traffic count data are contained in the Technical Appendix).

TABLE 1: HOURLY HOV AND TRUCK PERCENTAGE

Hour	Eastbound I-80 at Riverside Ave		Westbound I-80 at Sierra College Blvd		Southbound SR 65 at Twelve Bridges Dr	
	HOV	Truck	HOV	Truck	HOV	Truck
6 to 7 AM	12.4%	7.9%	11.6%	3.8%	13.1%	1.8%
7 to 8 AM	13.7%	3.7%	10.7%	3.8%	10.5%	1.4%
8 to 9 AM	15.6%	4.0%	13.9%	5.2%	14.8%	1.1%
9 to 10 AM	18.3%	5.3%	18.1%	5.9%	19.0%	2.2%
3 to 4 PM	20.0%	3.2%	24.3%	7.5%	31.1%	1.7%
4 to 5 PM	19.2%	2.6%	24.5%	5.1%	26.6%	0.9%
5 to 6 PM	13.9%	2.2%	18.8%	5.1%	31.0%	1.0%
6 to 7 PM	12.7%	2.8%	17.1%	5.2%	29.5%	1.5%

Source: Fehr & Peers, 2014

2.2.4. Travel Time Data

Travel time surveys were conducted during the same day of the mainline counts using global positioning system (GPS) units. The following routes were traveled for a minimum of every 15 minutes during the morning and evening peak periods.

- Southbound SR 65 at Blue Oaks Boulevard to westbound I-80 at Elkhorn Boulevard
- Eastbound I-80 at Elkhorn Boulevard to northbound SR 65 at Blue Oaks Boulevard
- Westbound I-80 from Sierra College Boulevard to Elkhorn Boulevard
- Eastbound I-80 from Elkhorn Boulevard to Sierra College Boulevard

2.3. Travel Forecasting Methodology

The transportation analysis for the I-80/SR 65 Interchange project used an integrated modeling approach that has three different levels of detail: macro, meso, and micro. At the macro level, the regional travel forecasting model (SACMET) was used to forecast peak period origin-destination (OD) traffic volume flows between traffic analysis zones both internal and external to the study area. At the meso level, the peak period OD flows were divided into four one-hour trip tables and disaggregated into three modes – single occupant vehicle (SOV), HOV, and truck – and then assigned to the sub-area roadway network using the VISUM software. The assignment process was based on congested travel times that reflect roadway link speeds and capacity. At the micro level, the traffic volumes were converted to individual vehicles that were assigned to the operational study area using the VISSIM software that contains detailed inputs governing traffic controls (signal timings), geometrics (lane configurations), and driver behavior.

The traffic forecasts were developed using the first two modeling platforms (macro and meso). The first platform is a modified version of the regional SACMET model developed by the Sacramento Area Council of Governments (SACOG) for the Metropolitan Transportation Plan (MTP)/Sustainable Communities Strategy (SCS). The second platform is the VISUM sub-area trip assignment model, which was used to assign the trips generated from the SACMET model to a detailed roadway network within the study area. Figure 8 above shows the mesoscopic and microscopic analysis areas.

The SACMET and VISUM models were calibrated and validated according to the *2010 California Regional Transportation Guidelines (*California Transportation Commission, 2010) and criteria approved by the PDT. Both models passed applicable static and dynamic validation tests. The detailed validation results are contained in Chapter 4.

Traffic volume forecasts were developed for construction year (2020) and design year (2040) conditions. The forecasts relied on modified inputs to the MTP/SCS SACMET model based on PDT refinements to land use projections and the planned roadway network as explained below.

2.3.1. Socioeconomic Forecasts

The traffic volume forecasts are derived from future socioeconomic projections that started with regional socioeconomic projections developed by SACOG for the regional MTP/SCS. These were reviewed by the PDT and modified to better reflect local plans. Figure 9 displays the final growth projections within the study area. Socioeconomic projections are the largest single influence on traffic volume forecasts, so they will affect volume projections to a greater extent than the roadway network changes or any other modeling component. If these forecasts vary in reality, it will have a direct effect on future traffic volumes.

2.3.2. Planned Transportation Network

The traffic volume forecasts are also influenced by modifications to the existing transportation network according to improvement projects anticipated to be constructed by the construction and design years (refer to Figures 3 and 4). These projects are based on the financially constrained project list contained in the MTP/SCS, but also consider projects the PDT agreed would likely be constructed by the design year. The rationale for adding projects to the MTP/SCS list was that the design year is five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements. A list of the planned projects is provided in Table 2.

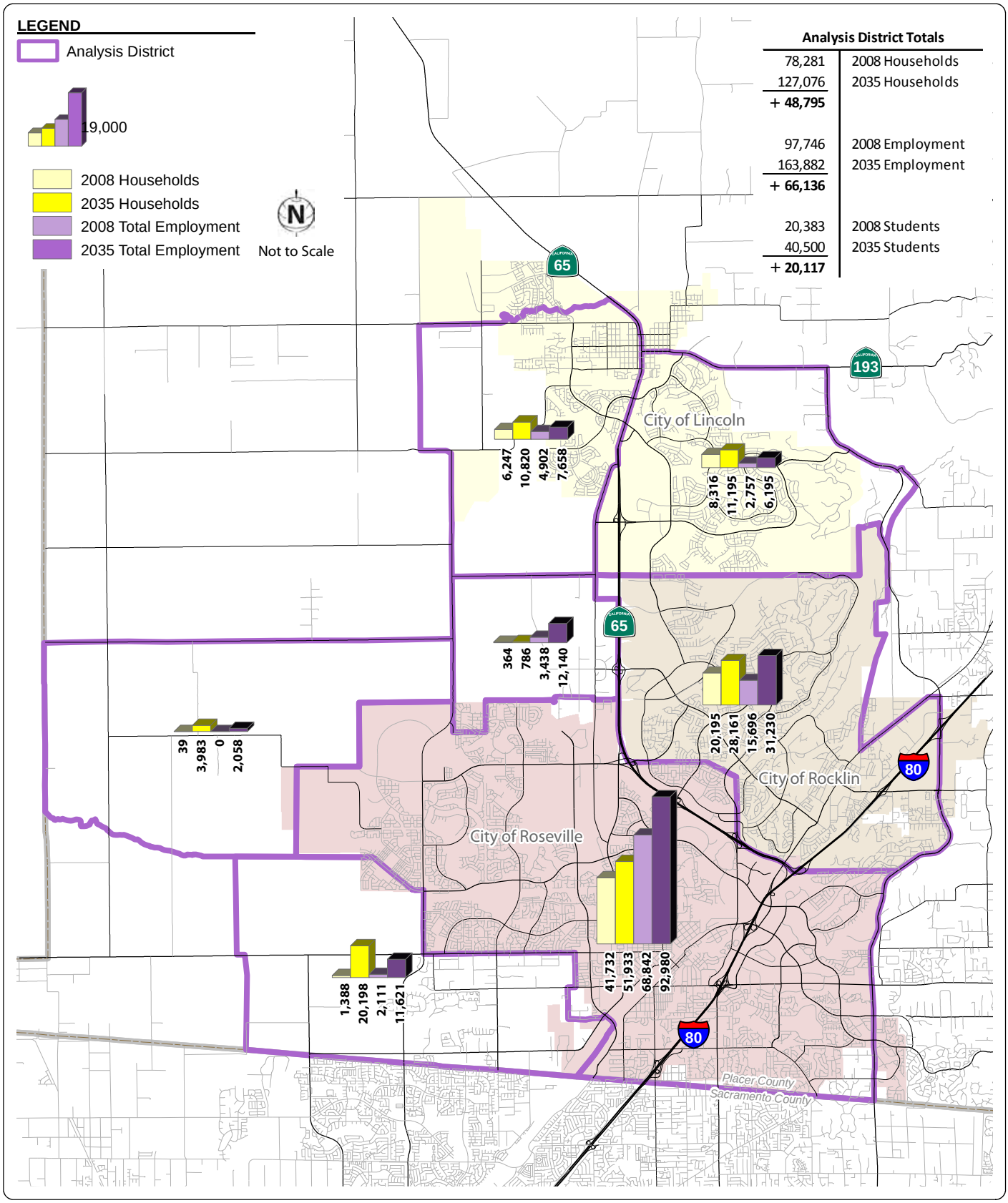
2.4. Traffic Operations Analysis Methodology

Because the study area already experiences peak period congestion, which is forecast to worsen, the traffic operations analysis required the use of simulation-based analysis. A congested network is very sensitive to any change in capacity or demand and the analysis tools need to be able to capture how changes in one location of the network affect the overall performance. Therefore, a VISSIM traffic simulation model was developed as follows.

- The model was constructed from roadway network (lane configuration), traffic volume (traffic counts), and traffic control (traffic signal and ramp meter) data.
- Additional detail was incorporated into the VISSIM network (posted speed limits, grades, etc.) to reflect observed field conditions.
- Driver behavior parameters were adjusted based on field observations.

TABLE 2: PLANNED SEPARATE PROJECTS	
Category	**Project**
Complete by 2020 (Construction Year)	• Atkinson St: widen from 2 to 4 lanes from Foothills Blvd to south of Dry Creek • Baseline Rd: widen from 3 to 4 lanes from Brady Ln to Fiddyment Rd • Baseline Rd: widen from 2 to 4 lanes from Fiddyment Rd to Watt Ave • Baseline Rd: widen from 2 to 4 lanes from Watt Ave to (future) 16th St • Baseline Rd: widen from 2 to 4 lanes from (future) 16th St to county line • Blue Oaks Blvd: construct 4 lanes from Fiddyment Rd to Hayden Pkwy and 2 lanes from Hayden Pkwy to Westbrook Blvd • Blue Oaks Blvd: widen from 2 to 4 lanes from Hayden Pkwy to Westbrook Blvd and construct 4 lanes from Westbrook Blvd to Santucci Blvd • Cirby Way: widen from 4 to 5 lanes from Riverside Ave to Regency Ave • Cook Riolo Rd: widen from 1 to 2 lanes Dry Creek Bridge • Domiguez Rd: construct 2 lanes from Granite Dr to Sierra College Blvd • East Joiner Pkwy: widen from 2 to 4 lanes from Del Webb Pkwy to Twelve Bridges Dr • Eureka Rd: widen from 2 to 4 lanes from Sierra College Blvd to city limits • Ferrari Ranch Rd: construct 2 lanes from city limit to Moore Rd • Fiddyment Rd: widen to 4 lanes from Pleasant Grove Blvd to Baseline Rd • I-80 from Douglas Blvd to Riverside Ave: add a westbound auxiliary lane • I-80 from SR 65 to Rocklin Rd: add an eastbound auxiliary lane • I-80/Eureka Rd On-ramp Improvements • Industrial Ave: widen from 2 to 4 lanes from SR 65 to Twelve Bridges Dr • Industrial Ave: replace 2 lane bridge at Pleasant Grove Creek • Market St: construct 2 lanes from Baseline Road to Pleasant Grove Blvd • Pacific St: widen to 4 lanes from Sierra Meadows Dr to Loomis town limits • PFE Rd: widen from 2 to 4 lanes from Watt Ave to Walerga Rd • Placer Pkwy: construct 4-lane expressway from SR 65 to Santucci Blvd • Pleasant Grove Blvd: widen from 4 to 6 lanes from Foothills Blvd to Woodcreek Oaks Blvd • Pleasant Grove Blvd: widen from 2 to 4 lanes from Fiddyment Road to Santucci Blvd • Rocklin Rd: widen from 4 to 6 lanes from Granite Dr to I-80 Westbound Ramps • Roseville Rd: widen from 2 to 4 lanes from city limits to Cirby Way • Santucci Blvd: construct 4 lanes from Baseline Road to Blue Oaks Blvd • Sierra College Blvd: widen to 6 lanes from county line to Olympus Dr • Sierra College Blvd: widen from 4 to 5 lanes from Nightwatch Dr to Aguilar Tributary • Sierra College Blvd: widen from 4 to 6 lanes from Aguilar Tributary to I-80 • Sierra College Blvd: widen from 4 to 6 lanes from Granite Dr to Bankhead Rd • Sierra College Blvd: widen from 2 to 4 lanes from Taylor Rd to north town limits • SR 65 Lincoln Bypass – Phase 1 & 2A • SR 65/Ferrari Ranch Rd Interchange • SR 65/Whitney Ranch Pkwy: construct interchange • Sunset Blvd: construct 2 lanes from Fiddyment Rd to Foothills Blvd • Sunset Blvd: widen from 2 to 4 lanes from Cincinnati Ave to SR 65 • Sunset Blvd: widen to 6 lanes from SR 65 to West Stanford Ranch Rd • Twelve Bridges Dr: widen from 2 to 4 lanes from Industrial Ave to SR 65 including interchange • University Ave: construct 4 lanes from Whitney Ranch Pkwy to Ranch View Dr • University Ave: construct 4 lanes from Sunset Blvd to Whitney Ranch Pkwy • Walerga Rd: widen from 2 to 4 lanes from Baseline Rd to county line • Washington Blvd: widen to 4 lanes from Sawtell Rd to Pleasant Grove Blvd • Whitney Ranch Pkwy: construct 6 lanes from SR 65 to east of Wildcat Blvd

TABLE 2: PLANNED SEPARATE PROJECTS	
Category	**Project**
Complete by 2035	• Aviation Blvd: widen from 2 to 4 lanes from Venture Dr to 0.5 mi north of Venture Dr • Dyer Ln: construct 4 lanes from Watt Ave to Baseline Rd • Fiddyment Rd: widen from 2 to 4 lanes from Roseville city limits to Athens Rd • Foothills Blvd: construct 2 lanes from Roseville city limits to Sunset Blvd • I-80/Horseshoe Bar Rd Interchange: widen overcrossing from 2 to 4 lanes • I-80/Rocklin Rd Interchange improvements • Industrial Ave: widen from 2 to 4 lanes from Twelve Bridges Dr to Athens Ave • Nicolaus Rd: widen from 2 to 4 lanes from Airport Rd to Aviation Blvd • Midas Ave: construct grade separation at UPRR • Rocklin Rd: widen from 2 to 4 lanes from Sierra College Blvd to Loomis town limits • Rocklin Rd: widen from 2 to 4 lanes from west Loomis town limits to Barton Rd • North Antelope Rd: widen from 2 to 4 lanes from county line to PFE Rd • Sierra College Blvd: widen from 2 to 4 lanes from SR 193 to Loomis town limits • Sierra College Blvd: widen to 4 lanes from (future) Valley View Pkwy to Loomis town limits • SR 65/Galleria Blvd Interchange Improvements (Phase II) • Sunset Blvd: widen from 4 to 6 lanes from Stanford Ranch Rd to Topaz Ave • Sunset Blvd: widen from 4 to 6 lanes from Topaz Ave to Whitney Blvd • Sunset Blvd: widen from 4 to 6 lanes from Whitney Blvd to Pacific St • Taylor Rd: widen from 2 to 4 lanes from Horseshoe Bar Rd to King Rd • Valley View Pkwy: construct 2 lanes from Park Dr to Sierra College Blvd • West Oaks Blvd: construct 4 lanes from terminus to (future) Whitney Ranch Pkwy • Whitney Ranch Pkwy: construct 4 lanes from terminus to Whitney Oaks Dr • Watt Ave: widen from 2 to 4 lanes from Baseline Rd to county line
Assumed to be Complete by 2040 (Design Year)	• Baseline Rd: widen from 4 to 6 lanes from Fiddyment Rd to Watt Ave • Blue Oaks Blvd: widen to 6 lanes from Crocker Ranch Rd to Foothills Blvd • Blue Oaks Blvd: widen to 8 lanes from Foothills Blvd to Washington Blvd • Foothills Blvd: widen to 6 lanes from Cirby Way to Misty Wood Dr • Nelson Ln: widen from 2 to 4 lanes from SR 65 (Lincoln Bypass) to Nicolaus Rd • PFE Rd: widen from 2 to 4 lanes from North Antelope Rd to Roseville city limits • Santucci Blvd: construct 6 lanes from Baseline Road to Blue Oaks Blvd • SR 65 Capacity and Operational Improvements: I-80 to Blue Oaks Blvd • Taylor Rd: widen from 2 to 4 lanes from Roseville Pkwy to I-80 • Taylor Rd: widen from 2 to 4 lanes from I-80 to city limits • Westbrook Blvd: construct new road from Baseline Rd to Pleasant Grove Blvd • Westbrook Blvd: construct new road from Pleasant Grove Blvd to Blue Oaks Blvd • Westbrook Blvd: construct new road from Blue Oaks Blvd to city limits
Sources: SACOG, 2012 and Fehr & Peers, 2014	



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MODIFIED SACMET LAND USE SUMMARY BY ANALYSIS DISTRICT

FIGURE 9

- The distribution of vehicle types was calibrated to local conditions so that the percentages of trucks and HOVs match the traffic counts.

The VISSIM model was validated to existing conditions using the criteria contained in *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software* (Federal Highway Administration, 2004). The default VISSIM parameters for geometrics and driver behavior were iteratively adjusted until the model was validated to observed conditions (refer to the Technical Appendix for a complete summary of the VISSIM model validation). Since microsimulation models, like VISSIM, rely on the random arrival of vehicles, multiple runs are needed to provide a reasonable level of statistical accuracy and validity. Therefore, the results of 10 separate runs (each using a different random seed number) were averaged to determine the final results.

The calibrated and validated model was used to generate a variety of traffic operations performance measures including person throughput, vehicle throughput, vehicle delay, passenger car density, travel time, speed, and percent demand served. Some of these measures were used to determine level of service (LOS) values for analysis locations consistent with the methodology contained in the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2011).

The HCM methods use quantitative performance measures to determine LOS for analysis locations under AM and PM peak hour conditions. LOS is a qualitative measure of traffic operations from a driver's perspective, which varies from LOS A (the best) to LOS F (the worst), and is one of the main evaluation criteria for this study. Tables 3 and 4 describe the LOS thresholds from the HCM for freeway sections and signalized intersections, respectively.

To analyze construction year and design year conditions, Vissim models were built for each alternative based on the calibrated/validated existing conditions model. The network changes for each alternative were coded into the respective models. All models included separately planned projects (listed in Table 2) that were located in the microsimulation analysis area.

The roadway assumptions for the separately planned projects are listed below.

- Blue Oaks Boulevard Widening (design year only) – widening of the eastbound approach to Washington Boulevard to four lanes
- I-80 Auxiliary Lanes – a westbound I-80 auxiliary lane from the westbound Douglas Boulevard on-ramp to the Riverside Avenue off-ramp, an eastbound I-80 auxiliary lane from the lane drop east of SR 65 to the deceleration lane at the Rocklin Road off-ramp, and widening of the Rocklin Road eastbound off-ramp to two lanes

TABLE 3: FREEWAY LOS THRESHOLDS			
LOS	Average Density (vplpm)		Description
	Basic Sections	Ramp Junction & Weave Sections	
A	< 11	< 10	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver.
B	> 11 to 18	> 10 to 20	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.
C	> 18 to 26	> 20 to 28	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.
D	> 26 to 35	> 28 to 35	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.
E	> 35 to 45	> 35 to 43	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.
F	> 45	> 43	Represents a breakdown in flow.
Notes: vplpm = vehicles per lane per mile Source: Fehr & Peers, 2014			

TABLE 4: SIGNALIZED INTERSECTION LOS THRESHOLDS		
LOS	Average Delay (sec/veh)	Description
A	< 10	Very low delay occurs with favorable progression and/or short cycle length.
B	> 10 to 20	Low delay occurs with good progression and/or short cycle lengths.
C	> 20 to 35	Average delays result from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.
D	> 35 to 55	Longer delays occur due to a combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop and individual cycle failures are noticeable.
E	> 55 to 80	High delay values indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.
F	> 80	Delays are unacceptable to most drivers due to over-saturation, poor progression, or very long cycle lengths.
Notes: sec/veh = seconds per vehicle Source: Fehr & Peers, 2014		

- I-80/Eureka Road On-ramp Improvements – widening of westbound Eureka Road from Sunrise Avenue to Taylor Road and the westbound to eastbound on-ramp to I-80 (project completed in 2013)
- I-80/Rocklin Road Interchange (design year only) – widening of Rocklin Road to six lanes from Granite Drive to Aguilar Road, with dual left-turn lanes eastbound at Granite Drive, westbound at westbound I-80, and eastbound at eastbound I-80
- SR 65/Stanford Ranch Road Interchange Phase II Improvements (design year only)– reconstruction of the northbound ramp terminal intersection to control all movements at the signal and add a second northbound left-turn lane, a third northbound through lane, a second eastbound right-turn lane, and a second westbound right-turn lane
- SR 65 Lincoln Bypass Phase 1 – realignment of SR 65 and construction of the Lincoln Boulevard and Ferrari Ranch Road interchanges (project completed in 2013)
- SR 65/Twelve Bridges Drive Interchange – widening of Twelve Bridges Drive from one to two through lanes in both directions
- SR 65/Whitney Ranch Parkway Interchange – construction of a partial cloverleaf interchange with connections to Whitney Ranch Parkway to the east and Placer Parkway to the west with auxiliary lanes to and from Sunset Boulevard to the south
- SR 65 Widening (design year only) – adding a HOV lane in both directions from Stanford Ranch Road/Galleria Boulevard to north of Blue Oaks Boulevard, with the northbound lane drop at Sunset Boulevard and a southbound auxiliary lane between Sunset Boulevard and Blue Oaks Boulevard
- Sunset Boulevard Widening (design year only) – widening of Sunset Boulevard at Pacific Street to provide a third northbound and eastbound left-turn lanes and a second southbound right-turn lane.

2.6. **Evaluation Criteria**

The analysis evaluation criteria were developed in collaboration with the PDT because the project has the potential to affect traffic operations across multiple jurisdictions. The main criteria used for this study is LOS as described below since each affected agency has establish policies and thresholds related to LOS expectations.

According to the *Interstate 80 and Capital City Freeway Corridor System Management Plan* and the *State Route 65 Corridor System Management Plan* (Caltrans District 3, May 2009), Caltrans has identified the route concept LOS for the following segments.

- LOS F for I-80 from Riverside Avenue/Auburn Boulevard to Sierra College Boulevard
- LOS F for SR 65 from I-80 to Blue Oaks Boulevard
- LOS E for SR 65 from Blue Oaks Boulevard to Industrial Avenue (Lincoln Boulevard)

LOS E conditions are desired when feasible but LOS F conditions are likely to occur in the study area under no build conditions as recognized by the concept LOS thresholds. The LOS E threshold will be used to identify minimum acceptable operations (that is, deficiencies) and potential impacts to State highway mainline segments, ramp junctions, weaving segments, and ramp terminal intersections. For locations with LOS F under the no build condition, an impact would occur if the project alternatives would worsen the LOS F condition based on the quantitative performance measure associated with the specific type of analysis.

For study intersections within the City of Lincoln, the City of Lincoln General Plan (Adopted March 2008) contains the following LOS policies:

- Strive to maintain a LOS C at all signalized intersections in the City during the PM peak hours.
- The City shall coordinate with Caltrans in order to strive to maintain a minimum LOS "D" for SR 65 and SR 193.

With the construction of the SR 65 bypass, the analysis locations on Lincoln Boulevard in Lincoln are local intersections. As a result, LOS C will serve as the minimum acceptable LOS for the intersections on Lincoln Boulevard and Twelve Bridges Drive for both AM and PM peak hours.

For study intersections within the City of Roseville, the City of Roseville General Plan (Adopted May 5, 2010) LOS policy states:

- Maintain a level of service (LOS) "C" standard at a minimum of 70 percent of all signalized intersections and roadway segments in the City during the PM peak hours.

Some of the study intersections are shown in the General Plan to operate at worse than LOS C under 2025 conditions. For this project, the following criteria are proposed.

- For intersections shown to be operating at LOS C or better in the General Plan under 2025 conditions, LOS C will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS D in the General Plan under 2025 conditions, LOS D will be used as the minimum acceptable LOS.
- For intersections shown to be operating at LOS E in the General Plan under 2025 conditions, LOS E will be used as the minimum acceptable LOS.

- For intersections shown to be operating at LOS F in the General Plan under 2025 conditions, LOS F and the corresponding delay will be used as the minimum acceptable LOS.

Using the above criteria, the Stanford Ranch Road/Galleria Boulevard ramp terminal and Roseville Parkway/Taylor Road intersections will have a LOS D threshold, and the Galleria Boulevard/Roseville Parkway, Roseville Parkway/Taylor Road, Eureka Road/Taylor Road/I-80 Eastbound Ramps, and Douglas Boulevard/Harding Boulevard intersections will have a LOS E threshold. All other Roseville intersections will have a LOS C threshold. These thresholds will be used for both the AM and PM peak hours in both the construction and design year analysis.

For study intersections within the City of Rocklin, the City of Rocklin General Plan (Adopted April 3, 1991), Section C Policy 13 (Circulation) states:

- To maintain a minimum traffic level of service "C" for all streets and intersections, except for intersections located within ½ mile from direct access to an interstate freeway where a level of service "D" will be acceptable. Exceptions may be made for peak hour traffic where not all movements exceed the acceptable level of service.

Based on these standards and for the purposes of this study, LOS C is the minimum acceptable LOS for the Placer Parkway/Whitney Ranch Parkway, Sunset Boulevard, Blue Oaks Boulevard (northbound ramps), and the Pacific Street intersections at Woodside Drive and Sunset Boulevard. LOS D is the minimum acceptable LOS for the Rocklin Road intersections since they are less than one-half mile from I-80.

For this study, a project impact must satisfy two conditions. First, the study location must operate at a worse LOS than the threshold identified above. Second, the study location must operate at a worse condition (higher delay for intersections or higher density for freeway segments) than the similar case for Alternative 5 (No Build).

Chapter 3. Existing (2012) Conditions

The existing conditions analysis includes meso-scale network performance, micro-scale traffic operations, and traffic safety. The meso-scale network performance evaluates the entire network within the meso-scale study area based on vehicle miles of travel (VMT), vehicle hours of travel (VHT), vehicle hours of delay (VHD), and freeway VHD. VHD includes all hours of travel below the free-flow speed (for example, the free-flow speed on freeways is 65 miles per hour). Freeway VHD includes only hours of freeway travel below 35 miles per hour (mph). The operations analysis is more detailed and analyzes individual facilities with separate discussions for freeways and arterial intersections. The traffic safety evaluation focuses on freeway facilities.

3.1. Meso-Scale Network Performance

Table 5 contains estimates of existing (2012) meso-scale study area VMT, VHT, VHD, and Freeway VHD for AM and PM peak period conditions. This information shows that the PM peak period has the highest level of travel with VHD equal to almost 35 percent of all VHT. The AM peak period also experiences congested conditions with a VHD at approximately 25 percent of all VHT.

TABLE 5: PEAK PERIOD MESO-SCALE NETWORK PERFORMANCE SUMMARY – EXISTING (2012) CONDITIONS

Measure of Effectiveness	AM Peak Period (6:00 to 10:00)	PM Peak Period (3:00 to 7:00)
VMT	1,182,073	1,562,794
VHT	31,314	49,967
VHD	7,807	17,423
Freeway VHD	1,459	4,564

3.2. Traffic Operations

Traffic operations were analyzed for existing (2012) conditions under AM and PM peak period and peak hour conditions. This analysis relied on the AM and PM four-hour, peak period VISSIM models from which peak hour results were extracted. The VISSIM model only includes the freeway network and the immediate arterial network around the I-80/SR 65 interchange. As a result, performance measures such as VMT and VHT reported from this model will contain much smaller values compared to the larger meso-scale network results presented in Table 5. Overall traffic operations performance of the micro-scale network is summarized in Table 6.

TABLE 6: PEAK PERIOD MICRO-SCALE NETWORK PERFORMANCE SUMMARY – EXISTING (2012) CONDITIONS		
Measure of Effectiveness	**AM Peak Period (6:00 to 10:00)**	**PM Peak Period (3:00 to 7:00)**
VMT	645,270	730,100
VHT	13,760	16,850
VHD	2,670	3,950
Average Travel Speed (mph)	46.9	43.3

Similar to the Table 5 results, the PM peak period has the highest level of travel and delay with the most congestion lasting up to three hours for select segments.

3.2.1. Freeway Operations

Detailed freeway operations were analyzed for the entire four-hour AM and PM peak periods. The AM (7:30 to 8:30) and PM (4:30 to 5:30) peak hour results are reported in this section and reflect conditions based on estimates of peak hour freeway mainline and ramp traffic volumes for 2012 conditions shown in Figure 12. The existing conditions analysis confirmed field observations and provided some insight as to specific bottleneck locations, causes, and duration. Figure 10 and 11 below show the PM peak hour queue extending back from the westbound I-80 on-ramp junction with the northbound SR 65 connector.

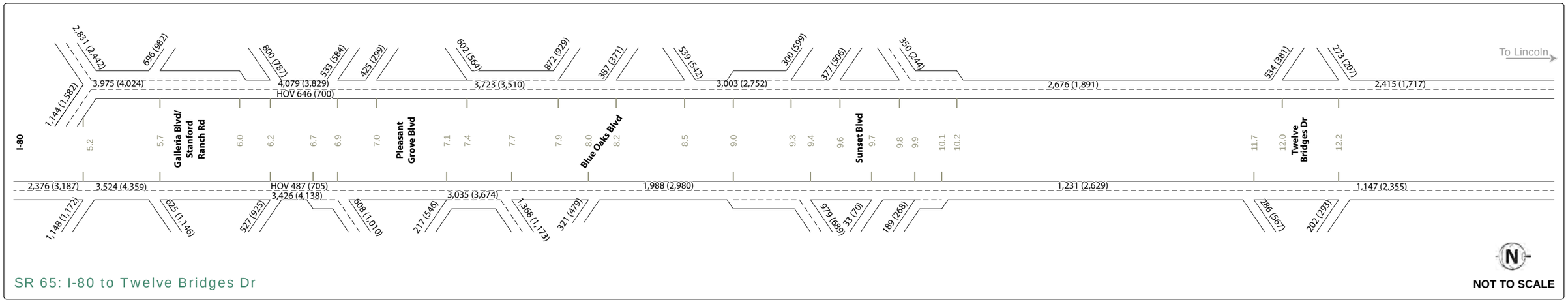
The existing (2012) conditions analysis of freeway and arterial performance matched observed conditions such as those shown in the photos above. Specific examples are listed below.

- Bottleneck areas have poor LOS results as highlighted in Table 7, which contains select LOS results for freeway operations. See the Technical Appendix for all study location results.

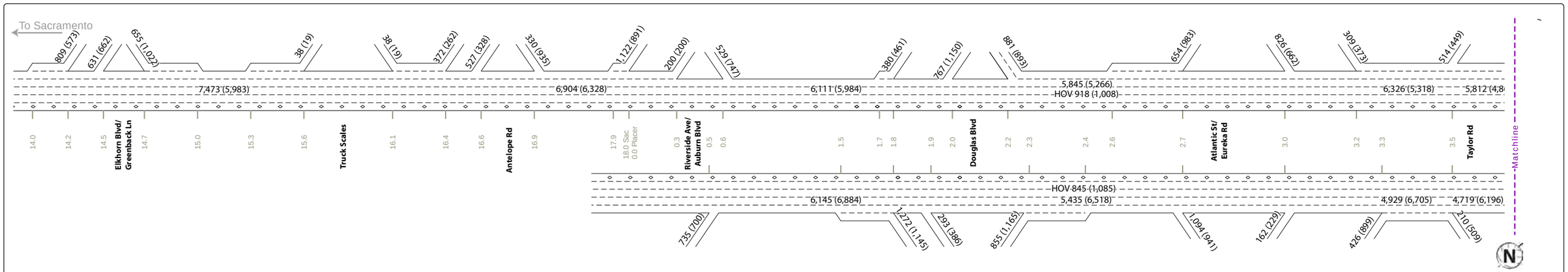
The speed contour maps of the I-80 and SR 65 corridors produced from the VISSIM models show reduced speeds in bottleneck areas (see Figures 13 through 16 below).

Figure 10 – Eastbound I-80 from Taylor Road Overcrossing (PM Peak Hour)

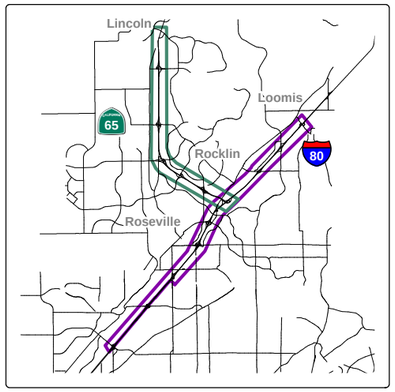
Figure 11 – Eastbound I-80 from Roseville Pkwy Overcrossing (PM Peak Hour)



SR 65: I-80 to Twelve Bridges Dr



I-80: Elkhorn Blvd to Taylor Rd



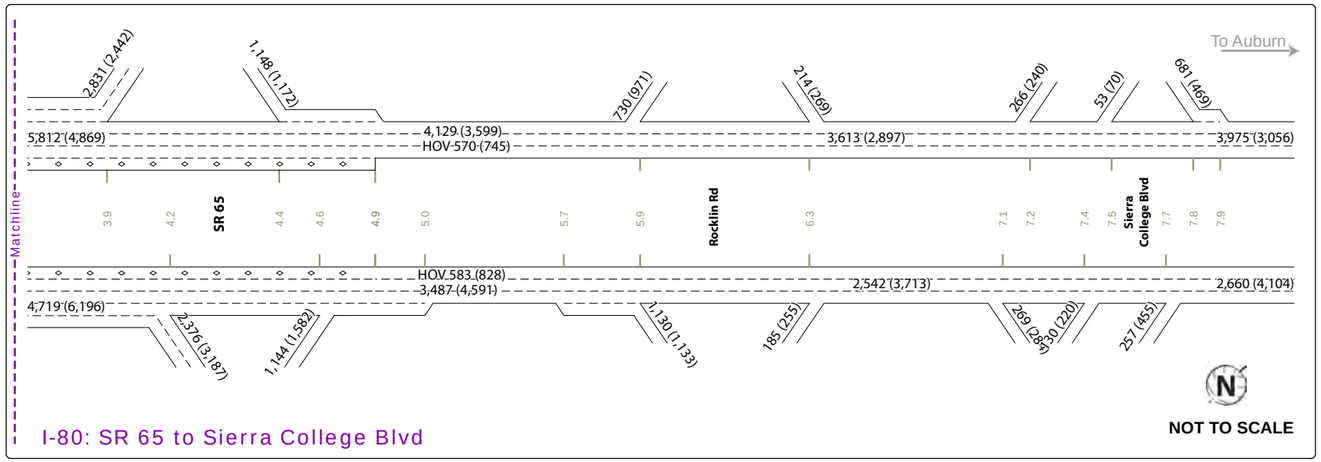
LEGEND

AM (PM) Peak Hour Traffic Volume

HOV AM (PM) Peak Hour HOV Volume

10.1 Postmile

NOTE: Traffic volumes collected in February 2012.



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Final\GIS\MXD\LOS_Schematic\F12_year2012_schematic_V10.mxd

PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

FIGURE 12

TABLE 7: SELECTED FREEWAY OPERATIONS RESULTS – EXISTING (2012) CONDITIONS

Freeway	Location	Type	AM Peak Hour	PM Peak Hour
EB I-80	Eureka Rd Off-ramp	Diverge	C / 26	**F / 46**
	Eureka Rd Off to On-ramp	Basic	C / 21	C / 23
	Eureka Rd EB On-ramp	Merge	B / 19	B / 20
	Eureka Rd to Taylor Rd	Weave	C / 23	E / 39
	Taylor Rd to SR 65	Basic	D / 27	E / 40
	SR 65 Off-ramp	Diverge	C / 28	**F / 52**
WB I-80	SR 65 Off-ramp	Diverge	B / 18	**F / 46**
	Douglas Blvd Off-ramp	Diverge	B / 19	B / 18
	Douglas Blvd WB On-ramp	Merge	E / 36	D / 34
	Douglas Blvd EB On-ramp	Merge	E / 42	E / 37
	Douglas Blvd to Riverside Ave	Basic	D / 33	D / 31
	Riverside Ave Off-ramp	Diverge	E / 40	E / 36
NB SR 65	I-80 WB On-ramp	Merge	**F / 53**	**F / 95**
	I-80 to Stanford Ranch Rd	Basic	D / 32	**F / 77**
	Stanford Ranch Rd Off-ramp	Diverge	D / 33	**F / 62**
SB SR 65	Blue Oaks Blvd WB On-ramp	Merge	**F / 60**	B / 20
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	**F / 75**	C / 21
	Pleasant Grove Blvd Off to On-ramp	Basic	**F / 89**	C / 25
	Pleasant Grove Blvd WB On-ramp	Merge	**F / 72**	D / 31
	Pleasant Grove Blvd EB On-ramp	Merge	**F / 53**	E / 39
	Pleasant Grove Blvd to Galleria Blvd	Basic	E / 36	D / 32
	Galleria Blvd Off-ramp	Diverge	E / 35	D / 27

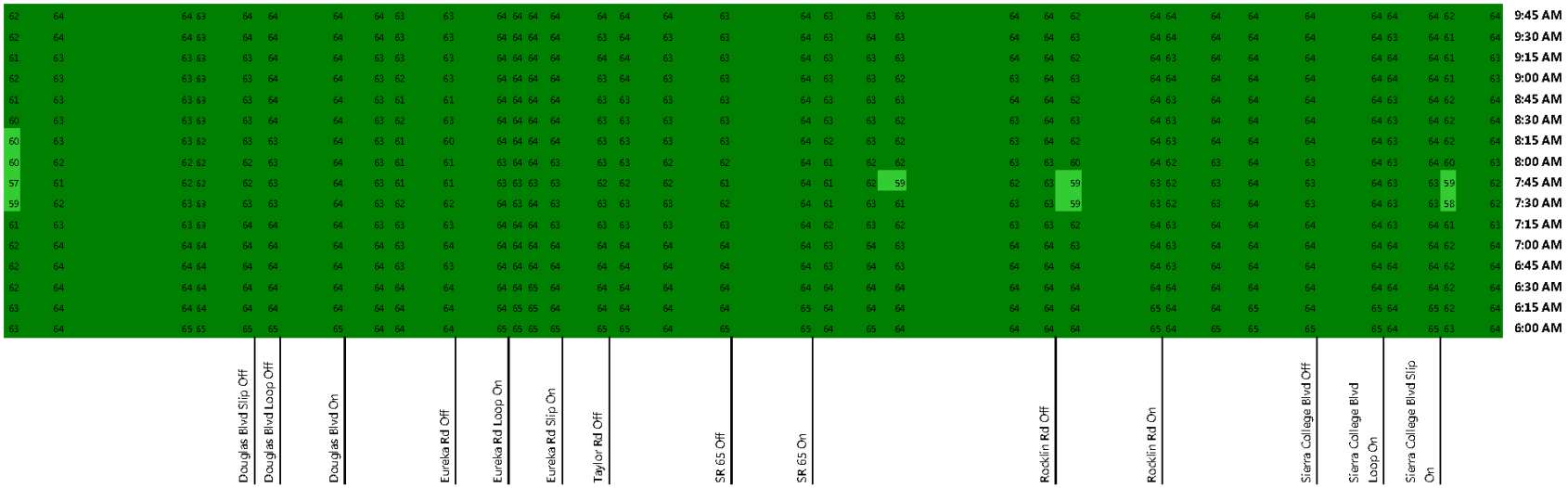
Note: Bold and underline font indicate LOS F conditions. The level of service and average density for the study segment are reported.

Source: Fehr & Peers, 2014

During the AM peak hour, congested LOS F conditions occur on northbound SR 65 at the I-80 on-ramp and southbound SR 65 between Blue Oaks Boulevard and Pleasant Grove Boulevard. On northbound SR 65, the merging of the westbound I-80 on-ramp causes congestion. For southbound SR 65, the constraint is the high demand from the mainline combined with the Pleasant Grove Boulevard on-ramp volume.

FIGURE 13 – I-80 EASTBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

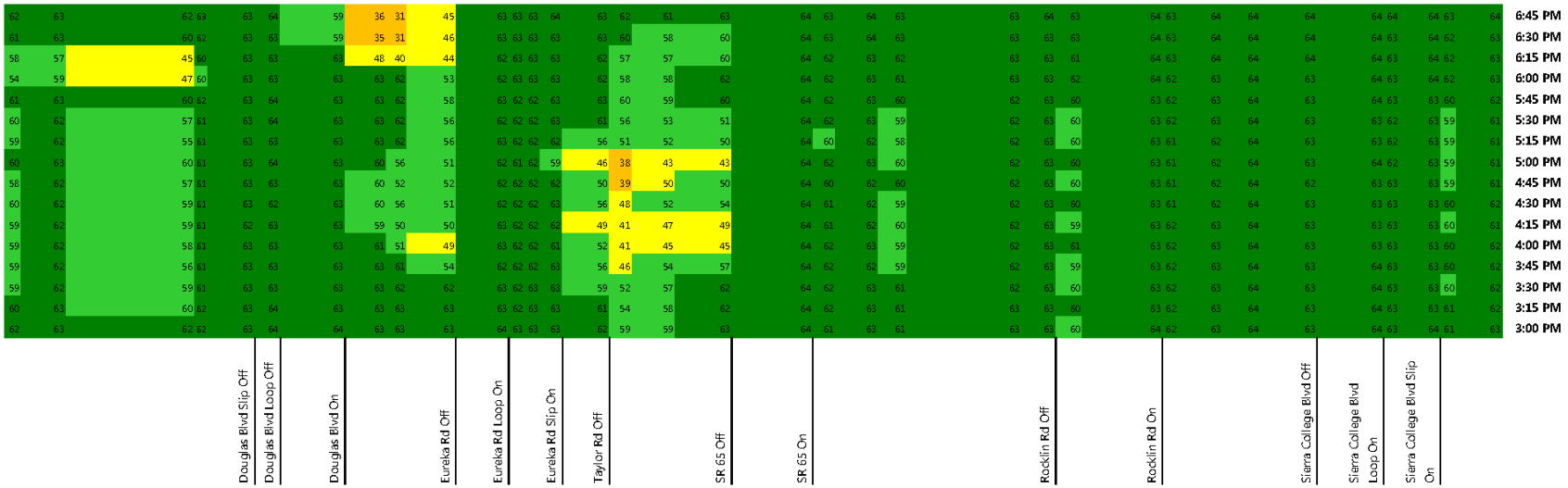
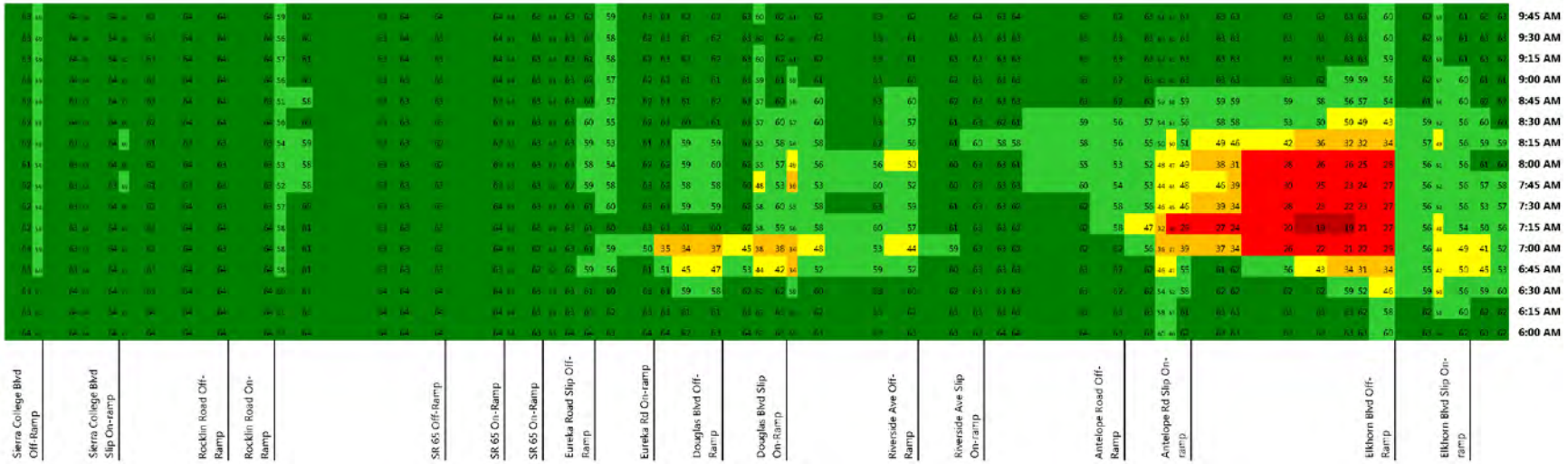


FIGURE 14 – I-80 WESTBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

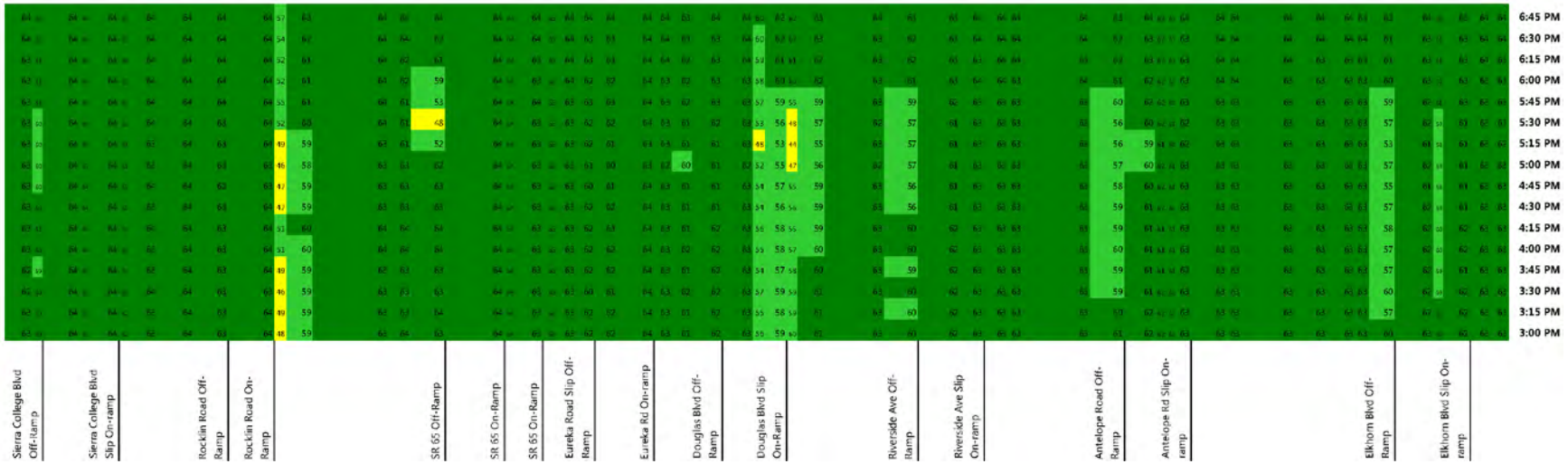
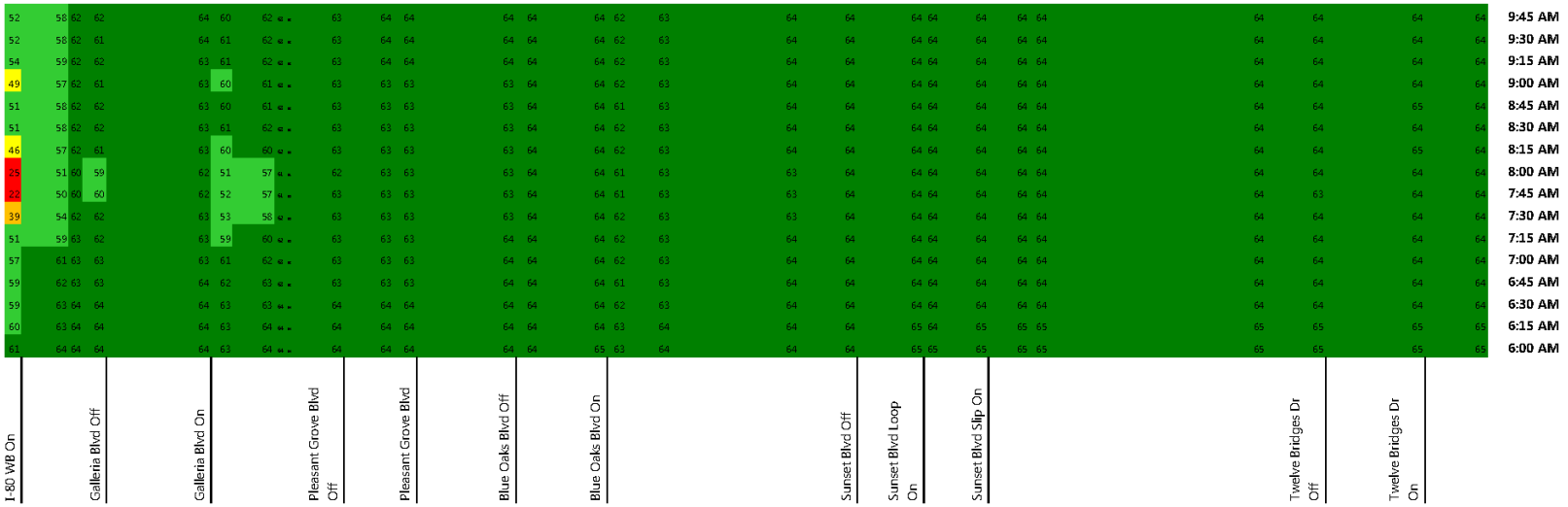


FIGURE 15 – SR 65 NORTHBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD

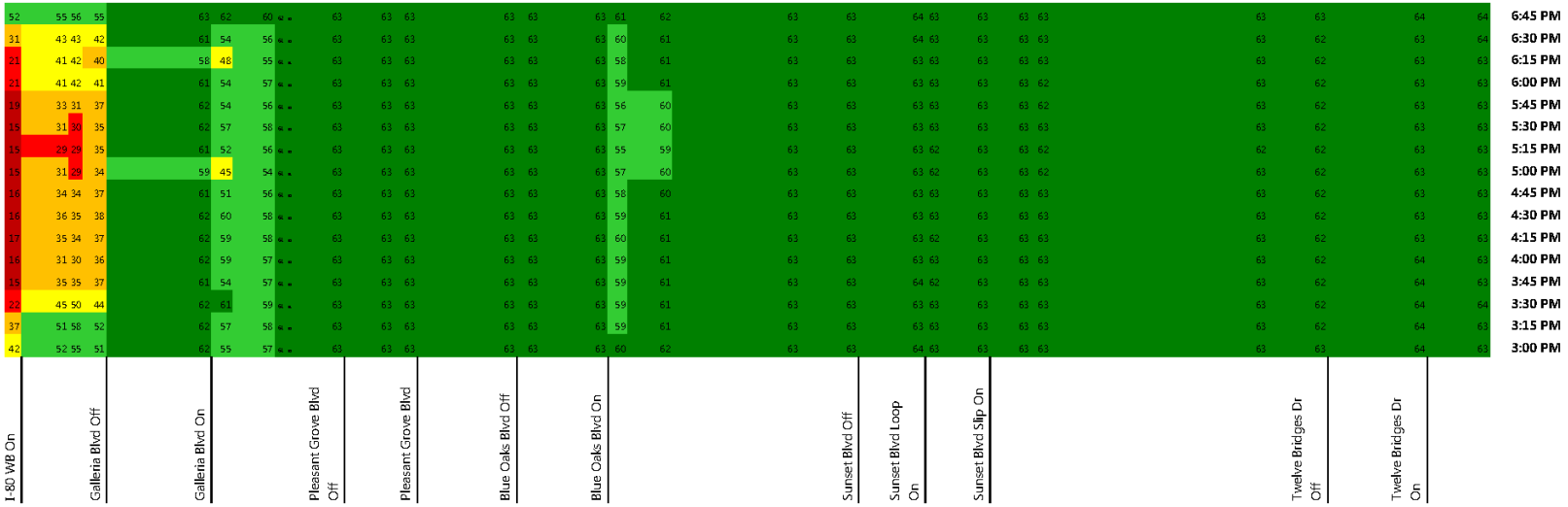
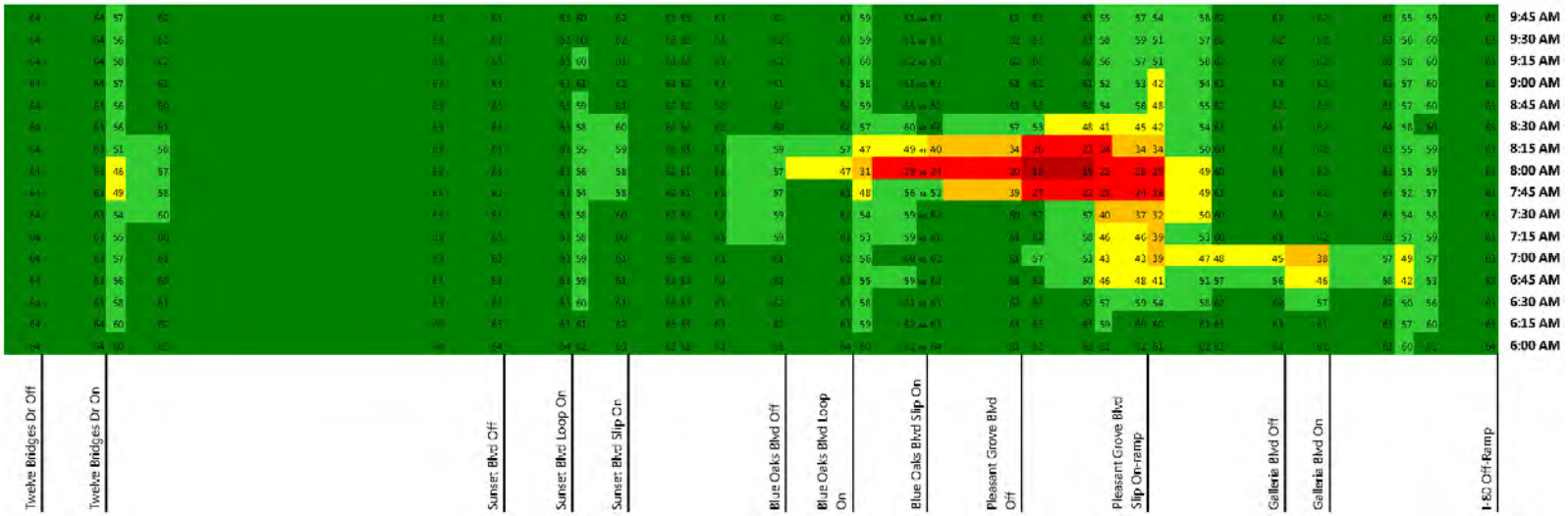
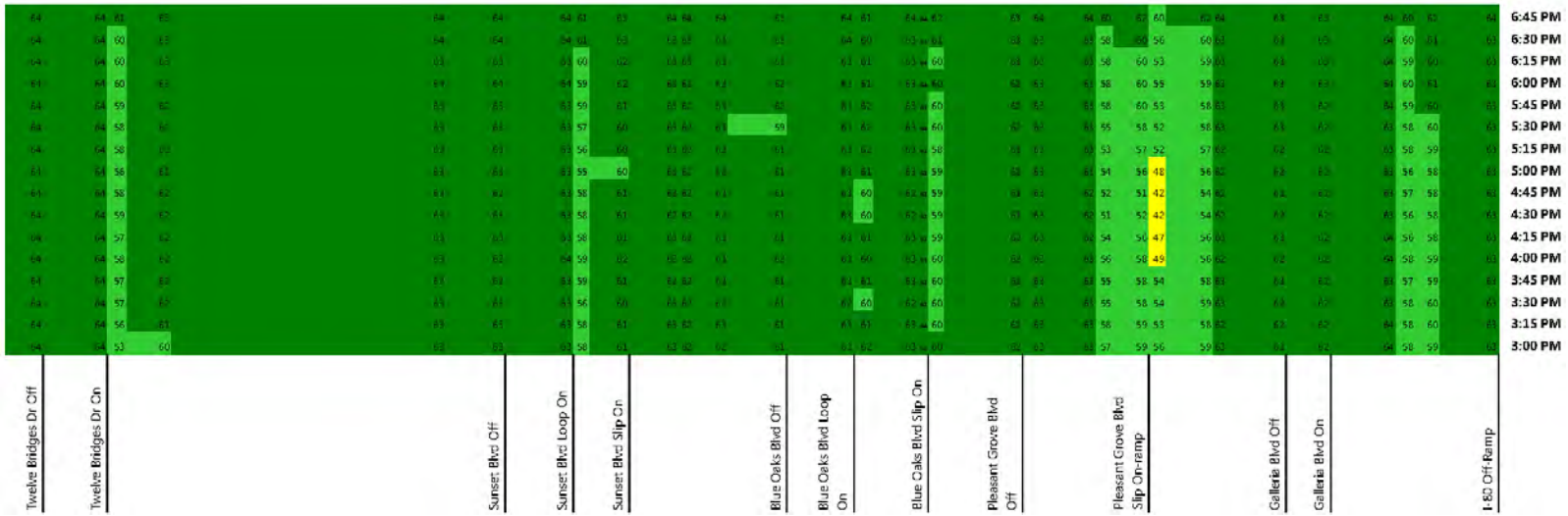


FIGURE 16 – SR 65 SOUTHBOUND EXISTING CONDITIONS SPEED CONTOUR MAPS

AM PEAK PERIOD



PM PEAK PERIOD



During the PM peak hour, the primary bottleneck is northbound SR 65 at the on-ramp from westbound I-80. This bottleneck results in LOS F conditions on eastbound I-80 at the SR 65 off-ramp. LOS E conditions exist from Taylor Road to Eureka Road, with the rightmost lanes mostly congested (queued from the SR 65 off-ramp) while the left lanes operate with higher speeds. The Eureka Road off-ramp has LOS F conditions due to queues spilling back from the ramp terminal intersection. (During summer 2012, queues regularly extended to the mainline occurred due to recreational trips generated by the water park on Taylor Road. After the Eureka Road widening project was completed in 2013, the peak hour off-ramp queues no longer extend to the mainline.) Westbound I-80 has LOS F conditions at the SR 65 off-ramp due to the same bottleneck. LOS D/E conditions occur further north on northbound SR 65 between Stanford Ranch Road and Pleasant Grove Boulevard. If the bottleneck at I-80 were relieved, this downstream will likely become congested.

3.2.2. Arterial Intersection Operations

In general, arterial intersections operate better than freeway locations during the peak hours. Table 8 shows the LOS and average delay at key study intersections under existing (2012) conditions. Based on the evaluation criteria for this study, all of the study intersections operate acceptably. See the Technical Appendix for all study intersection results.

The AM peak hour intersection LOS results indicate all intersections operate at LOS C or better, except for the Roseville Parkway/Sunrise Avenue and Blue Oaks Boulevard/Washington Boulevard intersections which operate at LOS D. The Roseville Parkway/Sunrise Avenue intersection operates with split phasing to accommodate the hospital driveway, which leads to less efficient operations. The Blue Oaks Boulevard intersection (which has a LOS C threshold) experiences high peak period peak direction traffic flows because it serves both inbound (employees) and outbound (residents) commuters for west Roseville.

During the PM peak hour, four intersections operate at LOS D or E:

- Galleria Boulevard/Roseville Parkway
- Roseville Parkway/Sunrise Avenue
- Eureka Road/Taylor Road/I-80 Eastbound Ramps
- Douglas Blvd/Sunrise Avenue
- Rocklin Road/Granite Drive

Like the Blue Oaks Boulevard intersection in the AM peak hour, the Roseville Parkway and Eureka Road corridors serve both inbound (residents and shoppers) and outbound (employees) commuters. Additionally, reduced speeds occur on eastbound Eureka Road approaching the I-80 interchange. A

project that widened eastbound Eureka Road at Taylor Road was completed in 2013 (after the existing conditions analysis). All other intersections operate at LOS C or better during the PM peak hour.

TABLE 8: SELECTED INTERSECTION OPERATIONS RESULTS – EXISTING (2012) CONDITIONS

Intersection	AM Peak Hour	PM Peak Hour
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	**D / 43**	C / 33
10. Stanford Ranch Rd / Five Star Blvd	B / 19	C / 32
11. Stanford Ranch Rd / SR 65 NB Ramps	A / 9	B / 15
12. Galleria Blvd / SR 65 SB Ramps	B / 13	B / 19
13. Galleria Blvd / Antelope Creek Dr	B / 10	C / 24
14. Galleria Blvd / Roseville Pkwy	C / 30	D / 36
15. Roseville Pkwy / Creekside Ridge Dr	A / 6	B / 17
16. Roseville Pkwy / Taylor Rd	C / 30	C / 28
17. Roseville Pkwy / Sunrise Ave	D / 37	D / 37
18. Atlantic St / Wills Rd	B / 10	B / 12
19. Atlantic St / I-80 WB Ramps	A / 7	B / 11
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 26	E / 61
21. Eureka Rd / Sunrise Ave	C / 24	C / 30
26. Douglas Blvd / Sunrise Ave	C / 26	D / 35
28. Pacific St / Sunset Blvd	B / 18	C / 29
29. Rocklin Rd / Granite Dr	B / 15	D / 37
30. Rocklin Rd / I-80 WB Ramps	C / 21	B / 17
31. Rocklin Rd / I-80 EB Ramps	B / 17	B / 20
32. Rocklin Rd / Aguilar Rd	A / 8	B / 13

Note: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

3.3. **Traffic Safety**

Traffic collision data was compiled from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) for the mainline freeway sections and ramps adjacent to the I-80/SR 65 interchange. The data shown are for the three-year period between April 1, 2009 and March 31, 2012. Within the study area, 728 collisions occurred on the freeway sections in the three-year period. Table 9 summarizes collisions on by freeway mainline section.

TABLE 9: MAINLINE ACCIDENT HISTORY

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
EB I-80 (PM 2.2 to 4.2): Douglas Blvd On to SR 65 Off	256	2	**0.012**	**0.56**	**1.52**	0.004	0.28	0.90
EB I-80 (PM 4.2 to 5.9): SR 65 Off to Rocklin Rd Off	52	0	0.000	0.15	0.48	0.004	0.27	0.87
WB I-80 (PM 4.3 to 5.9): Rocklin Rd On to SR 65 Off	81	1	**0.010**	**0.34**	0.81	0.004	0.27	0.87
WB I-80 (PM 2.2 to 4.3): SR 65 Off to Douglas Off	189	1	**0.006**	**0.31**	**1.08**	0.004	0.28	0.90
NB SR 65 (PM R4.9 to 6.9): I-80 On to Pleasant Grove Blvd Off	55	1	**0.009**	0.15	0.5	0.006	0.33	1.02
SB SR 65 (PM R4.9 to 7.1): Pleasant Grove Blvd WB On to I-80 Off	95	0	0.000	0.29	0.77	0.006	0.34	1.04

Notes: The post mile (PM) limits are provided in the first column. Bold and underline font indicate actual accident rates that are higher than the statewide average for similar facilities.

1. The accident rate is accidents per million vehicle-miles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately.

Source: Caltrans District 3 TASAS Table B, April 1, 2009 to March 31, 2012

The total collision rates were higher than statewide averages for eastbound and westbound I-80 between Douglas Boulevard and SR 65. This location has the highest volume and experiences the most severe congestion during peak periods. Therefore, drivers in this section are more likely to experience speed differentials and exposure to conflicts. The fatality and injury collision rate for westbound I-80 between Rocklin Road and SR 65 is also greater than the statewide average. This section is the first congested area drivers may experience when approaching the metropolitan Sacramento area from the east, so the potential is high for crashes due to driver inattentiveness.

Table 10 categorizes the collisions by type. The most frequent collision type (62 percent) is a rear end collision, which is typical of congested conditions. The next most frequent collision types are side-swipe

and hit object. The other collision types are collectively less than 10 percent of all collisions. The freeway section with the higher than average collision rates, I-80 between Douglas Boulevard and SR 65, also has the highest number of rear end collisions.

TABLE 10: MAINLINE COLLISIONS BY TYPE

Location	Head On	Side Swipe	Rear End	Broad -side	Hit Object	Over-turn	Auto-Ped	Other
I-80 EB: Douglas Blvd On to SR 65 Off	0	42	175	6	24	3	1	3
I-80 EB: SR 65 Off to Rocklin Rd Off	0	14	19	1	16	0	1	1
WB I-80: Rocklin Rd On to SR 65 Off	0	48	105	2	21	6	1	5
WB I-80: SR 65 Off to Douglas Off	0	8	53	2	11	2	2	1
NB SR 65: I-80 On to Pleasant Grove Blvd Off	0	6	34	1	10	1	1	2
SB SR 65: Pleasant Grove Blvd WB On to I-80 Off	0	13	67	1	14	0	0	0
Total	0	131 (18%)	453 (62%)	13 (2%)	96 (13%)	12 (2%)	6 (1%)	12 (2%)

Source: Caltrans District 3 TASAS - Table B, April 1, 2009 to March 31, 2012

Of the 728 collisions that occurred on the freeway system in the study area, 106 of them occurred on the I-80 ramps at the Eureka Road/Atlantic Street, Taylor Road, and SR 65 interchanges. Table 11 shows that three ramps each on eastbound and westbound I-80 have higher than average total collision rates. In the eastbound direction, they are the loop ramps at Eureka Road, Taylor Road, and SR 65. In the westbound direction, the two SR 65 ramps and the Atlantic Street on-ramp have higher than average collision rates.

TABLE 11: RAMP ACCIDENT HISTORY

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate[1]			Average Collision Rate[1]		
			F	F&I	Total	F	F&I	Total
EB I-80 Off to Eureka Rd (PM 2.9)	13	0	0.000	0.16	1.01	0.003	0.34	1.01
EB I-80 On from EB Eureka Rd (PM 3.0)	3	0	0.000	**0.37**	**1.10**	0.002	0.21	0.73
EB I-80 On from WB Eureka Rd (PM 3.2)	6	0	0.000	**0.25**	0.51	0.003	0.18	0.57
EB I-80 Off to Taylor Rd (PM 3.6)	7	0	0.000	**0.62**	**1.44**	0.003	0.30	1.03
EB I-80 Off to SR 65 (PM 4.2)	31	0	0.000	**0.29**	**0.98**	0.004	0.20	0.68
EB I-80 On from SR 65 (PM 4.5)	2	0	0.000	**0.17**	0.17	0.003	0.14	0.41
WB I-80 Off to SR 65 (PM 4.3)	9	1	**0.070**	**0.42**	**0.63**	0.005	0.13	0.38
WB I-80 On from SR 65 (PM 4.0)	21	0	0.000	**0.18**	**0.75**	0.003	0.11	0.32
WB I-80 On from Taylor Rd (PM 3.6)	3	0	0.000	0.00	0.54	0.003	0.18	0.57
WB I-80 Off to WB Atlantic St (PM 3.2)	2	0	0.000	0.23	0.46	0.004	0.24	0.75
WB I-80 Off to EB Atlantic St (PM 3.0)	0	0	0.000	0.00	0.00	0.003	0.30	1.06
WB I-80 On from Atlantic St (PM 2.8)	9	0	0.000	**0.32**	**0.71**	0.002	0.22	0.63

Notes: The post mile (PM) limits are provided in the first column. Bold and underline font indicate actual accident rates that are higher than the statewide average for similar facilities.

1. The accident rate is accidents per million vehicle-miles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. Total number of accidents includes non-injury accidents, which are not listed separately.

Source: Caltrans District 3 TASAS Table B, April 1, 2009 to March 31, 2012

Chapter 4. Travel Demand Forecasts

The travel demand forecasts were developed using a validated sub-area model derived from the SACMET regional travel demand forecasting (TDF) model developed by SACOG[1]. The approach to developing travel demand forecasts started with the recognition that regional travel demand models do not contain sufficient detail or sensitivity for local applications like developing directional freeway mainline and ramp volume forecasts. Instead, the regional model provides a starting point for creating a more detailed sub-area model along the freeway corridor. Having a valid sub-area model is a critical step in ensuring a high level of confidence in the traffic volume forecasts that will be used to evaluate the effects of improving the I-80/SR 65 interchange.

4.1. Sub-Area Model Development

SACMET is a four-step TDF model. The version used to develop project forecasted was last calibrated and validated in 2008. This model represents the state of the practice for a metropolitan planning organization such as SACOG given the geographic area and population size covered by the model. Two advanced features of the model include a destination choice model for the home-based work purpose and a feedback loop between trip assignment and trip distribution. Issues or limitations of the model include the following.

- No feedback to land use projections – The model's land use projections are developed independently of specific model runs and are not affected by congestion and accessibility. For corridors where significant roadway capacity expansion will occur (which makes land along those corridors more accessible), the model does not contain sufficient sensitivity to capture the full effects of induced traffic that occurs due to induced growth. This issue is not considered significant for the I-80/SR 65 interchange since the increase in capacity is not commensurate with the increase in land use growth. Therefore, the peak period traffic volume forecasts that are the basis for the operations analysis substantially exceed available capacity.
- No feedback to trip generation – The model is insensitive to congestion effects on trip making behavior since it uses the same fixed trip generation rates in base year and future year models. This limits the model's sensitivity to congestion effects and likely results in higher traffic volume forecasts than are likely to occur in future years.
- Fixed peak period percentages – The model's forecasts of peak period traffic volumes are based on fixed percentages that are carried over from the base year model to the future year models. In

[1] The SACMET model used for this project was released in May 2011 and was developed to be consistent with the Sacramento Area Council of Governments Metropolitan Transportation Plan/Sustainable Communities Strategy 2035.

reality, peak periods will spread as congestion worsens and the peak period percentages will change. The use of base year peak period percentages for the future year models will likely result in peak period traffic volumes that are higher than the roadway network could operationally support.

For the I-80/SR 65 interchange project, the last two issues were addressed through the integration of the sub-area travel demand forecasts with a meso-scale trip assignment model and a microsimulation traffic operations model (which were built using the VISUM 12.0 and VISSIM 5.4 software, respectively). Figure 17 displays the entire SACMET model network and highlights the portion that is the study area for the I-80/SR 65 project.

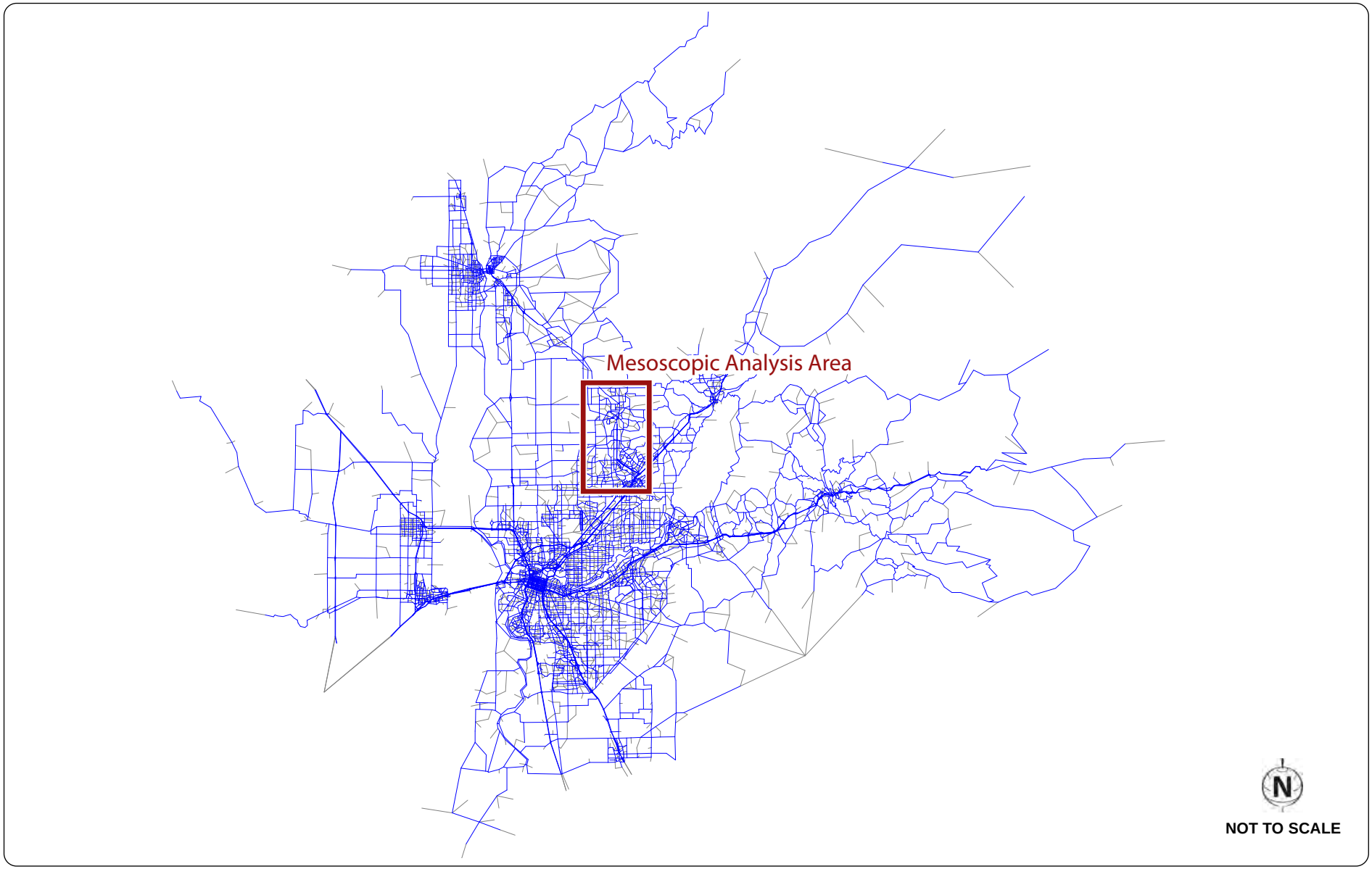
Key modifications to the SACMET model that were made within the sub-area are listed below.

- Updated base year land use estimates within the study area based on field observations, aerial photography, and input from Placer County and the Cities of Rocklin and Roseville.
- Updated base year roadway network to include greater detail and correct inconsistencies between model inputs and field observations.
- Added new traffic analysis zones (TAZs) in the study area to increase the level of detail and improve the loading of traffic from TAZs onto the network.

Figure 8 shows the VISUM mesoscopic model area and the VISSIM microscopic model area. Trip tables from the SACMET model were used to forecast peak period travel demand, and the mesoscopic VISUM model was used to refine the peak period temporal distribution into individual one hour assignments. In the final step, the VISUM trip tables and paths are imported to VISSIM where the final assignment occurs and the end result is a forecast of peak spreading and refined peak period traffic volume flows that are sensitive to the operational capacity constraints of the I-80/SR 65 network.

4.2. **Model Validation**

Validation compares model estimates of base year conditions to observed traffic counts and sensitivity tests are conducted to ensure the models respond in the correct direction and magnitude when changes to inputs are made. The comparison of model volumes to counts is referred to as static validation and involves statistical tests to measure how well the model volume estimates match the traffic counts. The sensitivity tests are called dynamic validation.



FEHR & PEERS

SACMET MODEL NETWORK AND SUB-AREA LIMITS

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FIGURE 17

The base year for the SAMET model is 2008 so the static validation for the modified SACMET model and the VISUM model relied on available traffic counts from 2006 to 2009. This was necessary since a complete set of traffic counts was not available for 2008 alone. The static validation results should be viewed within this context because the model volumes are intended to represent 2008 conditions. Specific validation tests and thresholds were obtained from the *2010 California Regional Transportation Plan Guidelines* (California Transportation Commission, 2010). This document includes modeling guidelines for state, regional, and local agency projects.

4.2.1. Static Validation

After the changes noted above were completed, the modified SACMET model was validated within the project study area. Specific criteria have been established as target thresholds for the static tests. The static validation results for both models are compared to the target thresholds in Tables 12 and 13 below. As a regional model, the SACMET model performed well within the small sub-area. It passed all but one of the static tests (although it improved from its original off-the-shelf performance for this test). In general, the model generated volume estimates that closely matched freeway and ramp volumes. Differences tended to be larger on low volume roadways on the edge of the study area.

The VISUM model was developed just for the project study area and includes more network detail and a different approach to estimating and assigning trips. The VISUM model was developed using Airsage cell phone OD data and TomTom GPS speed data. The cell phone OD data were processed through a trip table estimation procedure to match 2008 traffic flows. The GPS speed data was used to set the link free-flow speed. As a result, the VISUM model static validation results in Table 13 show a close match to traffic counts.

4.2.2. Dynamic Validation

The SACMET and VISUM models were tested dynamically by deleting and adding links. Figure 18 displays two of the dynamic tests for illustrative purposes. The first test shows the change in peak hour traffic volumes when one lane is added in each direction on I-80 between Douglas Boulevard and Eureka Road. The second test shows the change in traffic levels when one lane in each direction is deleted from Roseville Parkway at the I-80 overcrossing.

In the first test, the model increased the I-80 volume as a result of adding a lane by shifting volume from the parallel roadways: Harding Boulevard, Sunrise Avenue, and Rocky Ridge Drive. In the second test, traffic volume on Roseville Parkway dropped with the reduction of a lane and volume was shifted to the parallel SR 65 and Atlantic Street/Eureka Road. Both models responded in the correct direction and magnitude when making changes to network inputs. The SACMET model also demonstrated appropriate responses in changes to land use inputs during the static validation process.

TABLE 12: SACMET MODEL VALIDATION RESULTS

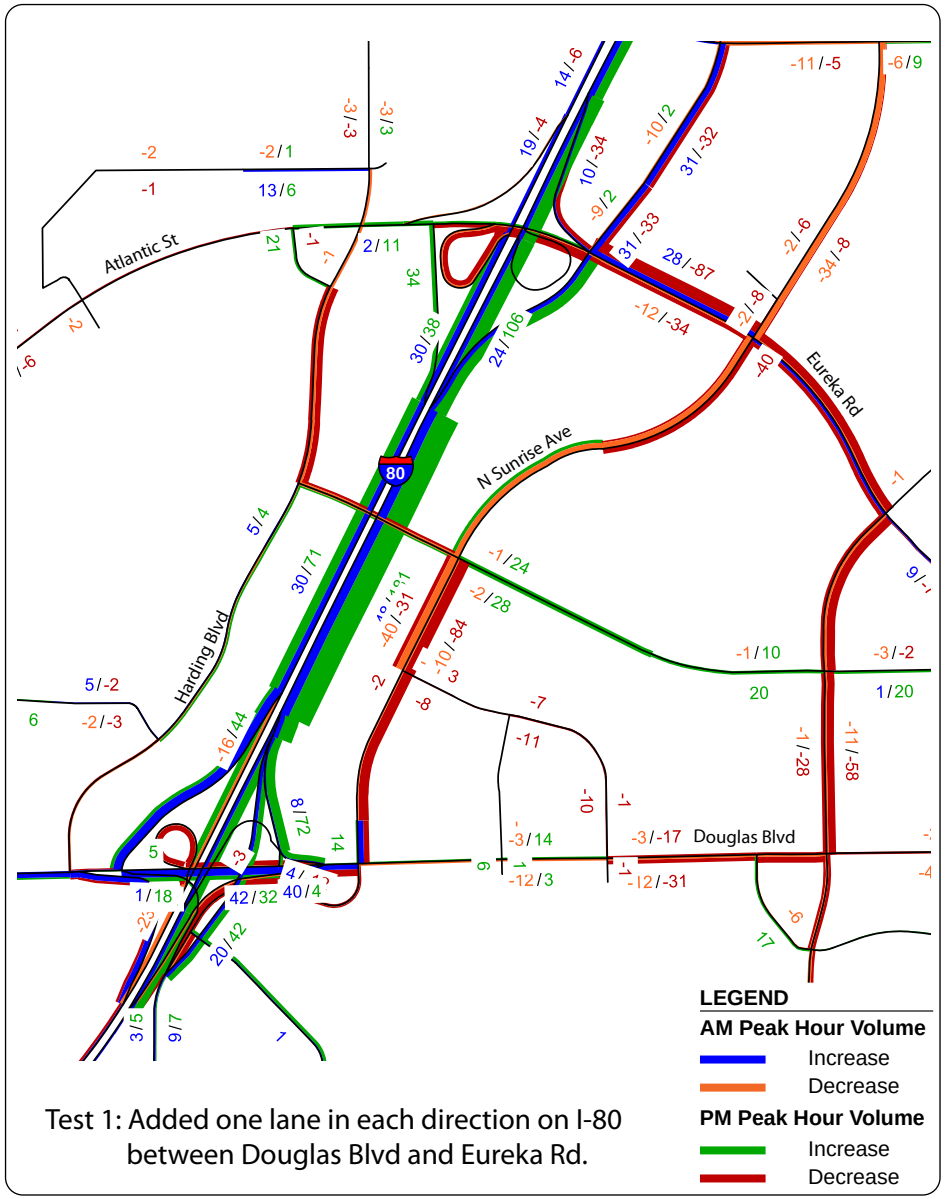
Measure	AM Peak Hour	PM Peak Hour	AM Peak Period	PM Peak Period	Threshold[1]
Model/Count Ratio	0.98	1.01	1.05	0.97	
Percent Within Caltrans Maximum Deviation	71%	*69%*	77%	70%	**> 75%**
Percent Root Mean Square Error	30%	31%	28%	28%	**< 40%**
Correlation Coefficient	0.94	0.93	0.96	0.94	**> 0.88**

Note: [1] *2010 California Regional Transportation Plan Guidelines*, California Transportation Commission, 2010
Source: Fehr & Peers, 2014

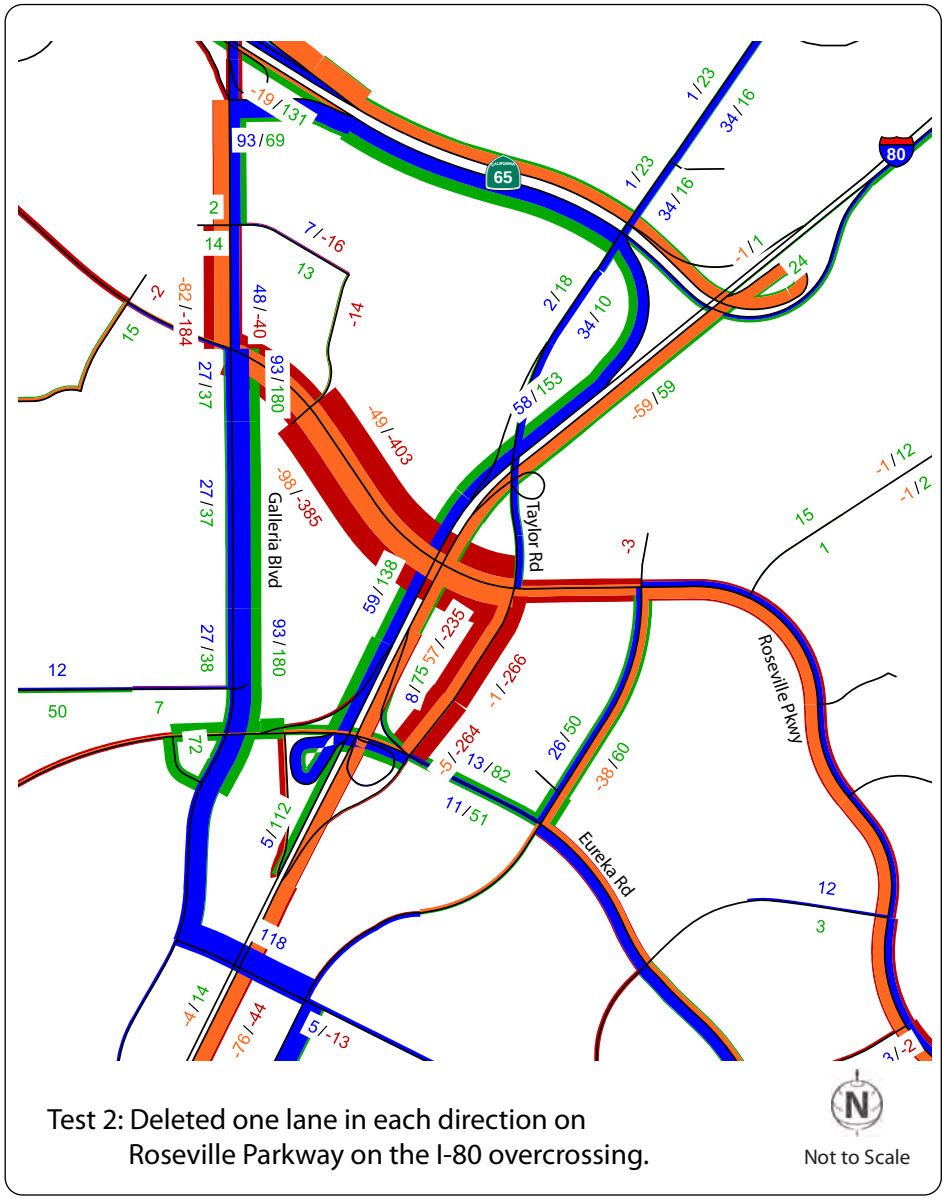
TABLE 13: VISUM MODEL VALIDATION RESULTS

Measure	AM Peak Hour	PM Peak Hour	AM Peak Period	PM Peak Period	Threshold[1]
Model/Count Ratio	1.01	1.01	1.01	1.01	
Percent Within Caltrans Maximum Deviation	100%	100%	100%	100%	**> 75%**
Percent Root Mean Square Error	11%	17%	16%	17%	**< 40%**
Correlation Coefficient	1.00	1.00	1.00	1.00	**> 0.88**

Note: [1] *2010 California Regional Transportation Plan Guidelines*, California Transportation Commission, 2010
Source: Fehr & Peers, 2014



Test 1: Added one lane in each direction on I-80 between Douglas Blvd and Eureka Rd.



Test 2: Deleted one lane in each direction on Roseville Parkway on the I-80 overcrossing.

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DYNAMIC VALIDATION TESTS

FIGURE 18

4.3. Future Year Forecasts

Traffic forecasts for design and construction year analysis were developed for the following project alternatives (see Figures 2 through 7).

1. Taylor Road Full Access Interchange
2. Collector-Distributor System Ramps
3. Taylor Road Interchange Eliminated
4. TSM
5. No Build

Traffic forecasts were developed for one additional alternative: Taylor Road Full Access Interchange with Antelope Creek Drive Connection. In this alternative, Antelope Creek Drive is extended east across the railroad tracks to Taylor Road. Since this alternative was dropped from consideration, these forecasts are presented in the Technical Appendix.

4.3.1. Design Year Forecasts

From a macro perspective, the proposed project alternatives – modification at one interchange – would not change regional travel demand. A sensitivity test of the SACMET model showed almost no change in travel demand with a change in capacity of the congested freeway connector ramps. Instead, the most significant effects on future traffic volumes will occur in terms of trip routing within the meso-scale study area due to travel time differences caused by the alternatives. Therefore, the PDT agreed to use the same set of trip tables for all project alternatives, which means that volumes at the sub-area boundaries are the same across all alternatives.

The volume forecast process began with isolating the incremental peak period volume growth (2008 to 2035) between traffic analysis zones (TAZs) in the sub-area using the modified SACMET model (macro level). This incremental growth was then added to the base year VISUM trip table (meso level) that was derived from the Airsage cell phone data. The incremental SACMET growth was inspected to verify that the changes in origin-destination trips were commensurate with the location of socioeconomic growth. Individual origin-destination pair volumes were not allowed to decrease between base and cumulative years.

In the next step, the four-hour peak period trip tables were divided into hourly trip tables by mode: SOV, HOV, and truck. The conversion from peak period to hourly trip tables used the existing ratio of hourly traffic volume to peak period volume. The mode share for HOVs was based on the relative peak period mode share in the 2035 SACMET model. For the entire meso study area, the overall forecast HOV shares are 18 and 19 percent during the AM and PM peak periods, respectively. The truck share is assumed to

increase from 2.7 and 1.4 percent under existing conditions to 3.0 and 2.0 percent under the design year for the AM and PM peak periods, respectively.

Some adjustments were made to the HOV shares for select locations based on previous comments from Caltrans about HOV forecasts being lower than observed conditions on I-80. Table 14 shows the AM and PM peak hour HOV percentages for the I-80 western gateway from the 2035 SACMET model, the 2012 traffic counts, and the proposed 2040 forecast values. The 2008 and 2035 SACMET model forecasts show similar values of 11 to 13 percent at this gateway. These values are lower than the traffic counts that were collected in 2012. The proposed 2040 HOV percentages use the 2012 traffic count percentages for the off-peak directions. In the peak direction, a five percentage point increase was assumed to compensate for the difference between model estimates and counts. Additionally, traffic congestion is expected to be more severe in the design year, which would encourage the formation of carpools.

TABLE 14: PEAK PERIOD HOV PERCENTAGE FOR I-80 WESTERN GATEWAY

	2035 SACMET		2012 Counts		2040 Forecast	
Direction	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Eastbound	11%	13%	15%	17%	15%	22%
Westbound[1]	13%	13%	14%	18%	19%	18%

Note: 1. The count location was at the Riverside Ave/Auburn Blvd overcrossing, but the westbound study area gateway is between Elkhorn Blvd and Madison Ave.

Source: Fehr & Peers, 2014

The five percentage point increase was also validated based on a June 2012 sampling of traffic volumes at the I-80/Douglas Boulevard, I-80/Eureka Road, and SR 65/Galleria Boulevard on-ramps, which found HOV percentages ranging from 9 to 25 percent for the AM peak hour and 14 to 36 percent for the PM peak hour. The AM and PM peak hour averages of 16 and 24 percent from these samples are generally similar to the 2035 SACMET forecasts of 18 and 19 percent, respectively. However, peak direction HOV percentages were some of the largest values observed. The adjustments noted in Table 13 result in HOV volume forecasts that are at or near the HOV lane operating capacity under design year conditions, so they were considered reasonable for purposes of this study.

The future year VISUM trip tables were then assigned to each project alternative network. These networks included all the planned transportation improvements shown in Figures 6 and 7 plus unique features of each alternative. The preliminary forecasts from this step were reviewed and adjusted for anomalies such as unexpected decreases in traffic volumes when compared to existing conditions. The expected decreases that occurred are noted below.

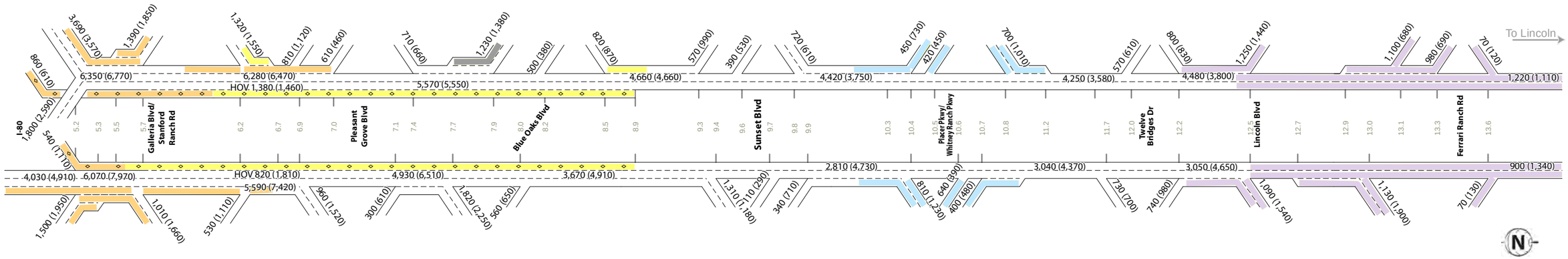
- Riverside Avenue slip on-ramp to westbound I-80 – This ramp shows a decrease over existing volumes. This decrease is allowed since the cumulative roadway network includes several projects

that increase parallel capacity between west Roseville and Sacramento County (widening Baseline Road/Riego Road between SR 99 and Foothills Boulevard, widening Watt Avenue, etc.). These capacity enhancements redistribute some existing long-distance trips from Placer County to Sacramento County to alternative routes.

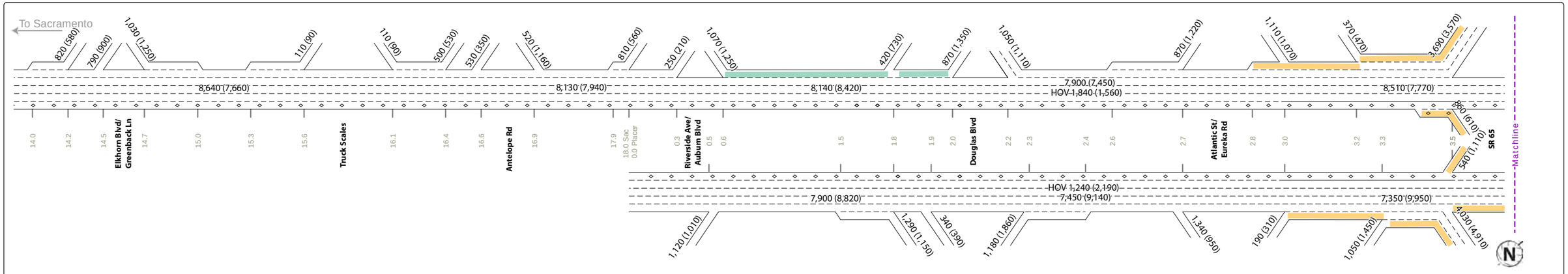
- Sunset Boulevard loop on-ramp to southbound SR 65 – The construction of the SR 65/Whitney Ranch Parkway/Placer Parkway interchange provides an alternate route so that the demand at SR 65/Sunset Boulevard is lower.
- Taylor Road off-ramp from eastbound I-80 for the Taylor Road Full Access Interchange and Collector-Distributor System Ramps Alternatives – With the widening of the eastbound to northbound freeway connector, traffic destined to Rocklin can use SR 65 to Stanford Ranch Road rather than the more indirect route of Taylor Road and Pacific Street to Sunset Boulevard.

The final trip tables and the associated travel paths from the VISUM assignment were transferred to VISSIM for final assignment and analysis. Figures 19 through 23 display the specific freeway lane configurations associated with each alternative, along with the AM and PM peak hour traffic volume forecasts. These volumes represent traffic demand that may not be fully accommodated during the peak hour, which is determined as part of the VISSIM analysis.

The traffic forecasts for the study intersections are provided in the Technical Appendix.

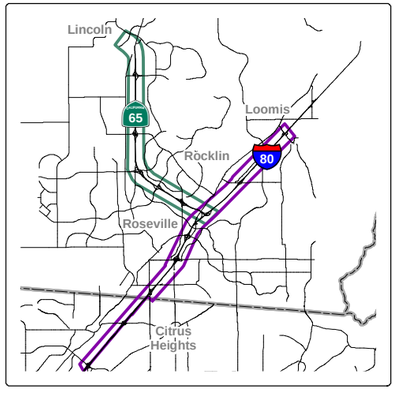


SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65

NOT TO SCALE



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

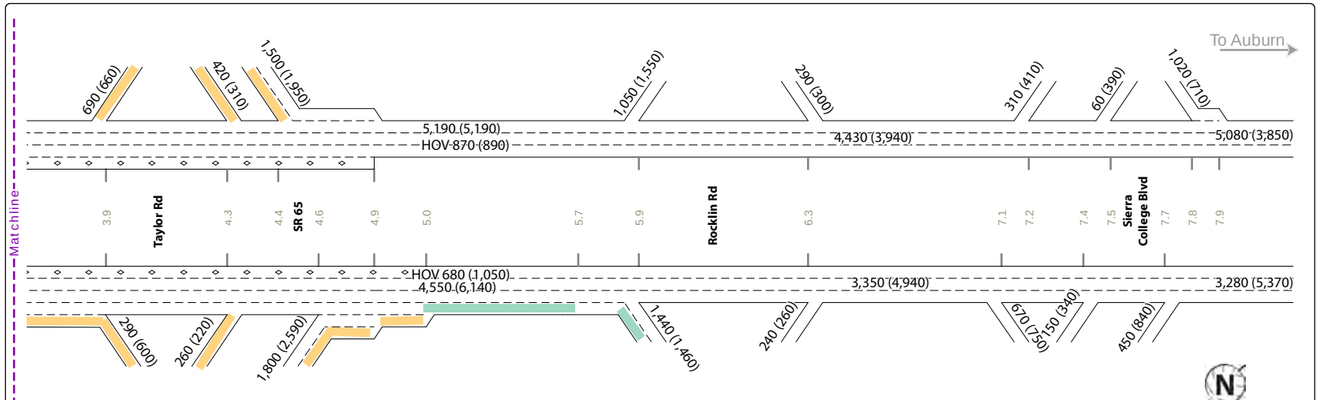
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 1

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: Taylor Rd to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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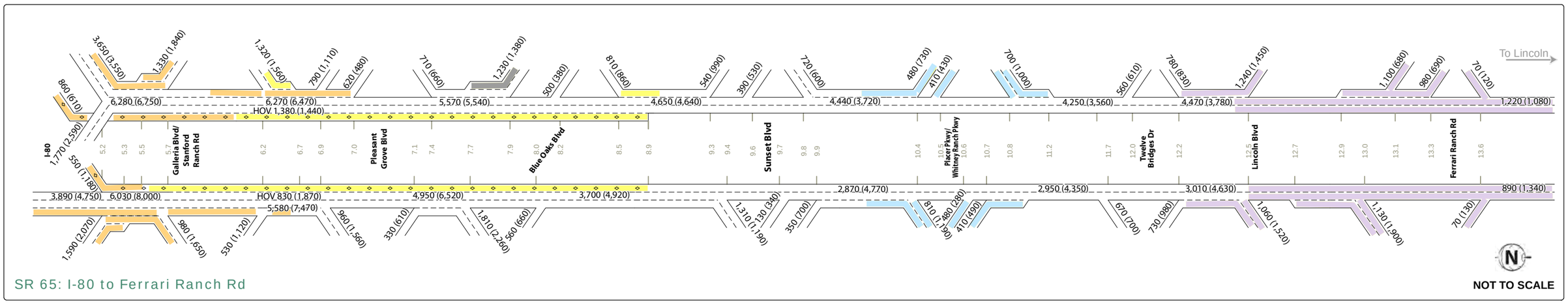
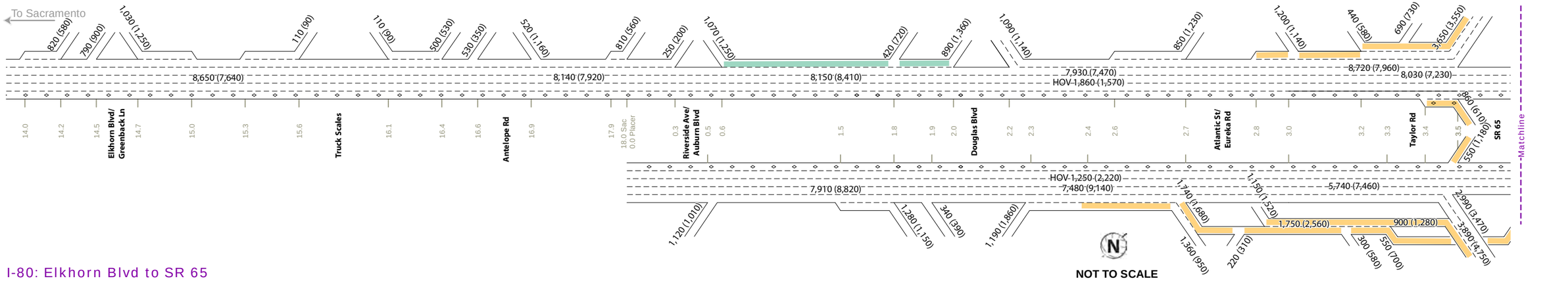
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)

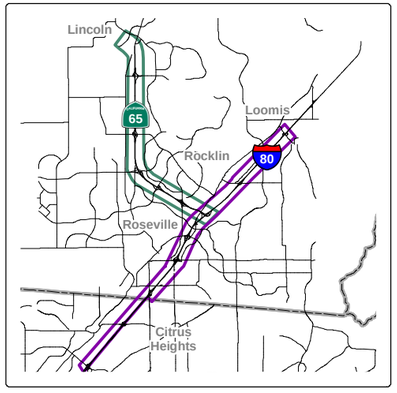
FIGURE 19



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

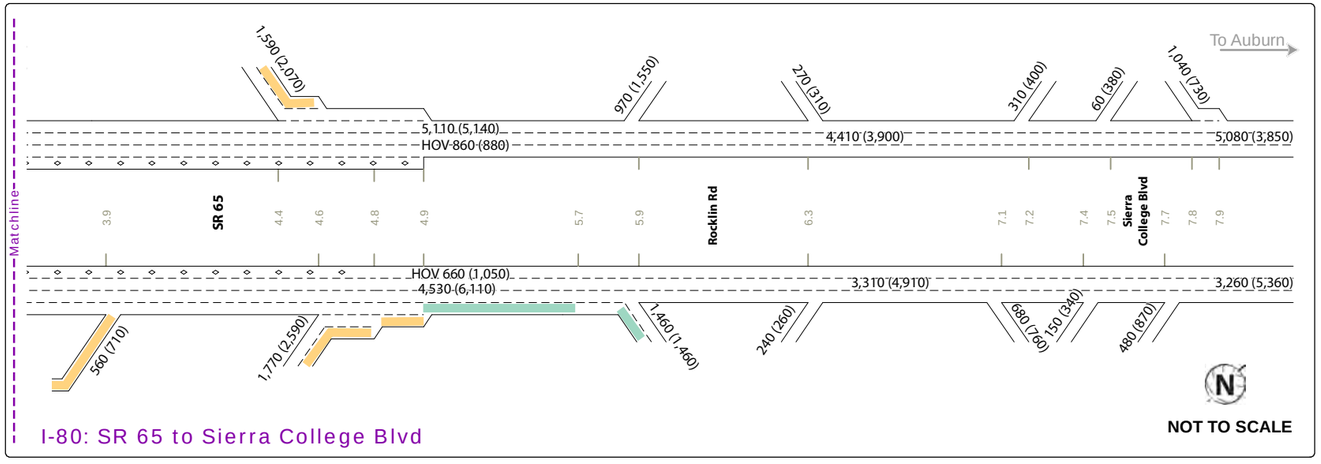
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 2

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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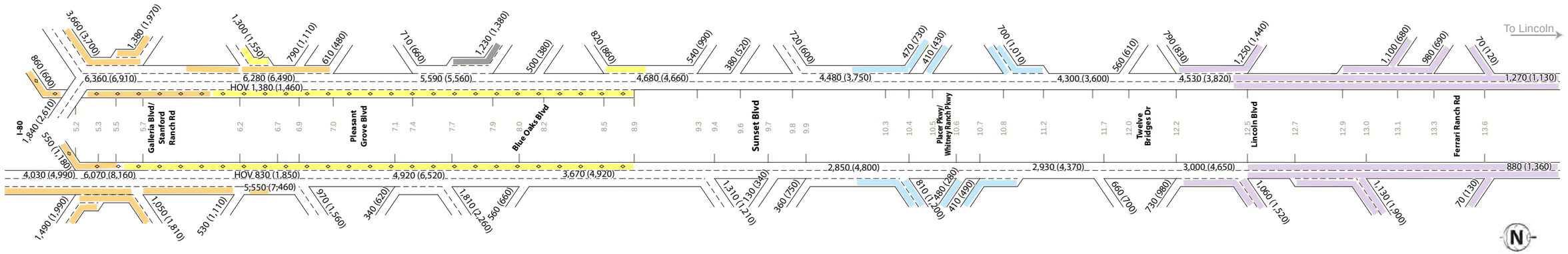
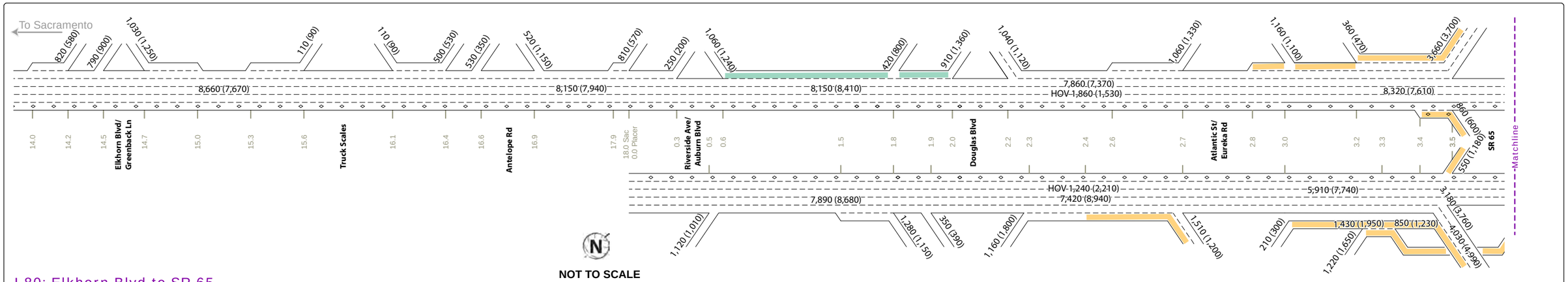
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)

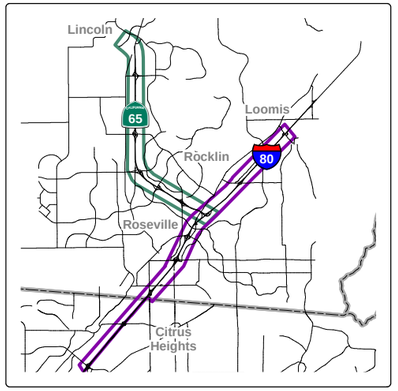
FIGURE 20



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65



LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

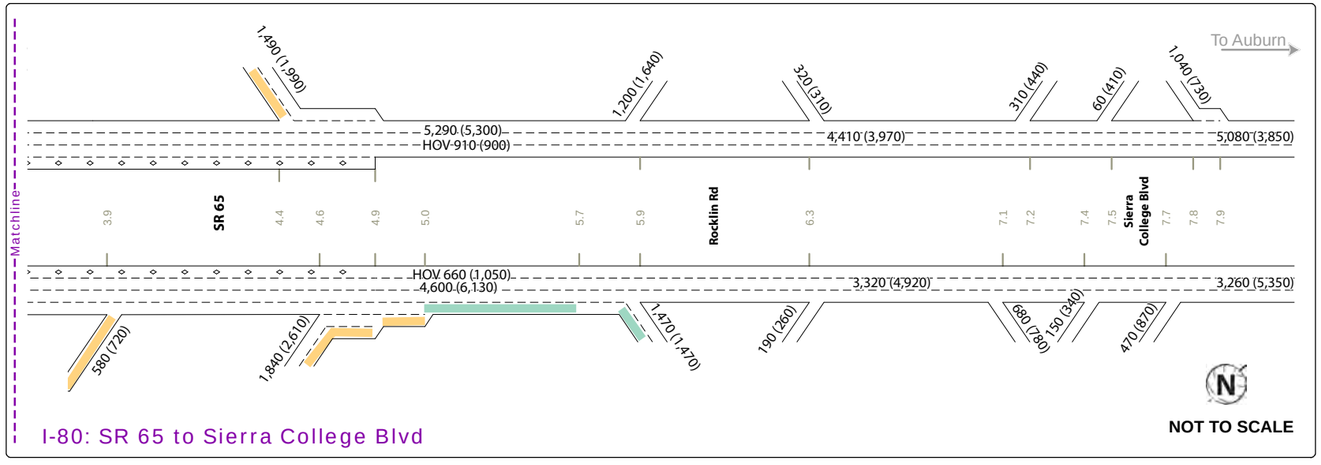
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 3

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



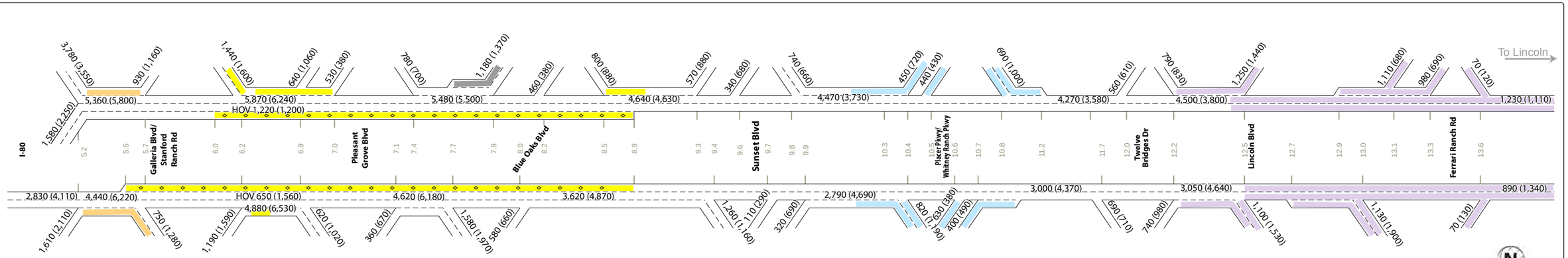
I-80: SR 65 to Sierra College Blvd

FEHR PEERS

Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Final\GIS\MXD\LOS_Schematic\Design\F21_year2040_AltC3B_NT.mxd

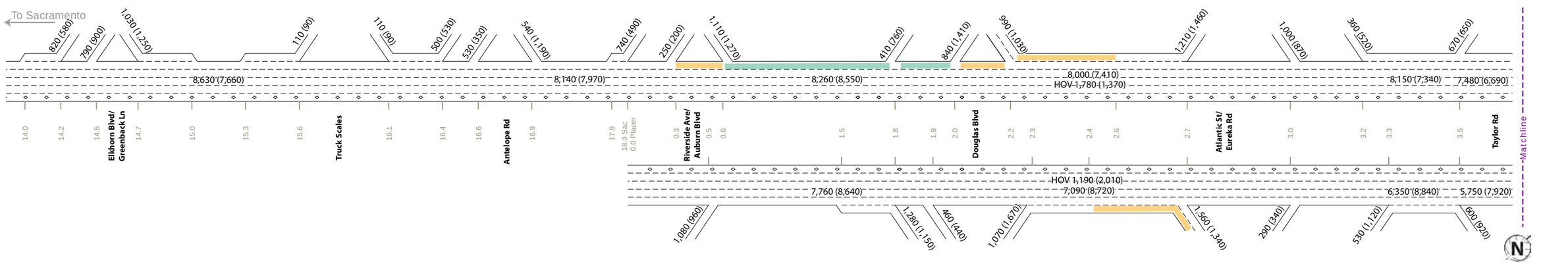
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)

FIGURE 21



SR 65: I-80 to Ferrari Ranch Rd

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

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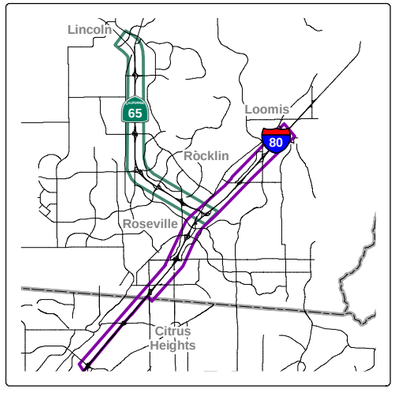


LEGEND

AM (PM) Peak Hour Traffic Volume for 2040 Conditions

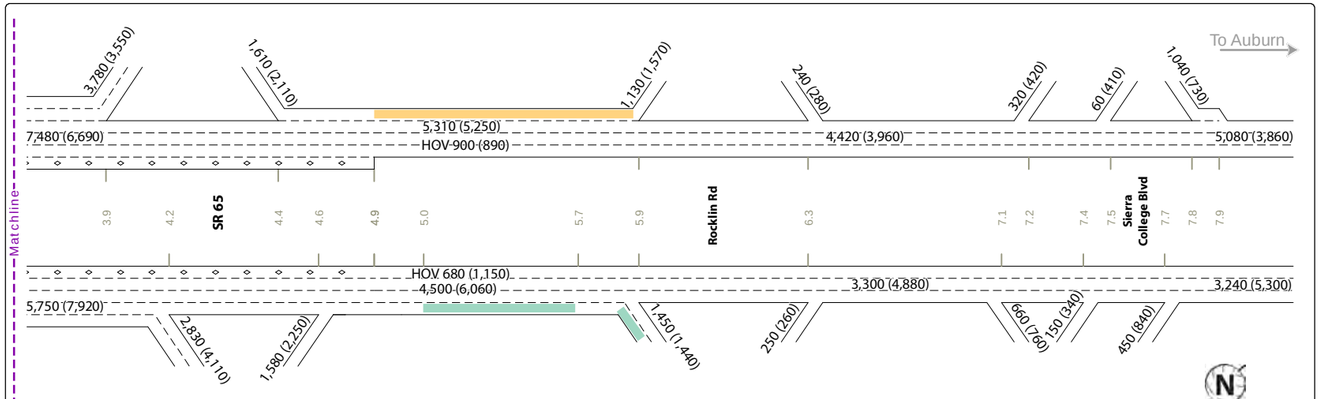
HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Alternative 4

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

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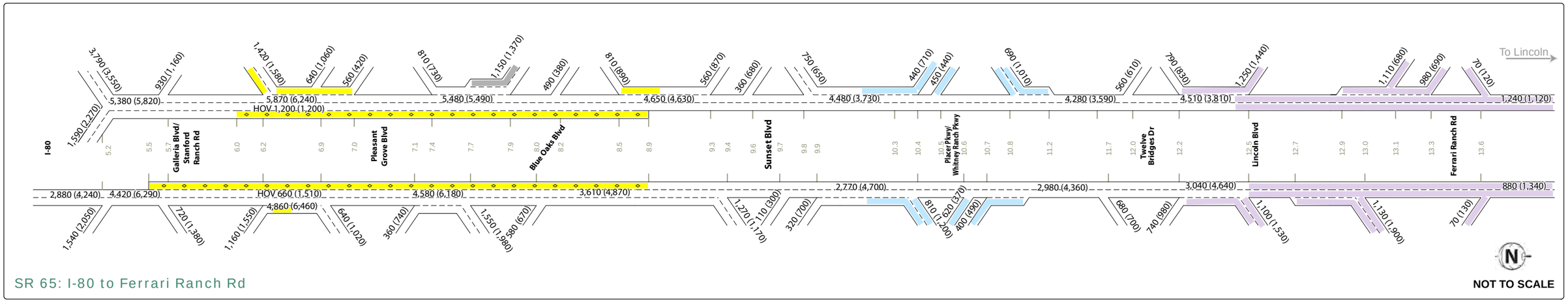
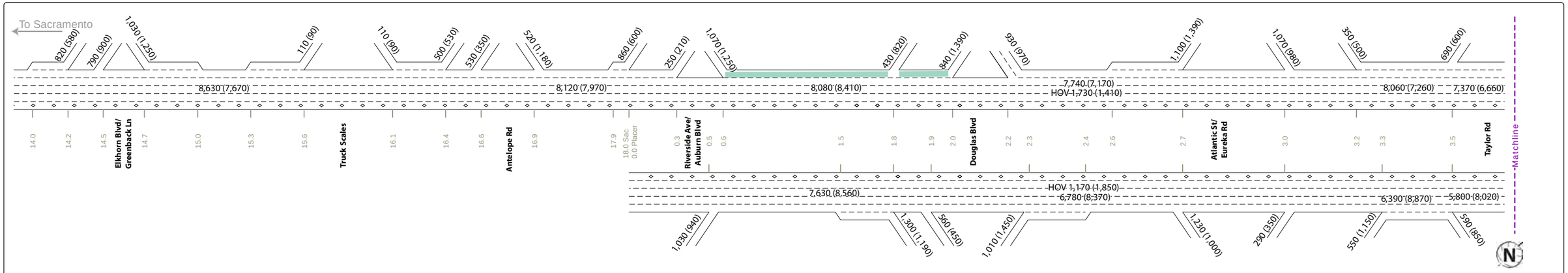
DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TRANSPORTATION SYSTEM MANAGEMENT (ALTERNATIVE 4)

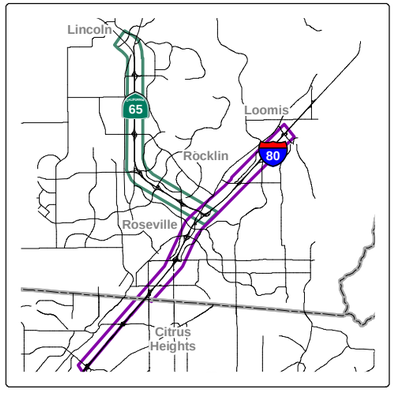
FIGURE 22



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to Taylor Rd



LEGEND

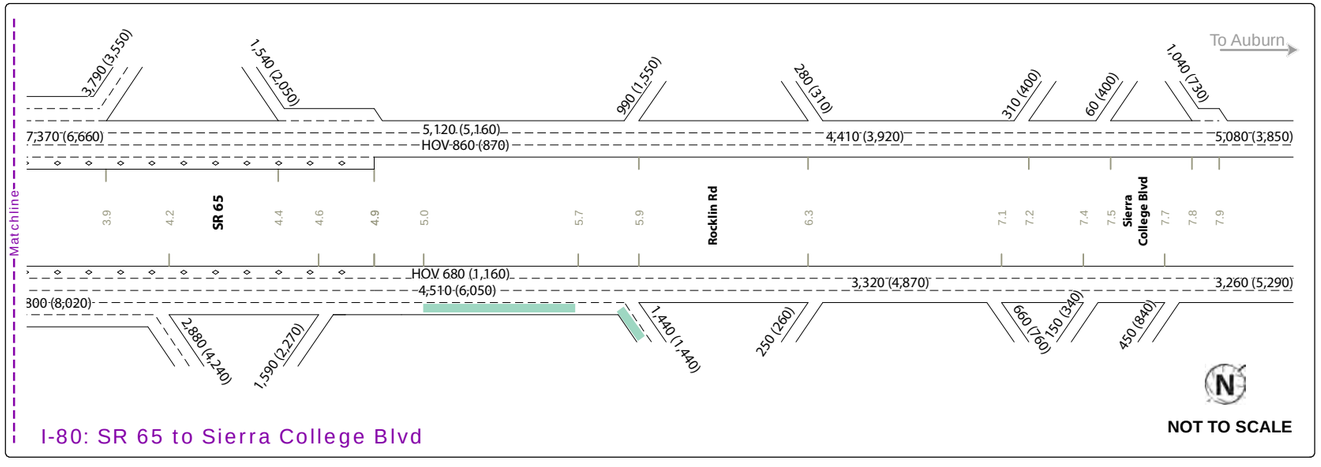
AM (PM) Peak Hour Traffic Volume for 2040 Conditions

HOV AM (PM) Peak Hour HOV Volume for 2040 Conditions

10.1 Postmile

Separate Planned Projects

- SR-65 Capacity and Operational Improvements
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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DESIGN YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO BUILD (ALTERNATIVE 5)

FIGURE 23

Figures 24 through 27 show design year volume comparison plots between project alternatives. The orange and red colors indicate a volume decrease for the AM and PM peak hours, respectively. The blue and green colors indicate a volume increase for the AM and PM peak hours, respectively. For these bandwidth plots, the freeway HOV lane links have been turned off so that the changes to the regular mainline lanes can be shown.

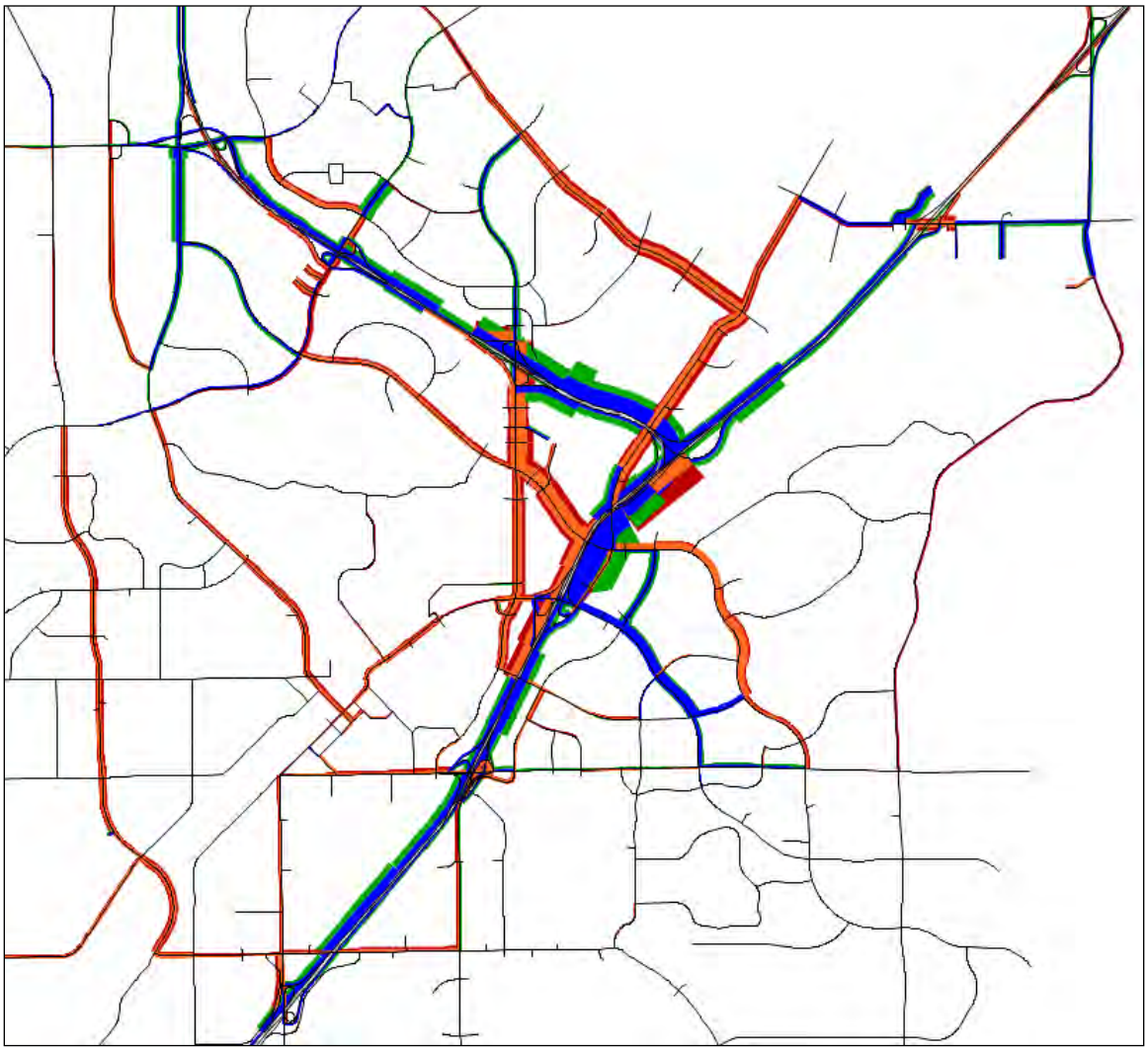


Figure 24 – Volume Comparison of Alternatives 3 and 5

Figure 24 shows a comparison of Alternative 3 (Taylor Road Interchange Eliminated) and 5 (No Build). With the additional capacity at the I-80/SR 65 interchange, volumes are higher from Douglas Boulevard on I-80 to Blue Oaks Boulevard on SR 65 under the No Taylor alternative. Volume increases also occur on arterials that access the north and south ends of this freeway segment: Eureka Road east of I-80, Stanford Ranch Road north of SR 65, and Pleasant Grove Boulevard and Blue Oaks Boulevard west of SR 65. Routes parallel to the freeway segment show decreases: Foothill Boulevard, Washington Boulevard, Roseville Parkway, and Galleria Boulevard/Harding Boulevard. Removing the I-80/Taylor Road

interchange shifts traffic from Taylor Road and Sunset Boulevard to SR 65 and Stanford Ranch Road. The differences between the No Build alternative and the other freeway reconstruction alternatives (Alternatives 1 and 2) are similar.

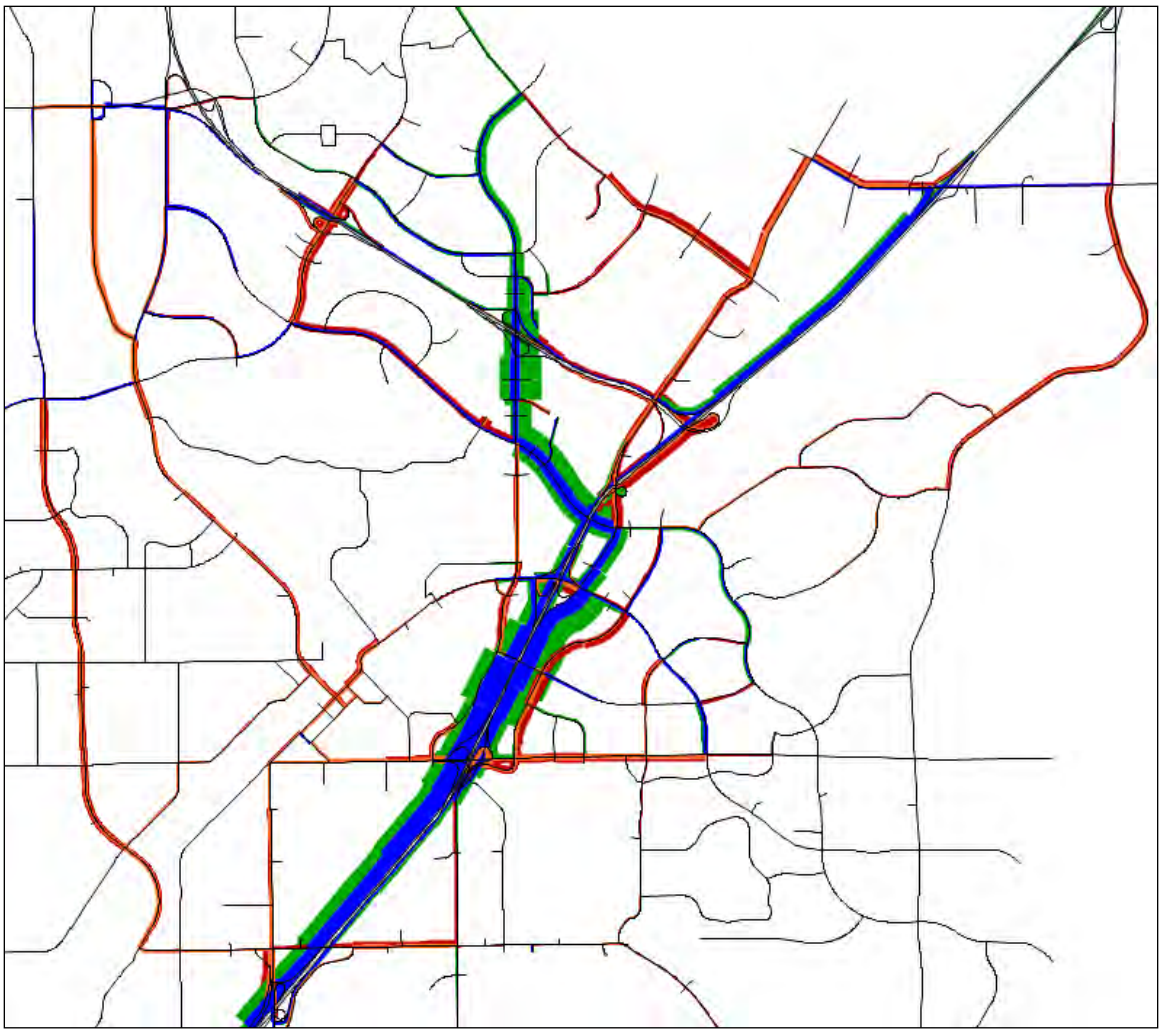


Figure 25 – Volume Comparison of Alternatives 4 and 5

Figure 25 compares the TSM and No Build alternatives. Volume increases are shown for the locations with additional lanes: westbound I-80 at Douglas Boulevard and between SR 65 and Rocklin Road. The signal coordination improvements along Galleria Boulevard and Roseville Parkway are expected to provide higher volumes, too. Volume decreases would occur on the parallel routes at the auxiliary lane locations: Douglas Blvd, Riverside Avenue, Sunrise Avenue, and Cirby Way to the south and Taylor Road and Sierra College Boulevard to the north. Despite the addition of auxiliary lanes, the traffic demand volume for SR 65 between I-80 and Galleria Boulevard is not forecasted to change much. While the auxiliary lanes would provide more capacity, the I-80 ramps to and from the west would remain over capacity, which would constrain the demand volume.

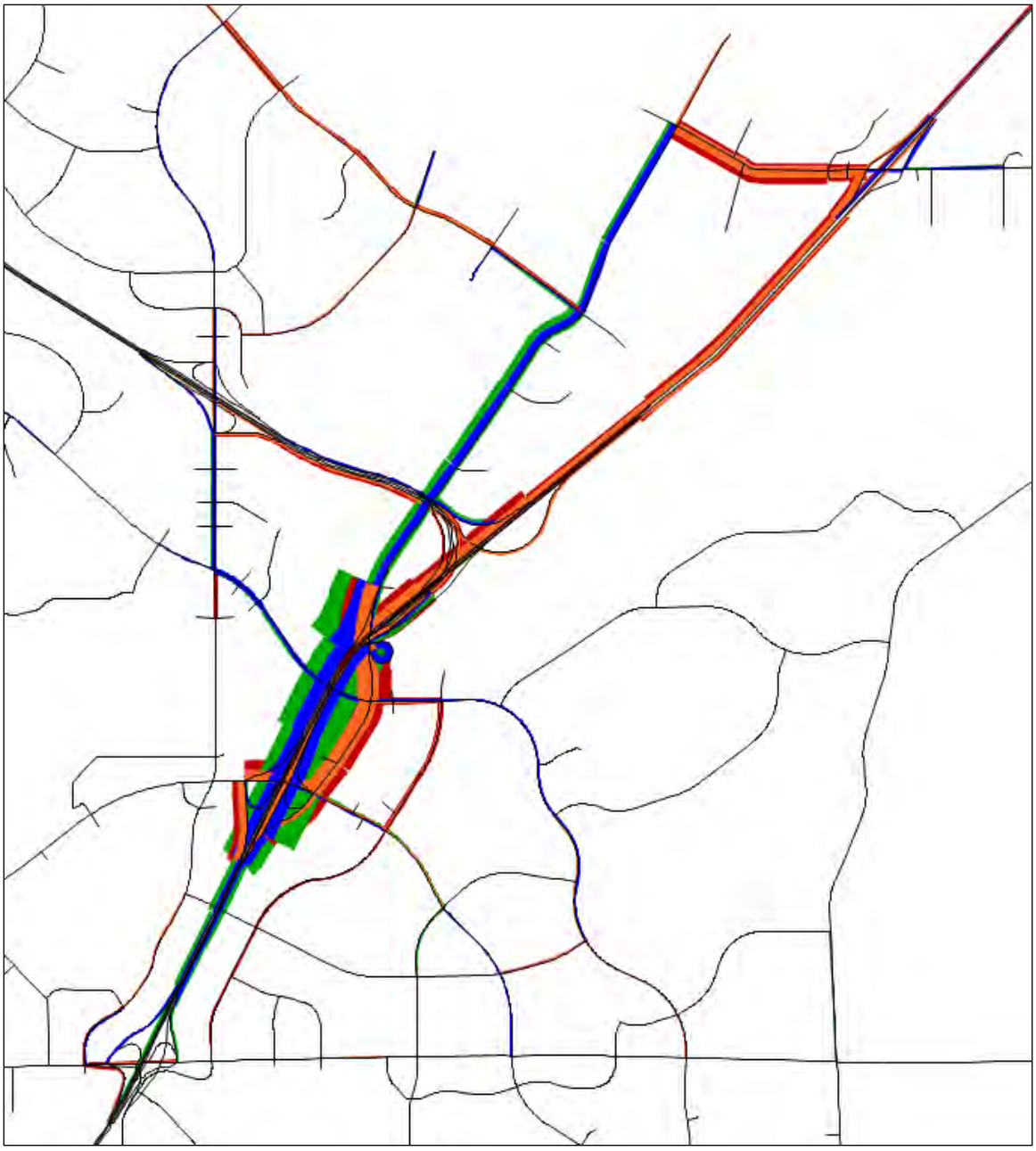


Figure 26 – Volume Comparison of Alternatives 2 and 3

Figure 26 shows the volume differences between Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated). Although both alternatives would expand the I-80/SR 65 interchange, the first alternative maintains the existing Taylor Road connections. As a result, traffic volume would mostly shift from the Eureka Road interchange to the new Taylor Road interchange. The Rocklin Road interchange would see some diversion, but the change at the SR 65/Galleria Boulevard interchange would be small. As noted above, the increase in capacity at the freeway-to-freeway interchange would shift volume to the Galleria Boulevard interchange without regard to whether an interchange is provided at Taylor Road.

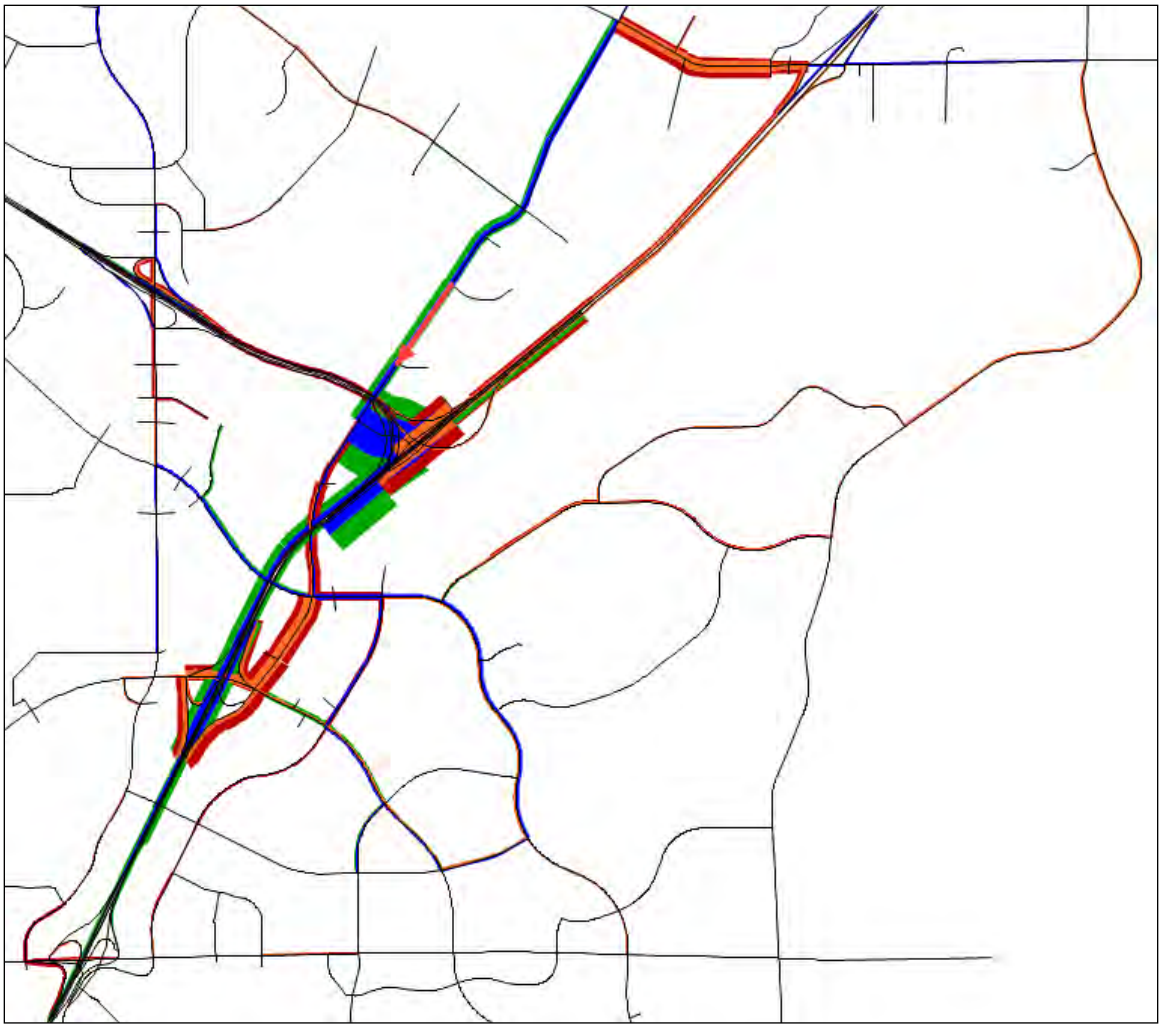


Figure 27 – Volume Comparison of Alternatives 1 and 3

Figure 27 shows the volume differences between Alternatives 1 (Taylor Road Full Access Interchange) and 3 (Taylor Road Interchange Eliminated). Compared to the alternative without a Taylor Road interchange, the proposed interchange inside the I-80/SR-65 interchange would shift volume away from the Eureka Road/Atlantic Street interchange ramps, Taylor Road, and Rocklin Road. Volumes would increase on I-80 between the Eureka Road/Atlantic Street and Taylor Road interchanges and on Taylor Road/Pacific Street between the new interchange and Rocklin Road. The changes to volumes on SR 65 would be minor.

4.3.2. HOV Volume Forecasts

The VISUM model includes HOV lanes as separate roadway links to account for the additional HOV-only capacity. Due to the close-spacing of the ramps, access to the HOV direct connectors at the I-80/SR 65 interchange is restricted in the model to traffic west of Eureka Road/Atlantic Street and north of Stanford Ranch Road/Galleria Boulevard. The resulting HOV lane projections for the project alternatives are listed in Table 15.

TABLE 15: HOV LANE VOLUME FOR DESIGN YEAR CONDITIONS

Location	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
EB I-80: Douglas Blvd to Eureka Rd	1,070	1,650	1,080	1,540	1,070	1,480	1,040	1,460	1,030	1,470
WB I-80: Atlantic St to Douglas Blvd	1,570	1,310	1,580	1,320	1,570	1,300	1,320	1,230	1,530	1,280
EB I-80 to NB SR 65	540	1,110	550	1,180	550	1,180	n/a	n/a	n/a	n/a
SB SR 65 to WB I-80	860	610	860	610	860	600	n/a	n/a	n/a	n/a
NB SR 65: Stanford Ranch Rd to Pleasant Grove Blvd	720	1,590	720	1,610	710	1,590	570	1,460	590	1,410
SB SR 65: Pleasant Grove Blvd to Galleria Blvd	1,230	1,200	1,230	1,200	1,230	1,200	1,100	1,090	1,080	1,080

Source: Fehr & Peers, 2014

Under No Build (Alternative 5), HOVs will use the regular direct connector ramps to travel between the HOV lanes on I-80 and SR 65. Because the ramps will be over capacity, the demand will be constrained. In particular, the AM peak hour HOV lane volume on northbound SR 65 would be low. With demand constrained at the I-80 interchange, northbound SR 65 would be relatively free from congestion, so the HOV lane would not provide a travel time advantage.

With the addition of the HOV direct connector ramps, the mainline HOV lane volume would increase. The HOV direct connector peak hour volume is projected to range from 540 to 1,180 vehicles per hour depending on the direction and peak hour. With the HOVs from the westbound to northbound connector added in, the HOV lane volume on northbound SR 65 would be similar to the eastbound I-80 volume. HOV lane volumes would be similar across the alternatives that reconstruct the I-80/SR-65 Interchange (Alternatives 1, 2, and 3).

4.3.3. Meso-Scale Network Performance for Design Year

In addition to generating traffic volume forecasts for input to the VISSIM microsimulation traffic operations model, the VISUM model was used to produce the same meso-scale network performance measures reported for existing conditions. Figures 28 through 31 compare VMT, VHT, VHD, and freeway VHD, respectively, across the forecasting alternatives for design year conditions during the AM, the PM, and both the AM and PM peak periods. The results generally show that the build alternatives all improve network efficiency by lowering VHT and VHD compared to No Build. The Taylor Road Full Access Interchange Alternative has the largest reductions in VHT and VHD although the TSM alternative provides the best results when only considering freeway delay due to auxiliary lanes that are not included in the other alternatives.

4.3.4. Construction Year Forecasts

The construction year (2020) forecasts shown in Figures 32 through 36 were developed by interpolating between the hourly matrices for the baseline (2012) traffic volume estimates and the design year (2040) forecasts. Using VISUM, the resulting matrices were assigned to the roadway network that corresponds to the planned projects expected to be completed by 2020 (as shown in Figure 6). Due to these changes, construction year demand volumes at any particular location may not be the exact linearly interpolated value between the existing and design year volumes.

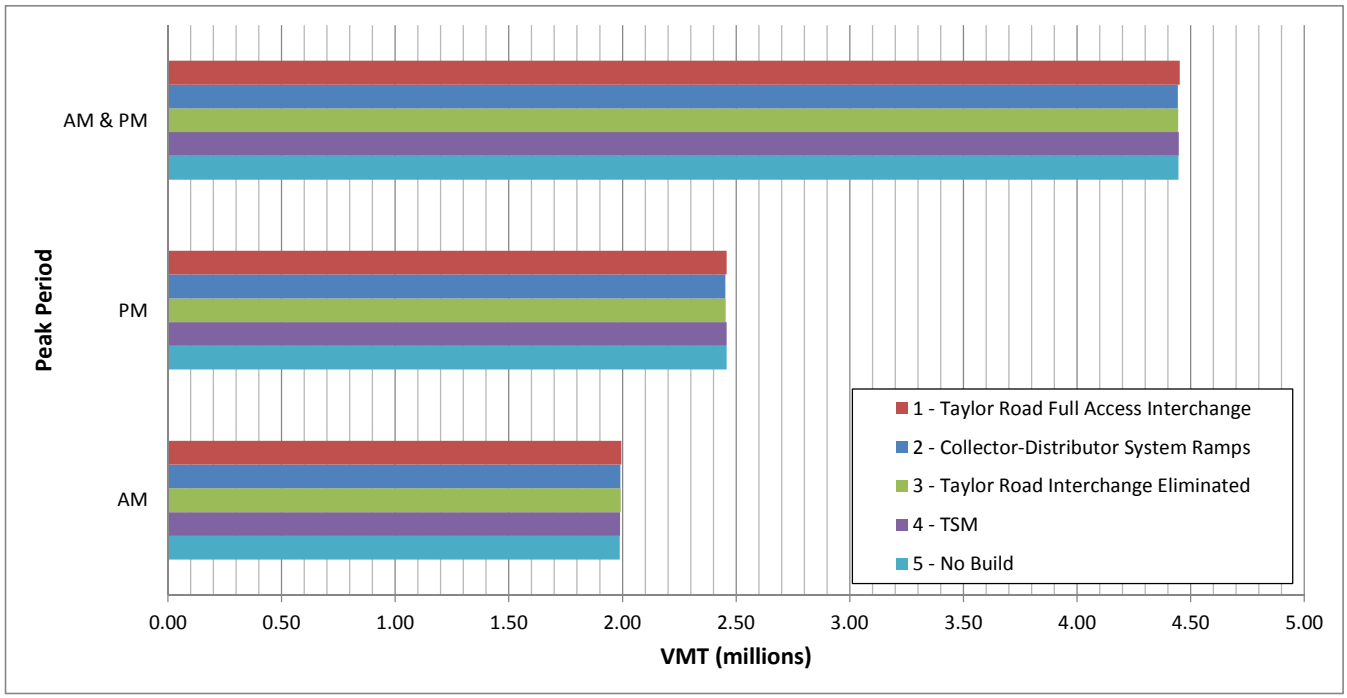
This process presumes a linear growth relationship and captures some of the influence of project alternatives on trip assignment. One of the potential limitations of this approach is that recent growth has not kept pace with the projected linear growth rate. The sluggish economic recovery from the 2008/09 recession may result in actual construction year volumes that are lower than the projections, but this outcome is acceptable for the purpose of designing and evaluating project alternatives.

4.3.5. Meso-Scale Network Performance for Construction Year

In addition to generating traffic volume forecasts for input to the VISSIM microsimulation traffic operations model, the VISUM model was used to produce the same meso-scale network performance measures reported for existing conditions. Figures 37 through 40 compare VMT, VHT, VHD, and Freeway VHD, respectively, across the forecasting alternatives for construction year conditions. The results generally show that the build alternatives all improve network efficiency by lowering VHT and VHD compared to No Build. Freeway VHD only declines under the TSM Alternative. This occurs because sufficient mainline capacity is not being added in the other build alternatives in the construction year, which reduces the effectiveness of the I-80/SR 65 interchange improvements. Without additional mainline capacity in locations such as westbound I-80 at Douglas Boulevard and northbound SR 65, the interchange improvements simply shift bottlenecks.

FIGURE 28 - DESIGN YEAR MESO-SCALE VMT COMPARISON

	Vehicle Miles of Travel (millions)			% Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - Taylor Road Full Access Interchange	1.99	2.46	4.45	-0.33%	0.05%	-0.12%
2 - Collector-Distributor System Ramps	1.99	2.45	4.44	-0.14%	0.26%	0.08%
3 - Taylor Road Interchange Eliminated	1.99	2.45	4.45	-0.20%	0.23%	0.04%
4 - TSM	1.99	2.46	4.45	-0.08%	0.01%	-0.03%
5 - No Build	1.99	2.46	4.45	-	-	-



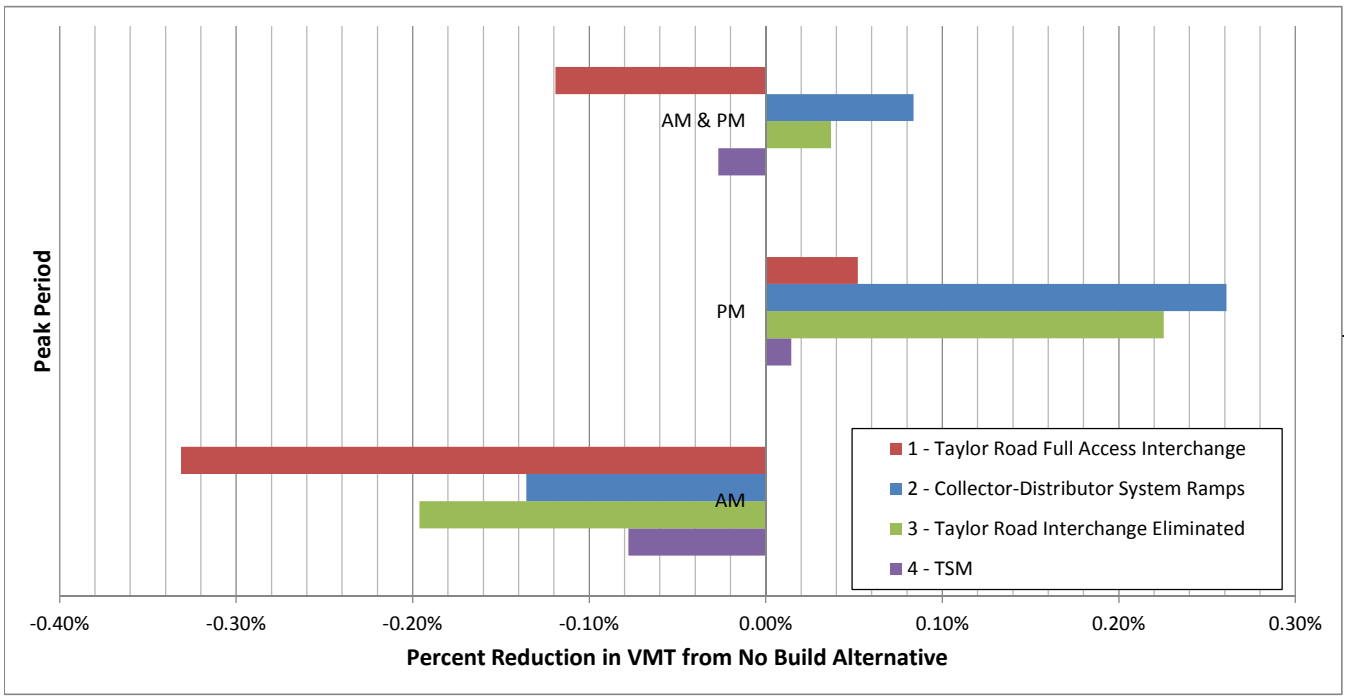
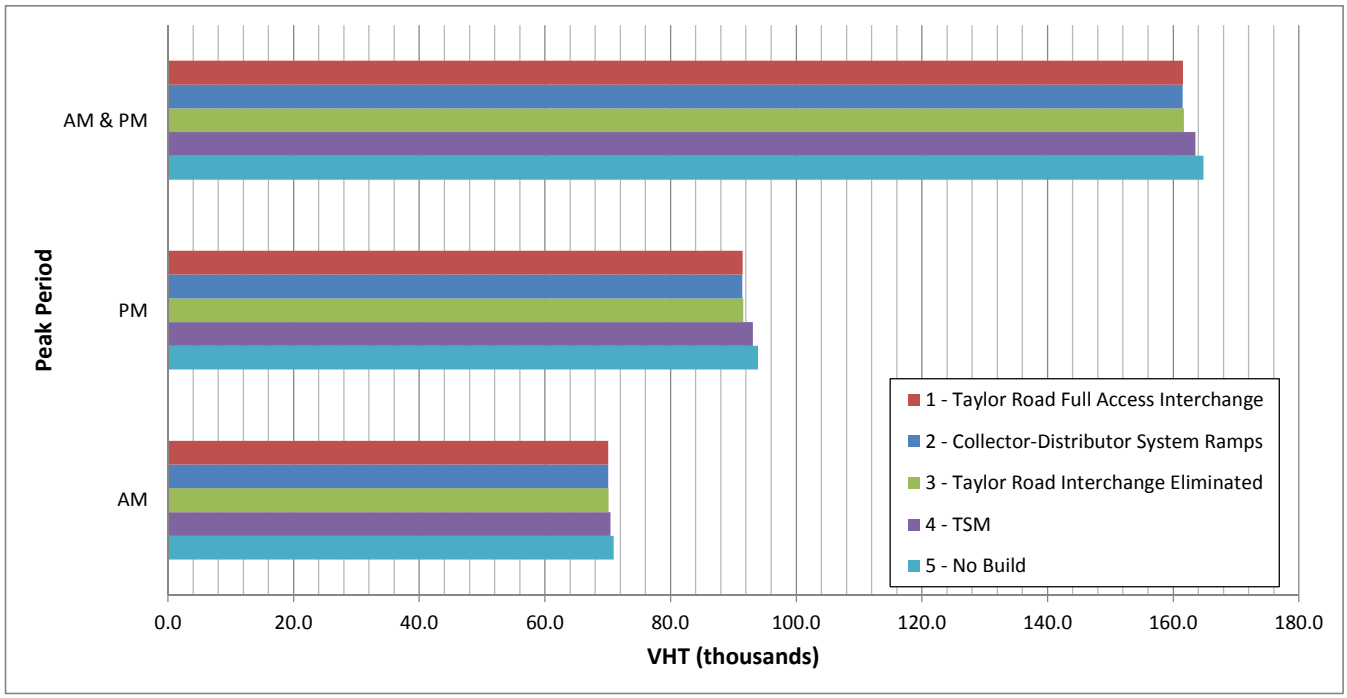


FIGURE 29 - DESIGN YEAR MESO-SCALE VHT COMPARISON

	Vehicle Hours of Travel (thousands)			% Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - Taylor Road Full Access Interchange	70.1	91.5	161.5	1.19%	2.60%	1.99%
2 - Collector-Distributor System Ramps	70.1	91.4	161.5	1.21%	2.63%	2.02%
3 - Taylor Road Interchange Eliminated	70.1	91.6	161.7	1.12%	2.48%	1.89%
4 - TSM	70.4	93.1	163.5	0.71%	0.84%	0.78%
5 - No Build	70.9	93.9	164.8	-	-	-



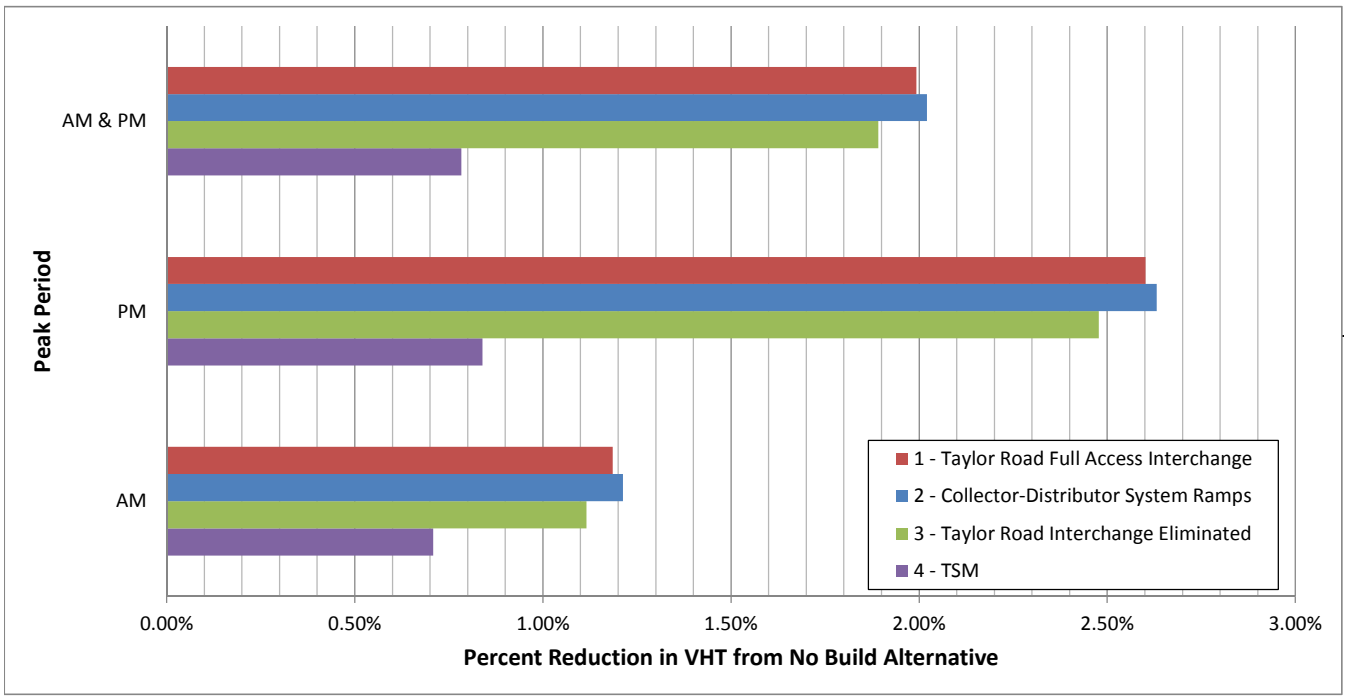
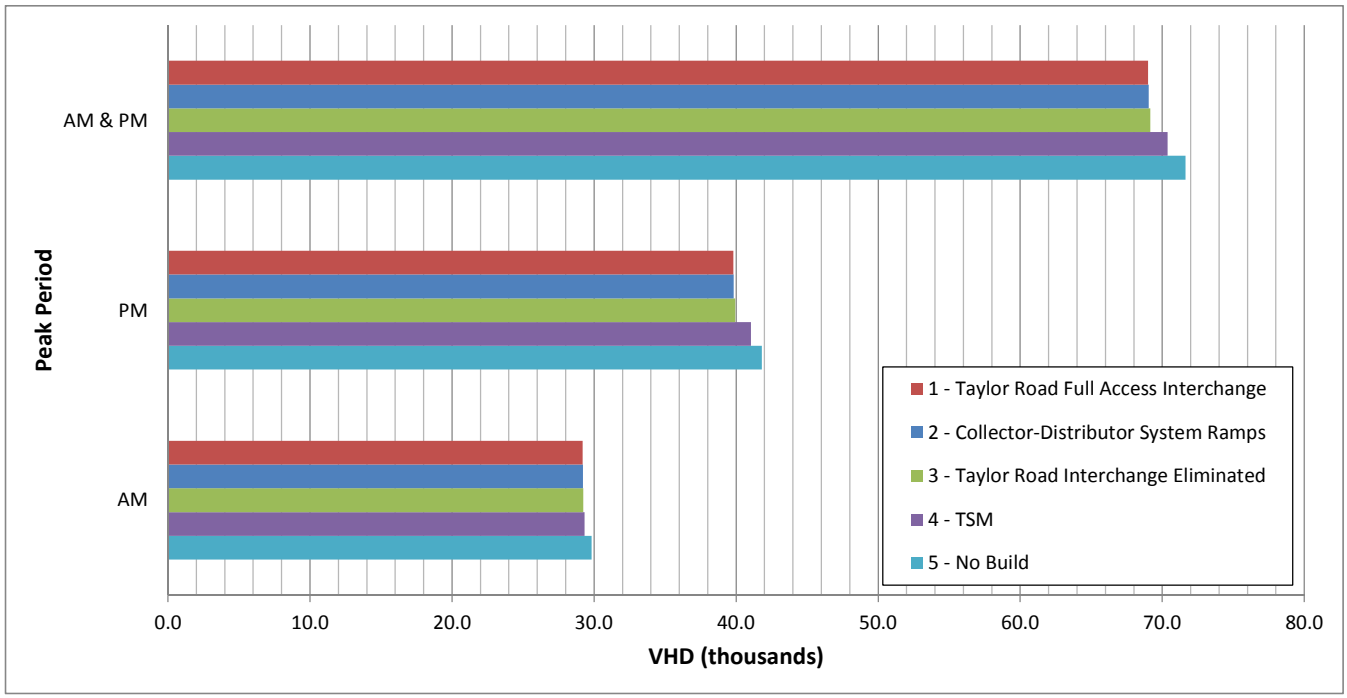


FIGURE 30 - DESIGN YEAR MESO-SCALE VHD COMPARISON

	Vehicle Hours of Delay (thousands)			% Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - Taylor Road Full Access Interchange	29.2	39.8	69.0	2.17%	4.77%	3.69%
2 - Collector-Distributor System Ramps	29.2	39.8	69.0	2.09%	4.71%	3.62%
3 - Taylor Road Interchange Eliminated	29.2	39.9	69.2	2.01%	4.49%	3.46%
4 - TSM	29.3	41.0	70.4	1.69%	1.84%	1.78%
5 - No Build	29.8	41.8	71.6	-	-	-



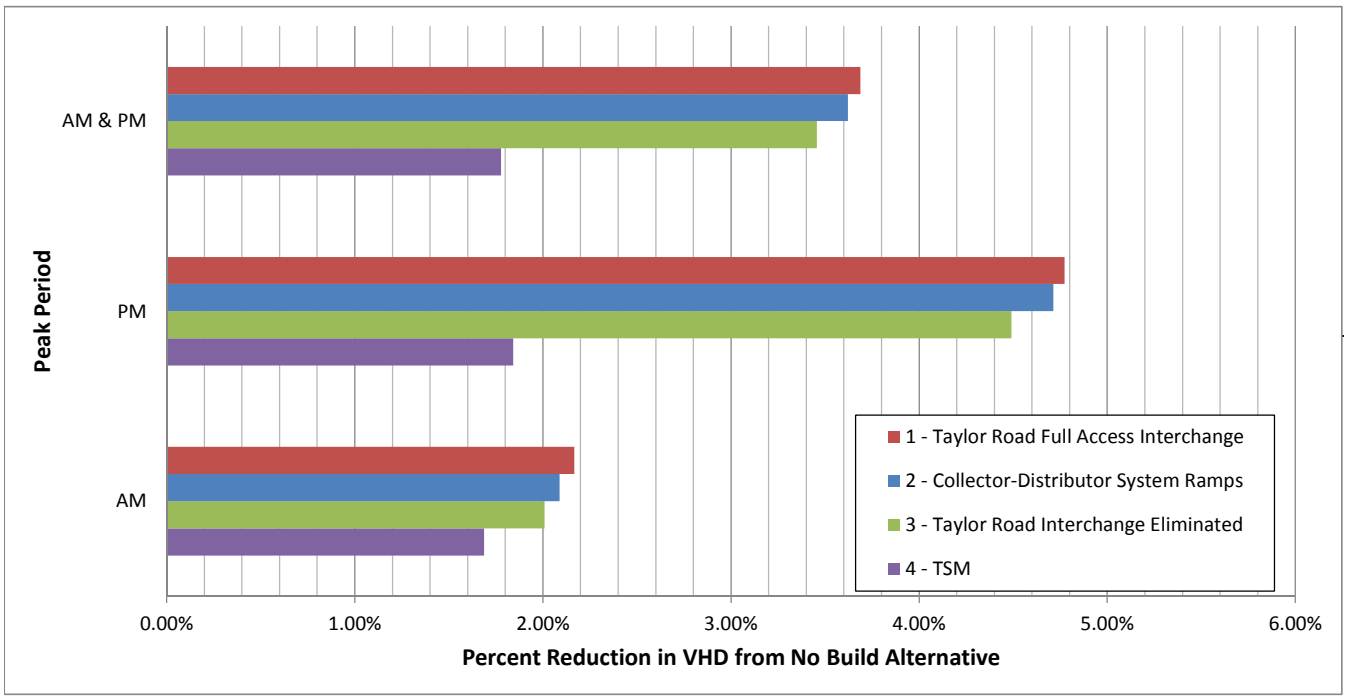
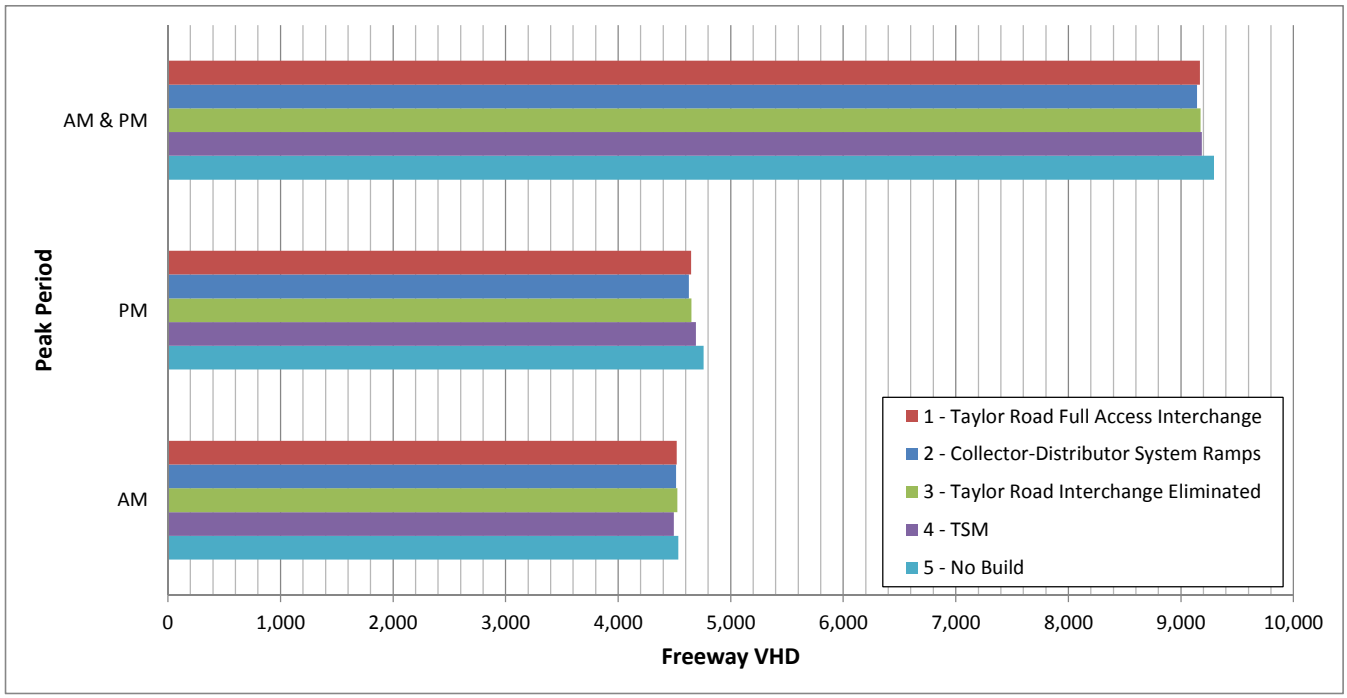
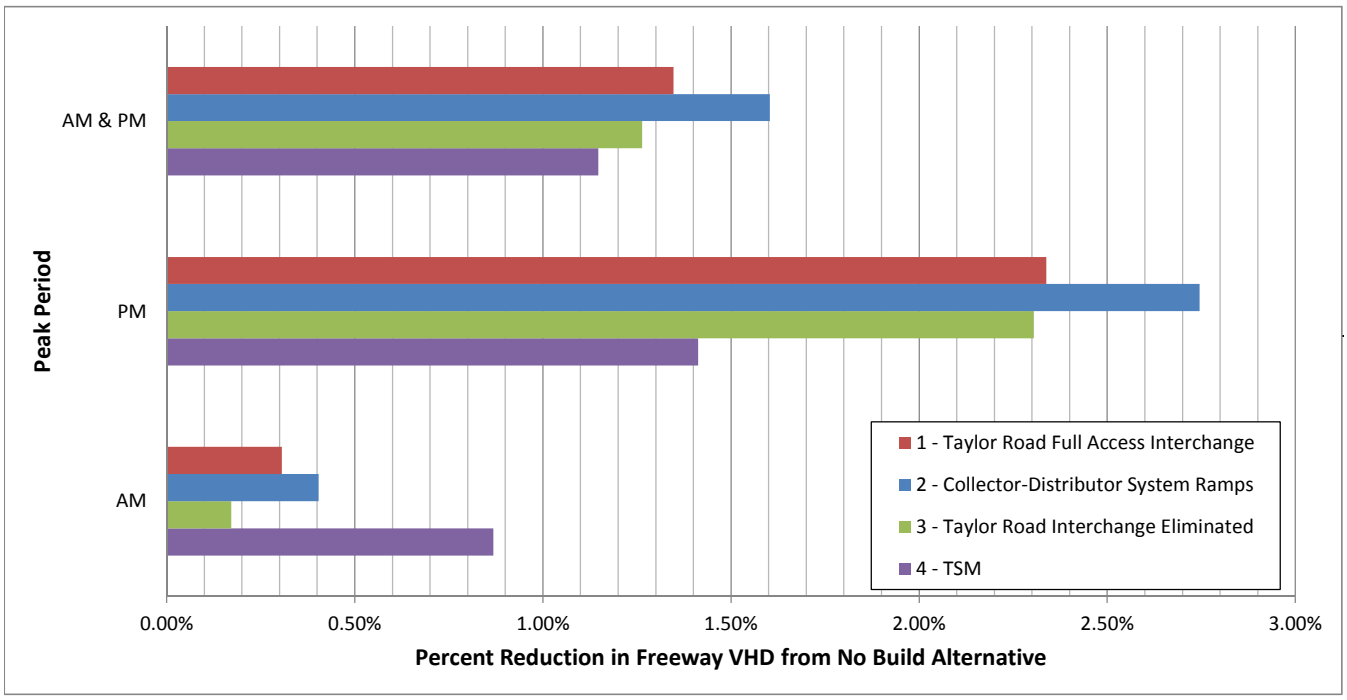


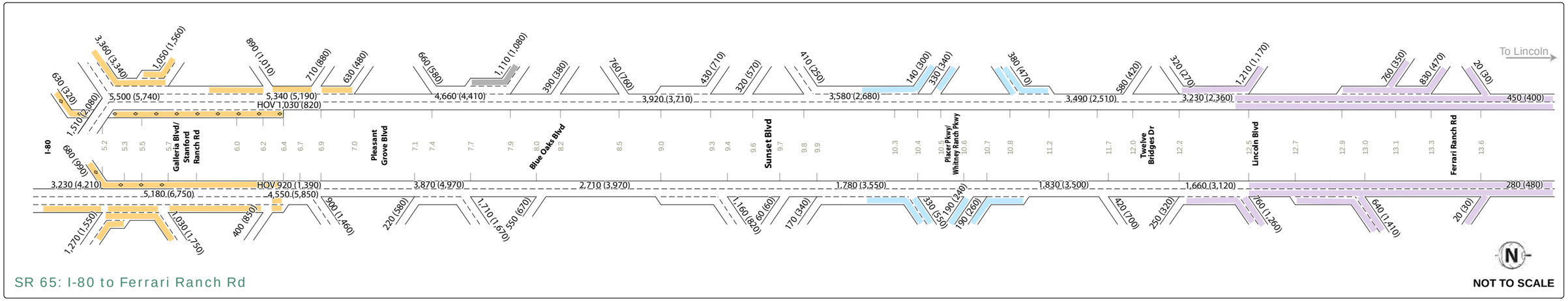
FIGURE 31 - DESIGN YEAR MESO-SCALE FREEWAY VHD COMPARISON

	Freeway Vehicle Hours of Delay*			% Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - Taylor Road Full Access Interchange	4,520	4,648	9,168	0.31%	2.34%	1.35%
2 - Collector-Distributor System Ramps	4,515	4,629	9,144	0.40%	2.75%	1.60%
3 - Taylor Road Interchange Eliminated	4,526	4,650	9,176	0.17%	2.31%	1.26%
4 - TSM	4,494	4,692	9,186	0.87%	1.41%	1.15%
5 - No Build	4,534	4,759	9,293	-	-	-

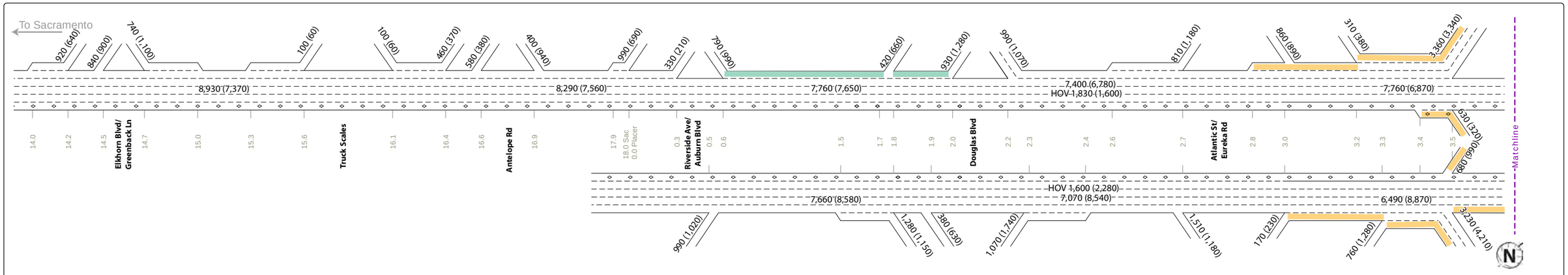




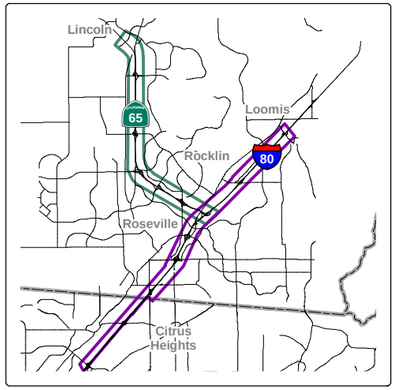
* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65

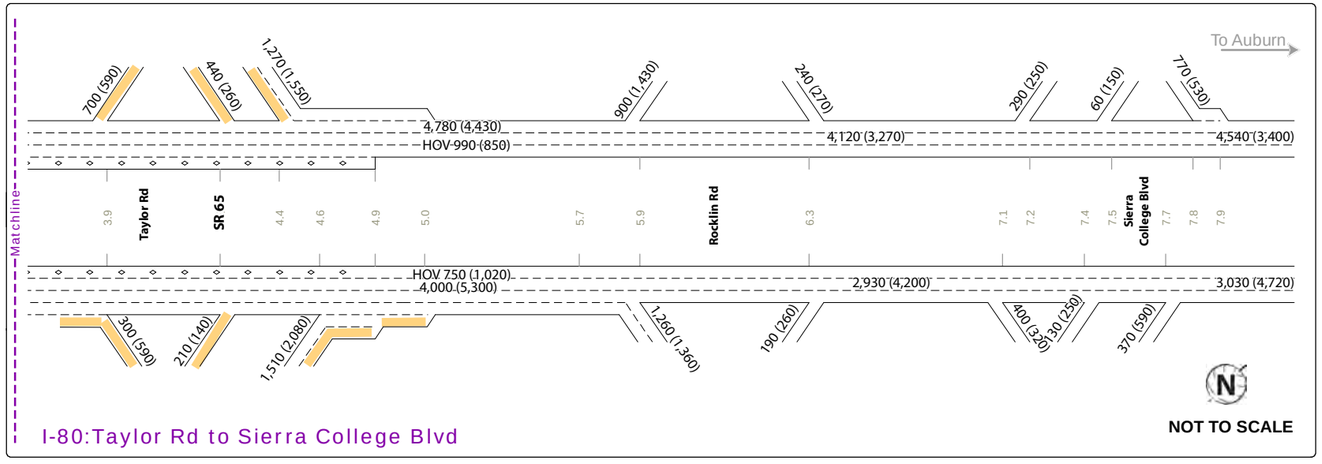


LEGEND

- AM (PM) Peak Hour Traffic Volume for 2020 Conditions
- HOV AM (PM) Peak Hour HOV Volume for 2020 Conditions
- 10.1 Postmile
- Alternative 1

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80:Taylor Rd to Sierra College Blvd

FEHR & PEERS

CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)

FIGURE 32

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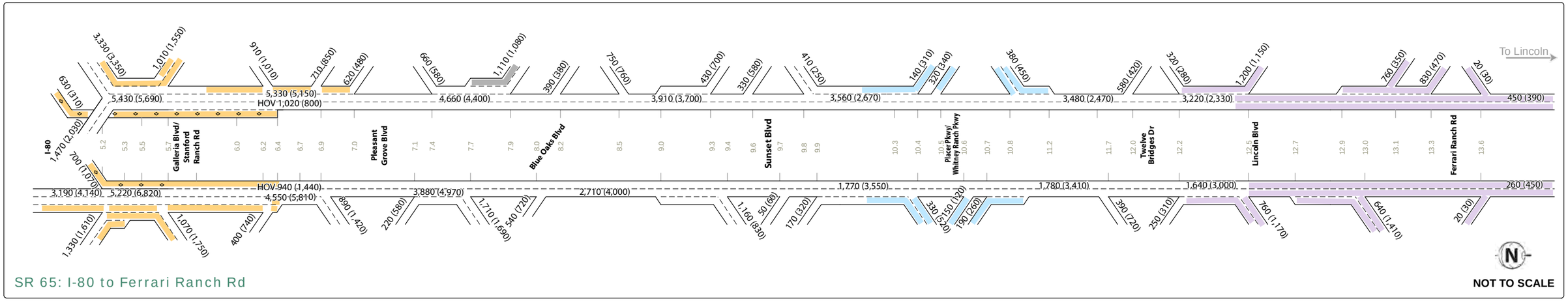
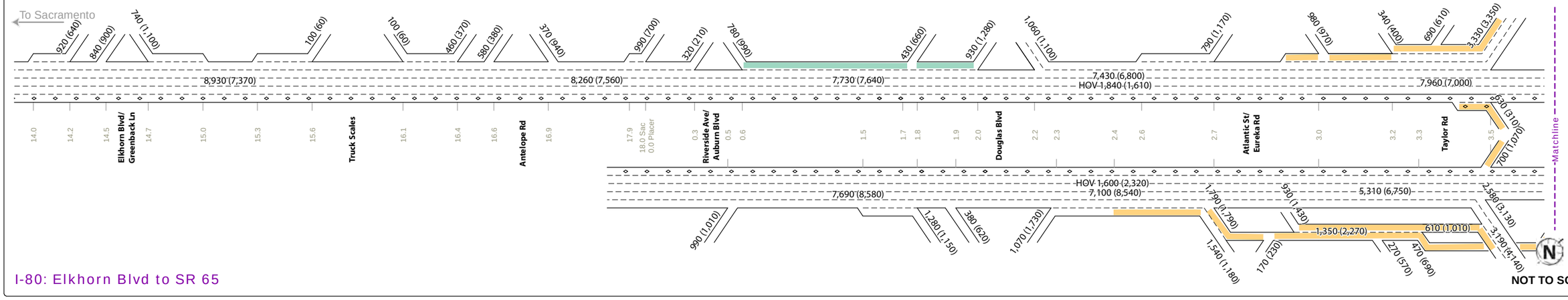
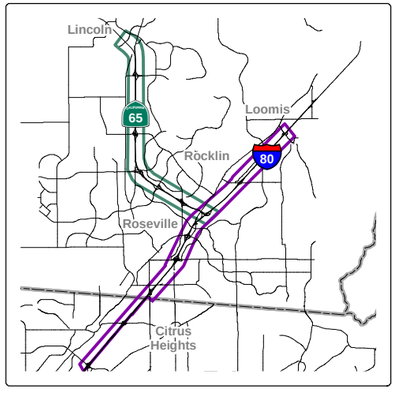


SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65

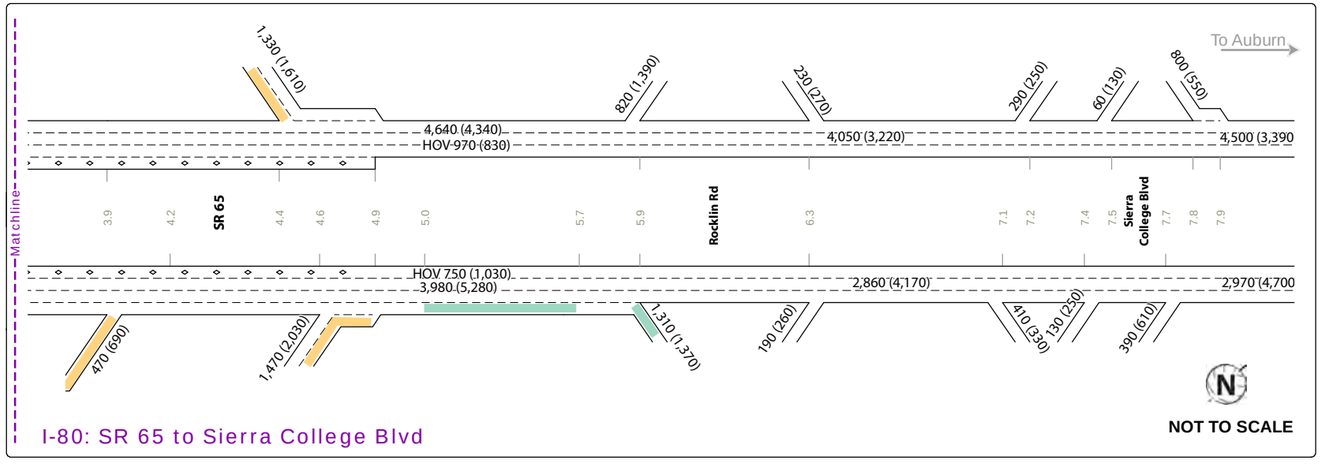


LEGEND

- AM (PM) — Peak Hour Traffic Volume for 2020 Conditions
- HOV AM (PM) — Peak Hour HOV Volume for 2020 Conditions
- 10.1 — Postmile
- Alternative 2

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

FEHR & PEERS

CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)

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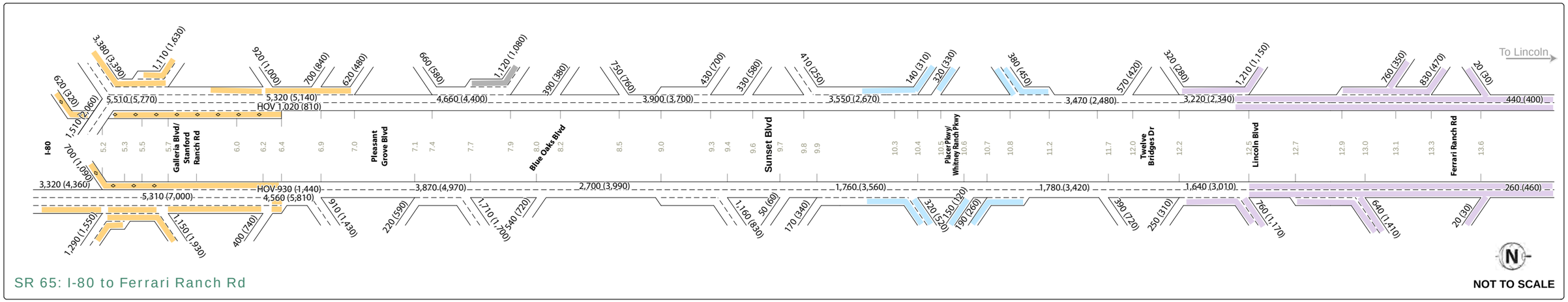
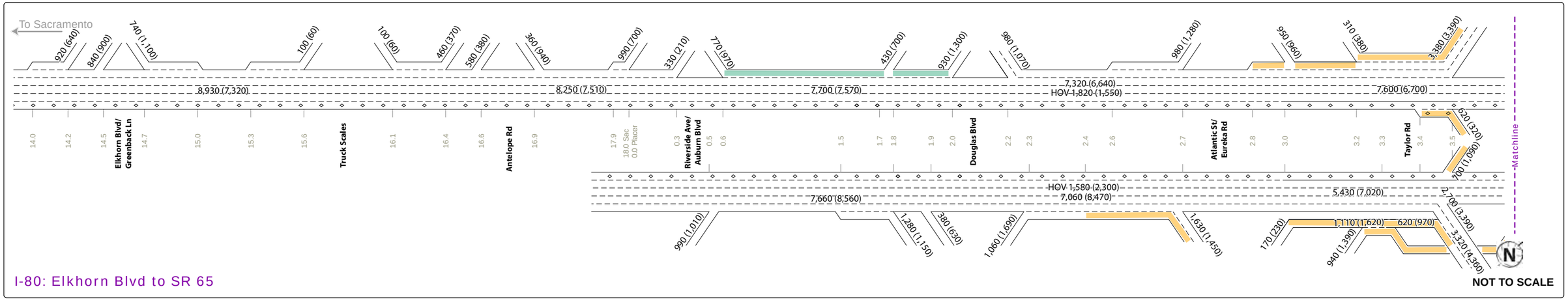
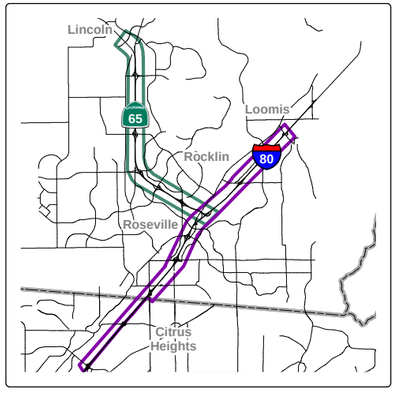
FIGURE 33



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to SR 65



LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

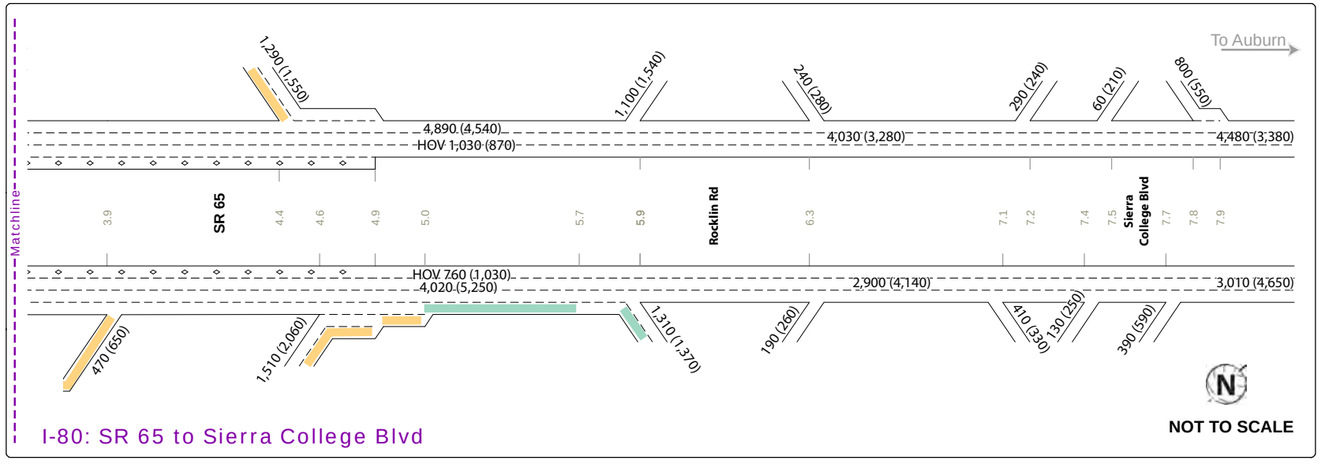
HOV AM (PM) Peak Hour HOV Volume for 2020 Conditions

10.1 Postmile

Alternative 3

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

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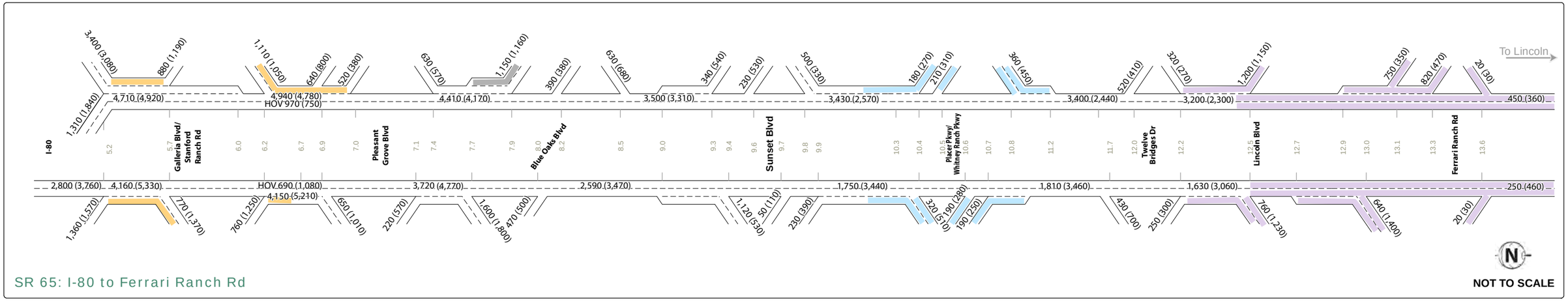
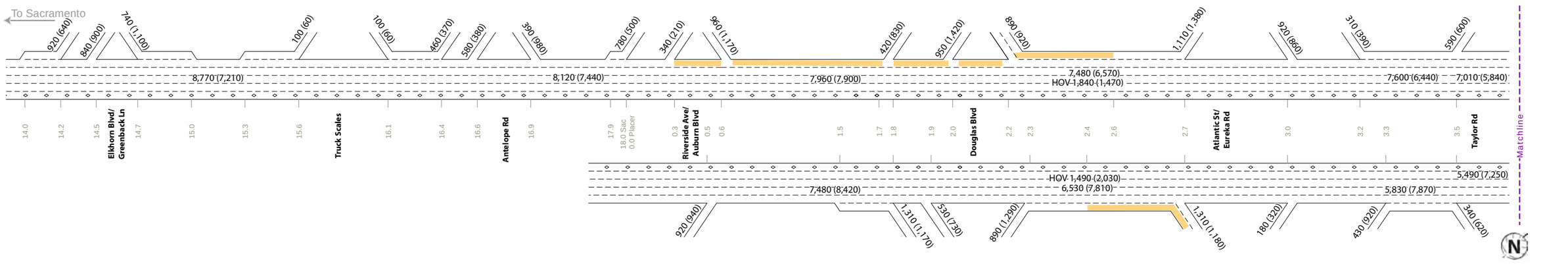
CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)

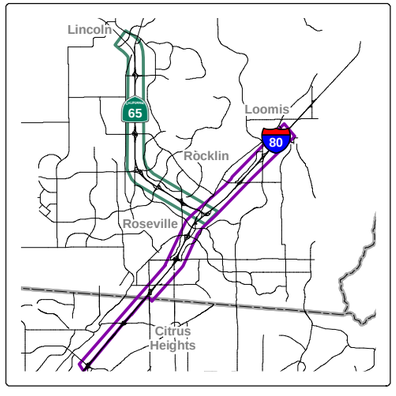
FIGURE 34



SR 65: I-80 to Ferrari Ranch Rd



I-80: Elkhorn Blvd to Taylor Rd



LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

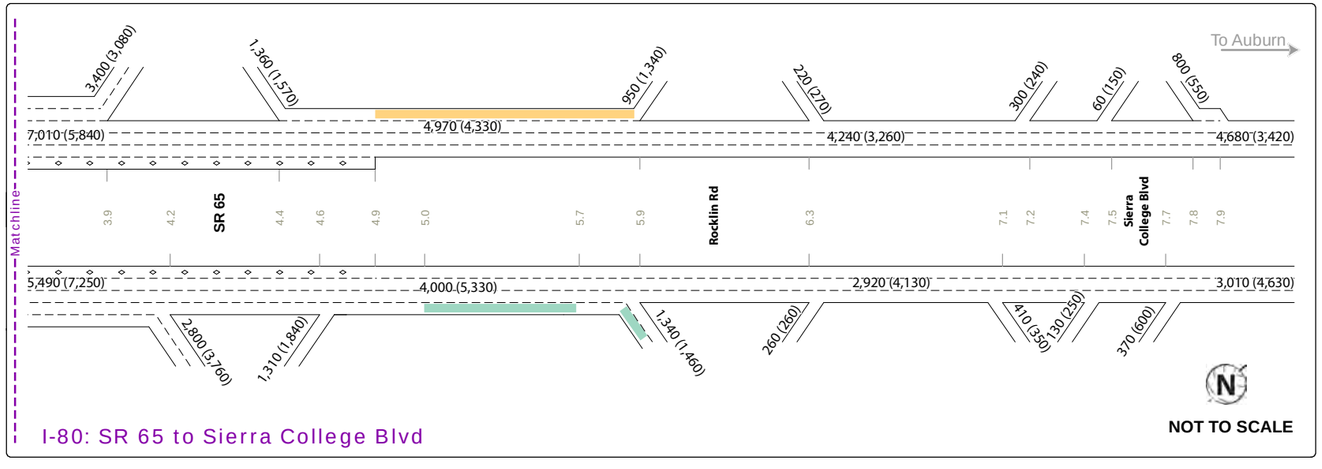
HOV AM (PM) Peak Hour HOV Volume for 2020 Conditions

10.1 Postmile

Alternative 4

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

FEHR & PEERS

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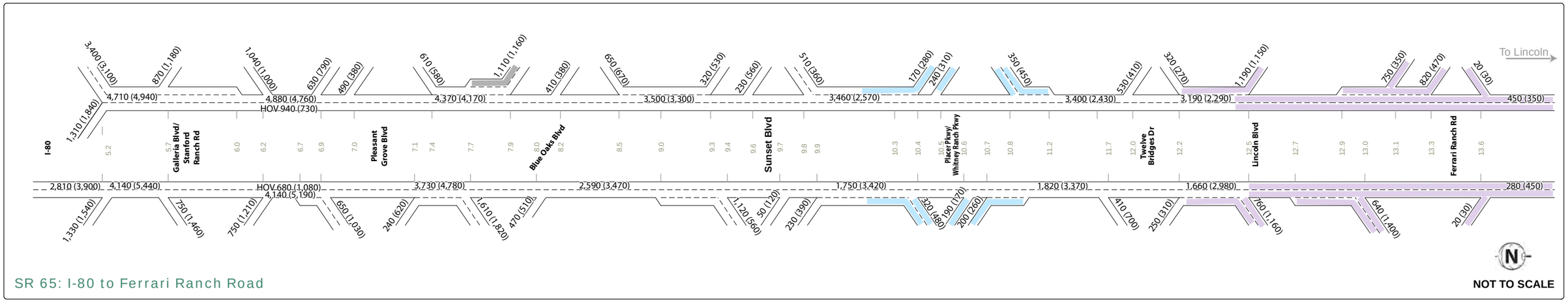
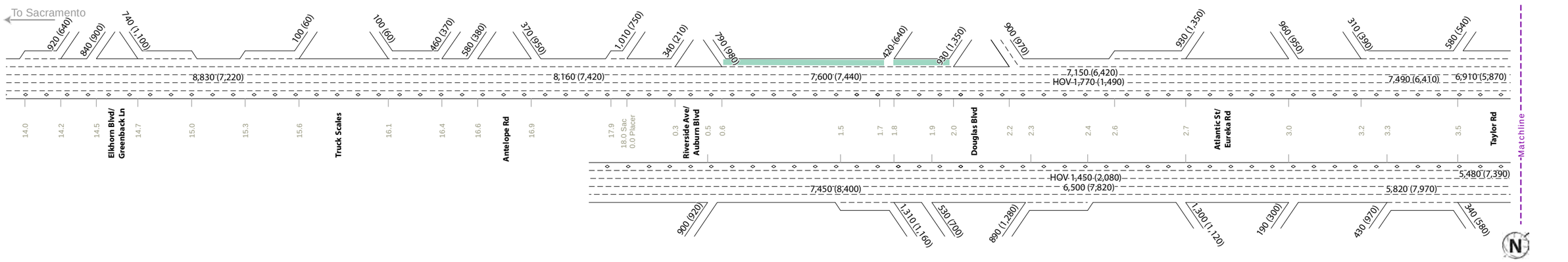
CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - TRANSPORTATION SYSTEM MANAGEMENT (ALTERNATIVE 4)

FIGURE 35



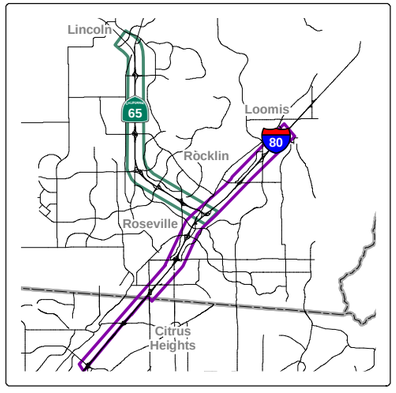
SR 65: I-80 to Ferrari Ranch Road

NOT TO SCALE



I-80: Elkhorn Blvd to Taylor Rd

NOT TO SCALE



LEGEND

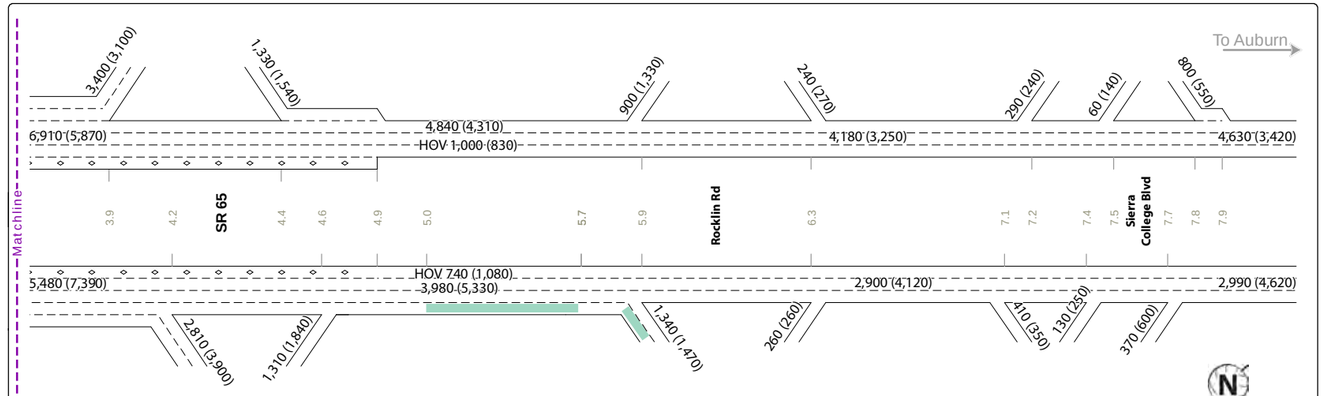
AM (PM) Peak Hour Traffic Volume for 2020 Conditions

HOV AM (PM) Peak Hour HOV Volume for 2020 Conditions

10.1 Postmile

Separate Planned Projects

- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

NOT TO SCALE

FEHR PEERS

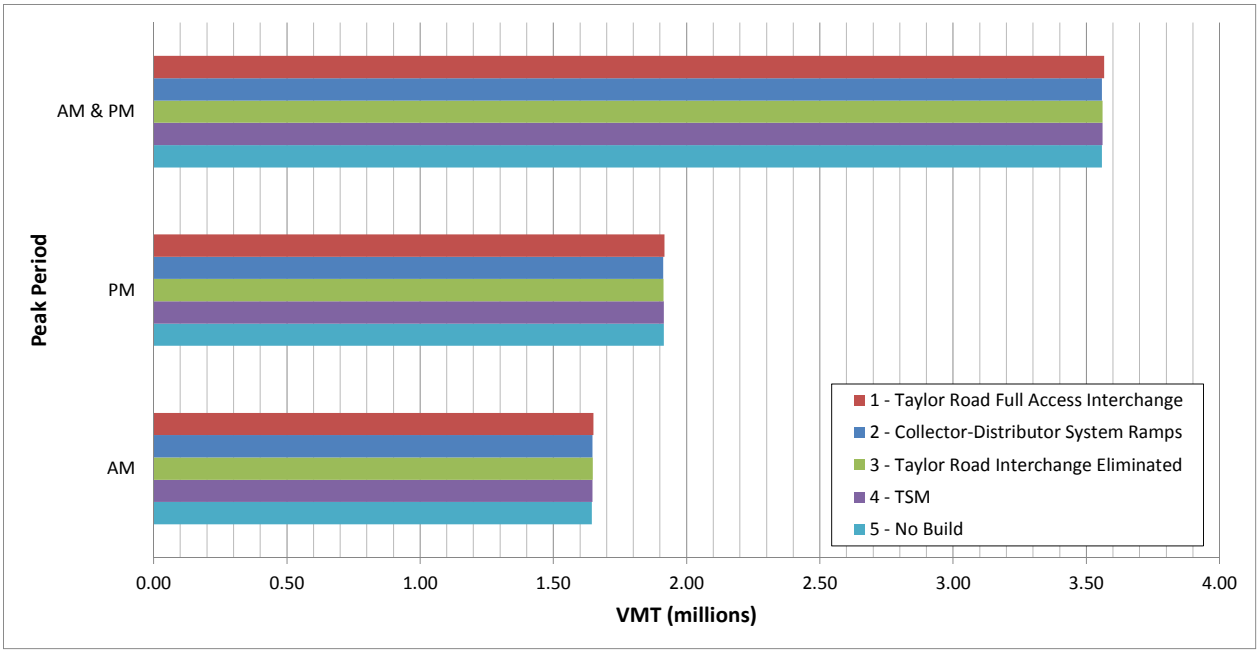
Path: N:\2011Projects\2872_I-80_SR-65_IC_PA_ED\Graphics\Final\GIS\MXD\LOS_Schematic\Const\F36_year2020_NoBuild.mxd

CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - NO BUILD (ALTERNATIVE 5)

FIGURE 36

FIGURE 37 - CONSTRUCTION YEAR MESO-SCALE VMT COMPARISON

	Vehicle Miles of Travel (millions)			% Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - Taylor Road Full Access Interchange	1.65	1.92	3.57	-0.34%	-0.11%	-0.22%
2 - Collector-Distributor System Ramps	1.65	1.91	3.56	-0.14%	0.14%	0.01%
3 - Taylor Road Interchange Eliminated	1.65	1.91	3.56	-0.21%	0.09%	-0.05%
4 - TSM	1.65	1.91	3.56	-0.10%	0.02%	-0.04%
5 - No Build	1.64	1.91	3.56	-	-	-



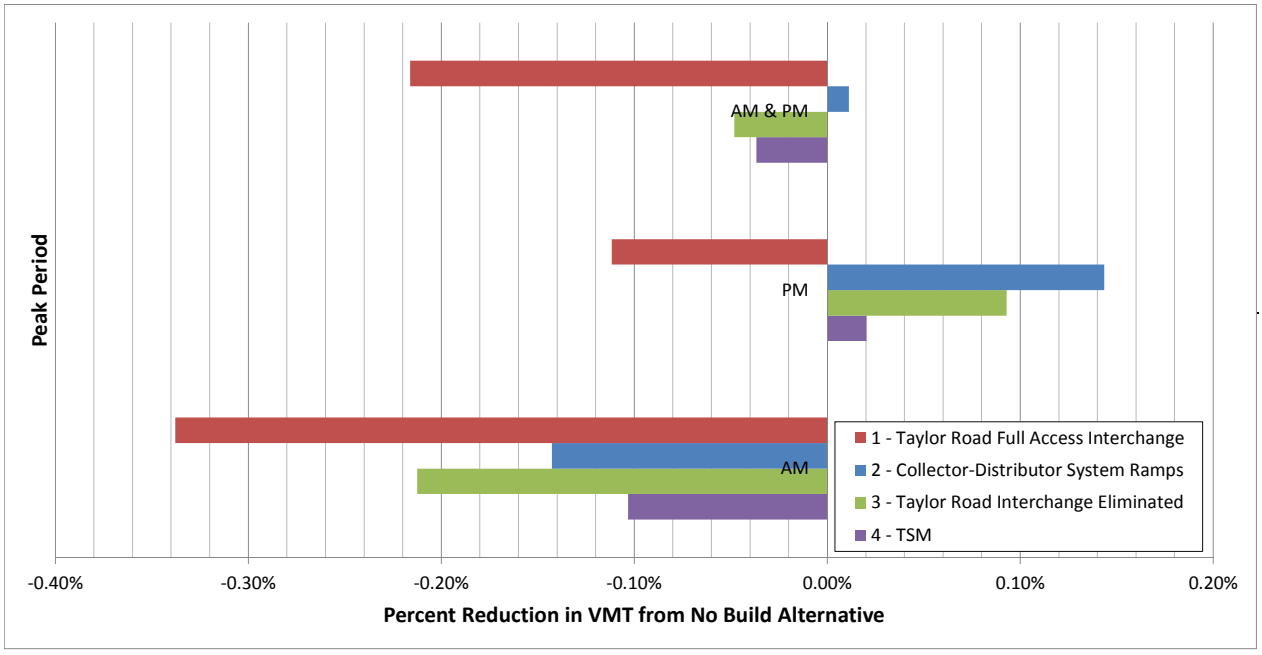
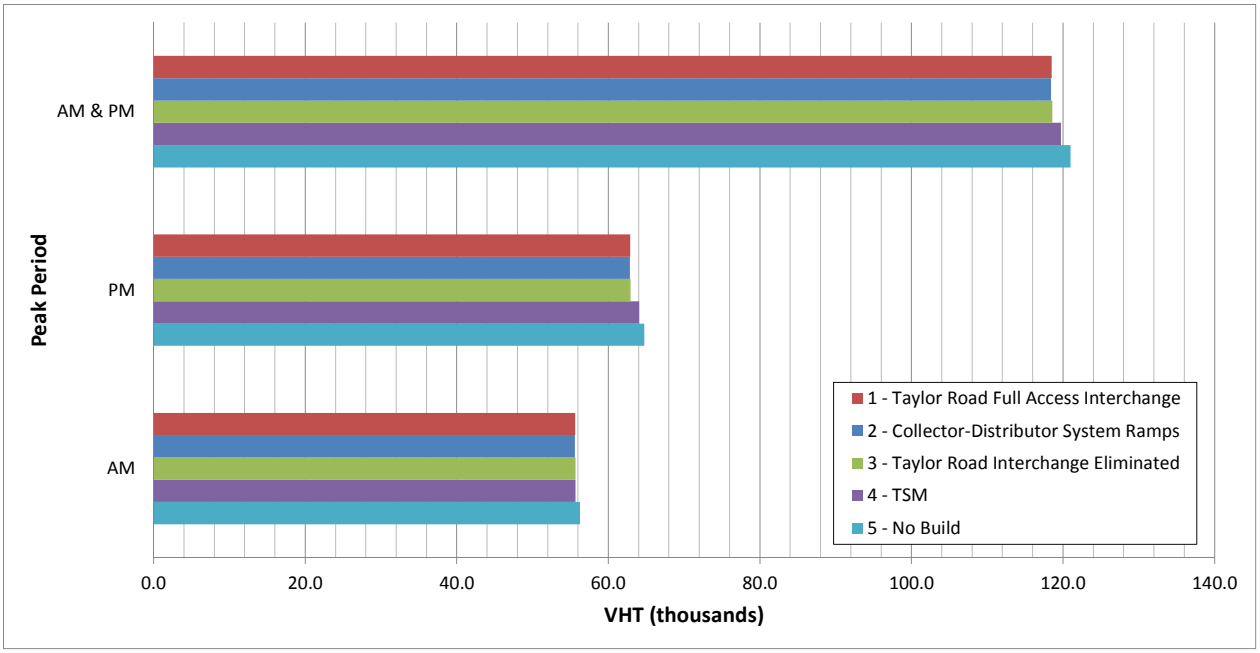


FIGURE 38 - CONSTRUCTION YEAR MESO-SCALE VHT COMPARISON

	Vehicle Hours of Travel (thousands)			% Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - Taylor Road Full Access Interchange	55.6	62.9	118.5	1.12%	2.86%	2.05%
2 - Collector-Distributor System Ramps	55.6	62.8	118.4	1.17%	2.97%	2.14%
3 - Taylor Road Interchange Eliminated	55.6	62.9	118.6	1.05%	2.81%	1.99%
4 - TSM	55.6	64.1	119.7	1.05%	1.06%	1.05%
5 - No Build	56.2	64.7	121.0	-	-	-



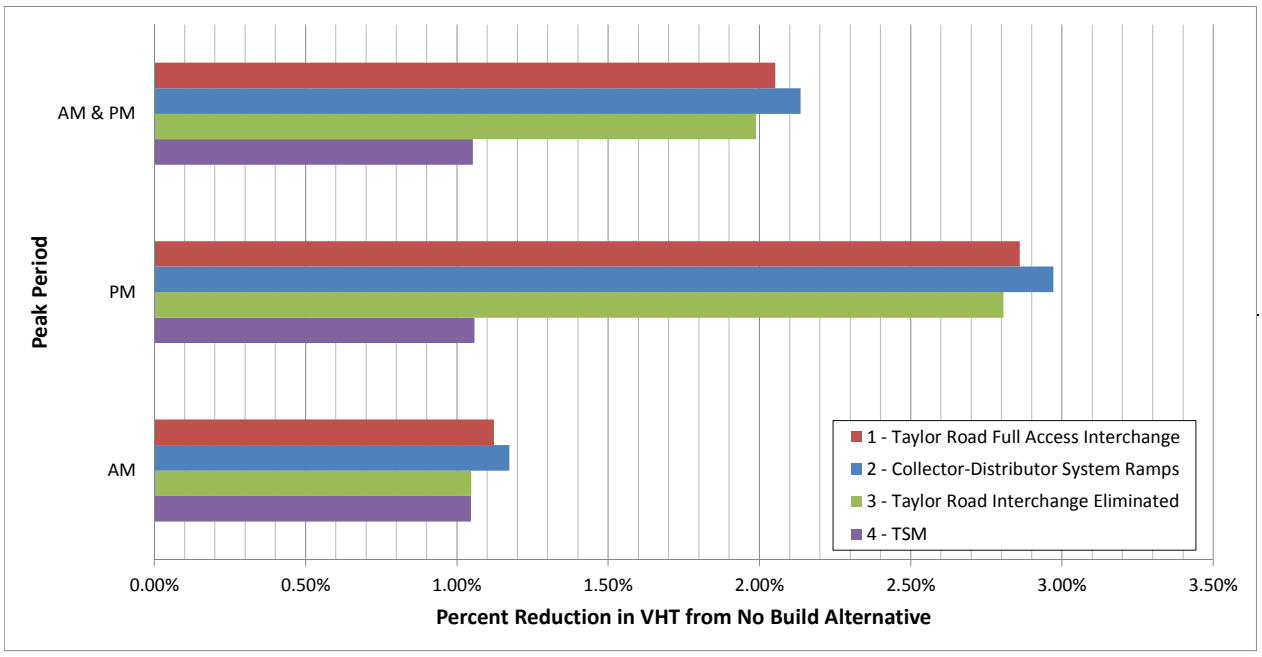
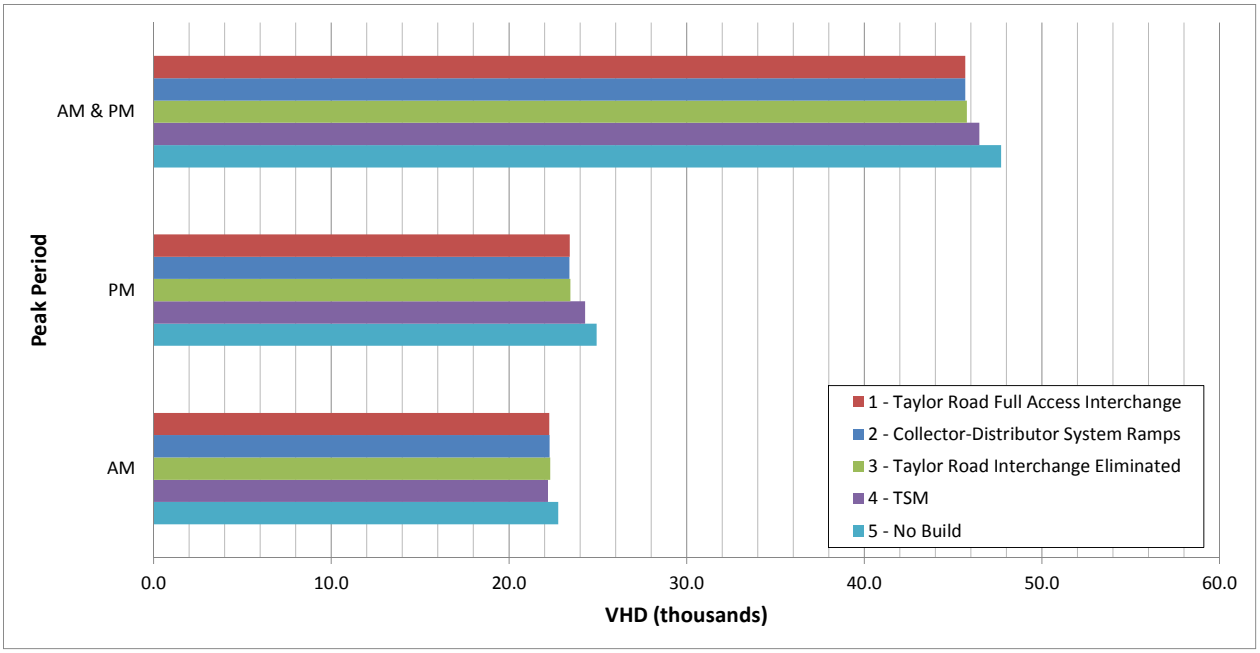


FIGURE 39 - CONSTRUCTION YEAR MESO-SCALE VHD COMPARISON

	Vehicle Hours of Delay (thousands)			% Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - Taylor Road Full Access Interchange	22.3	23.4	45.7	2.20%	6.08%	4.23%
2 - Collector-Distributor System Ramps	22.3	23.4	45.7	2.15%	6.15%	4.24%
3 - Taylor Road Interchange Eliminated	22.3	23.5	45.8	2.01%	5.90%	4.04%
4 - TSM	22.2	24.3	46.5	2.51%	2.59%	2.56%
5 - No Build	22.8	24.9	47.7	-	-	-



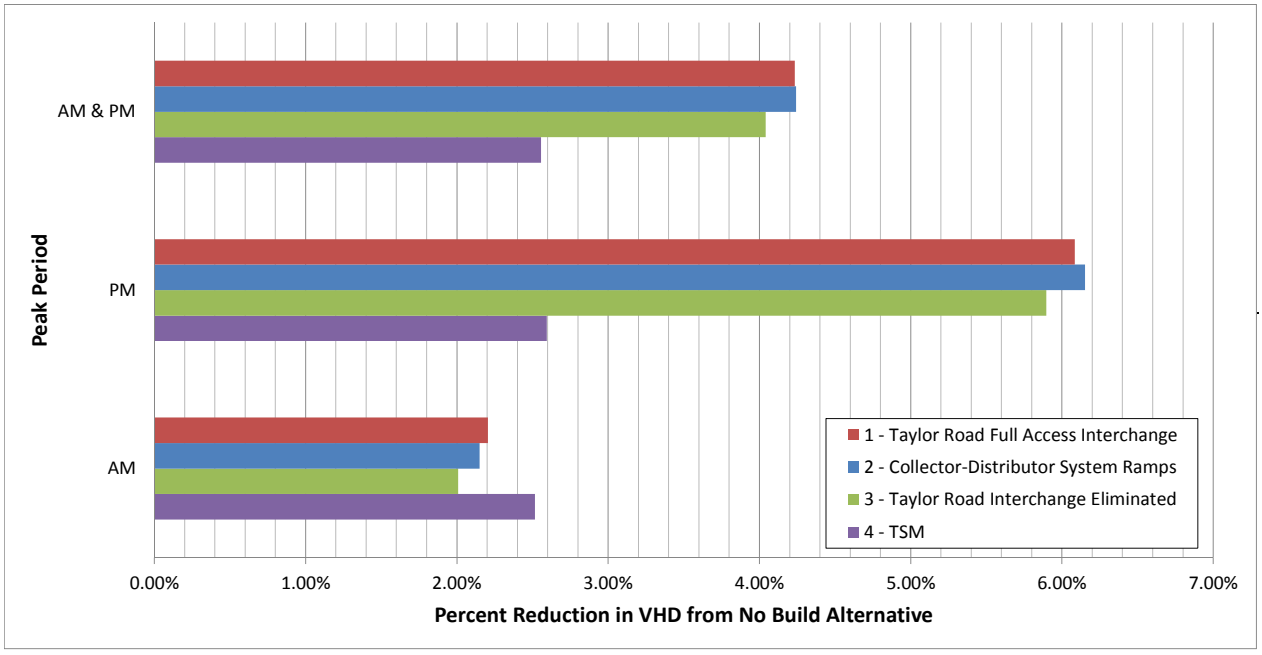
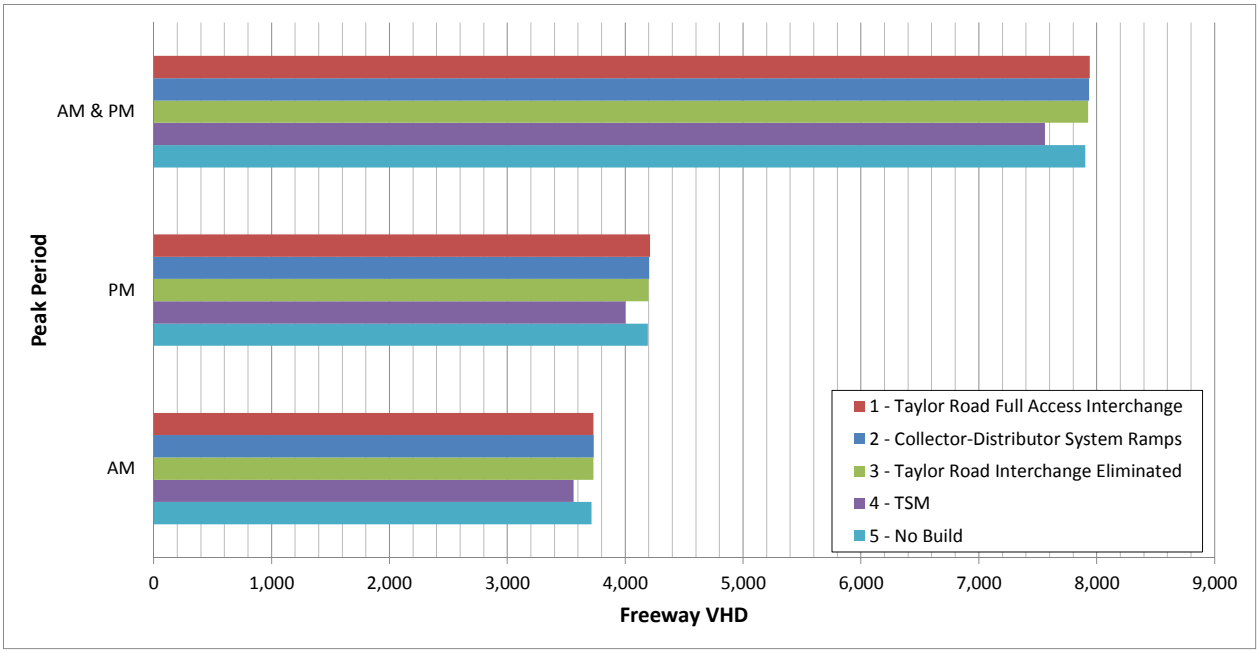
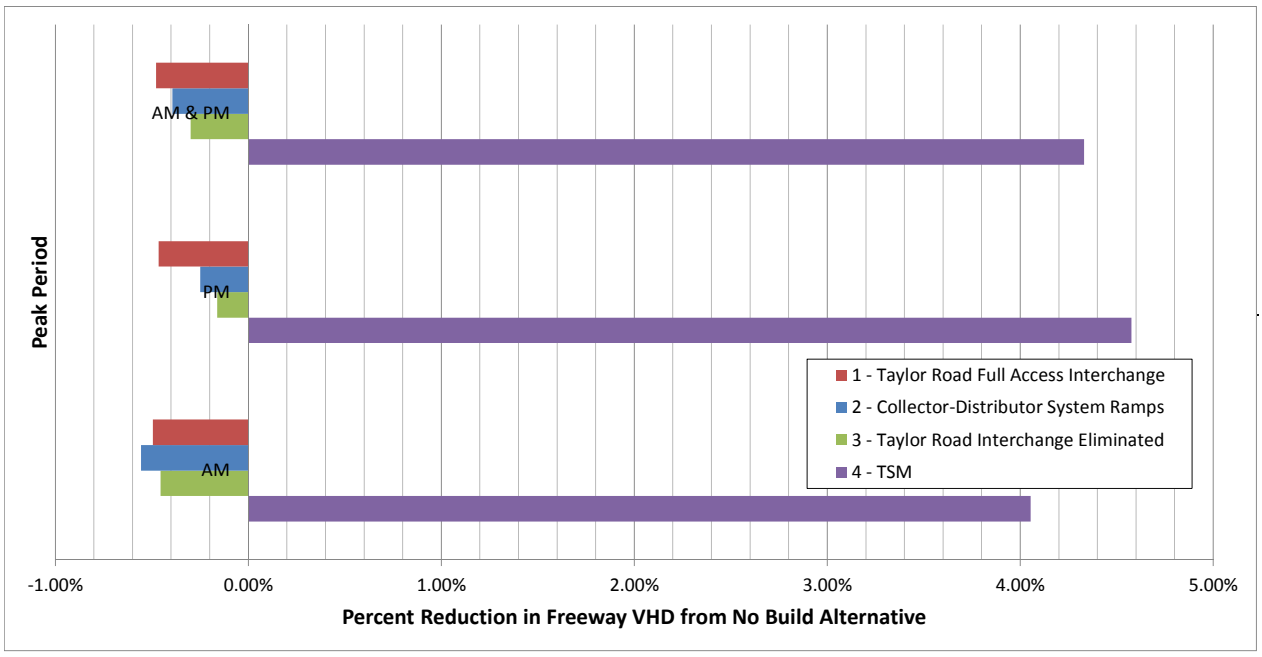


FIGURE 40 - CONSTRUCTION YEAR MESO-SCALE FREEWAY VHD COMPARISON

	Freeway Vehicle Hours of Delay*			% Change from No Build		
Alternative	**AM**	**PM**	**AM & PM**	**AM**	**PM**	**AM & PM**
1 - Taylor Road Full Access Interchange	3,730	4,210	7,940	-0.49%	-0.47%	-0.48%
2 - Collector-Distributor System Ramps	3,733	4,201	7,933	-0.56%	-0.25%	-0.39%
3 - Taylor Road Interchange Eliminated	3,729	4,197	7,926	-0.46%	-0.16%	-0.30%
4 - TSM	3,561	3,998	7,560	4.05%	4.58%	4.33%
5 - No Build	3,712	4,190	7,902	-	-	-





* Freeway VHD is measured only for freeway mainline links with an average speed less than 35 mph.

4.3.6. Induced Travel

The phenomenon where additional capacity leads to additional demand for travel is known as "induced travel." Induced travel occurs when the cost of travel is reduced (i.e., travel time reduction due to additional capacity) causing an increase in demand (more travelers using the improved facility). The reduction in travel time causes various responses by travelers, including diversion from other routes, changes in destinations, changes in mode, departure time shifts, and possibly the creation of new trips all together. As described previously, the SACMET and VISUM models have limitations, but they do account for most of the factors that influence induced travel (e.g., changes in route, mode, and destination). The main factors they do not fully account for is the potential generation of new trips and long-term induced land use growth.

Since the SACMET trip generation model was calibrated to 2008 base year conditions when vehicle trip making in the region was not constrained by congestion, pricing, or some other means, the model represents a full level of travel demand being generated by households and employment. This means that new trips being created as a result of a network change are very unlikely because there is no constraint preventing these trips from occurring.

Long-term induced land use growth is the one factor that may not be fully represented because there is no direct feedback process to the land use growth forecasts. However, as part of this project, land use growth was assessed by the PDT. The PDT increased the growth of households and employment in the study area recognizing this area has been planned for additional growth and the transportation improvements associated with this project are intended to help accommodate that growth.

Chapter 5. Traffic Operations Analysis

This section summarizes the traffic operations analysis results based on the VISSIM microsimulation traffic operations model (refer to Figure 8 for the VISSIM network limits). This analysis provides more detailed insights about peak period and peak hour traffic operations under each alternative. Technical calculations supporting the results can be found in the separately bound Technical Appendix. Design year analysis results are presented first followed by the construction year. All analysis was conducted with the same methodology described in Chapter 2. Further, the evaluation criteria from Chapter 2 were used to identify locations with deficient operations. For these locations, improvements are proposed that may be considered as project refinements or mitigation.

The project alternatives were analyzed previously using marginally different traffic forecasts and network assumptions. In that analysis, Alternative 4 (TSM) and Alternative 5 (No Build) performed significantly worse than the other alternatives and did not meet the project purpose and need. As a result, the traffic operations analysis for these alternatives was not updated. The Alternative 4 and 5 forecasts and Alternative 4 analysis results from the previous version are provided in the Technical Appendix. The analysis results presented here for Alternatives 1, 2, and 3 use the traffic demand forecasts presented in the previous chapter. For comparison, the Alternative 5 analysis results using the previous forecasts and network assumptions are provided below. The previous forecasts did not include the westbound I-80 auxiliary lane between Douglas Boulevard and Riverside Avenue. The Vissim network changes from the previous analysis are listed below.

- Widening of the eastbound approach to the Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps intersection
- Conversion of the I-80/Rocklin Road Interchange improvement project from the roundabout to the signal alternative
- Widening of the eastbound I-80 Rocklin Road off-ramp to two lanes
- Shortening the southbound auxiliary lane between Placer Parkway and Sunset Boulevard from the loop on-ramp to the slip on-ramp

5.1. **Design Year Conditions**

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 16 and 17 below, respectively.

TABLE 16: COMPARISON OF OVERALL NETWORK PERFORMANCE – DESIGN YEAR AM PEAK PERIOD

Performance Measure		Existing Conditions	Design Year Conditions			
			Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)		143,450 (100%)	207,230 (99%)	206,770 (99%)	206,770 (99%)	200,650 (95%)
VMT		645,270	920,910	921,610	915,790	831,280
PMT		786,260	1,106,120	1,110,890	1,100,400	1,004,060
VHT		13,760	21,450	21,190	21,450	26,470
VHD (% of VHT)		2,670 (19%)	5,560 (26%)	5,310 (25%)	5,660 (26%)	12,040 (46%)
Average Delay per Vehicle (min)		1.12	1.61	1.54	1.64	3.60
PHD		3,240	6,360	6,080	6,520	13,880
Average Speed		46.9	42.9	43.5	42.7	31.4
Average Speed for HOVs		47.0	46.8	47.5	46.1	36.2
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	14:59	14:31	14:09	9:29
	HOV	9:27	8:45	8:43	8:44	8:31

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

Reviewing the results in Tables 16 and 17 should consider the following information.

- Overall, the build alternatives improve overall network performance compared to no build conditions.
- The three build alternatives serve nearly all of the peak period demand volume, but Alternative 5 (No Build) does not. The performance metrics do not fully account for vehicles that could not enter the network during the peak periods.
- Alternative 2 (Collector-Distributor System Ramps) has slightly lower delay and higher average speed during the AM peak period than the other two build alternatives. Compared to Alternative 1 (Taylor Road Full Access Interchange), Alternative 2 has fewer freeway ramps, which minimizes freeway congestion. Although Alternative 3 (Taylor Road Interchange Eliminated) has even fewer ramps, the local system is more congested offsetting the benefit to the freeway network.
- The PM peak period results reveal that Alternative 1 serves the most vehicles while having the lowest delay for vehicles and persons, as well as the lowest travel times for SOVs and HOVs. In this case, the higher number of ramps disperses traffic more evenly from the freeway network resulting in less congestion.

TABLE 17: COMPARISON OF OVERALL NETWORK PERFORMANCE – DESIGN YEAR PM PEAK PERIOD

Performance Measure		Existing Conditions	Design Year Conditions			
			Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)		198,170 (101%)	300,410 (100%)	300,020 (100%)	300,690 (100%)	259,410 (86%)
VMT		730,100	1,114,000	1,109,610	1,110,480	863,410
PMT		880,180	1,355,200	1,349,510	1,352,230	1,071,230
VHT		16,850	29,970	30,790	30,680	43,430
VHD (% of VHT)		3,950 (23%)	10,300 (34%)	11,210 (36%)	11,080 (36%)	28,070 (65%)
Average Delay per Vehicle (min)		1.20	2.06	2.24	2.21	6.49
PHD		4,670	12,020	13,020	12,900	32,910
Average Speed		43.3	37.2	36.0	36.2	19.9
Average Speed for HOVs		44.7	40.8	40.1	40.1	24.7
Travel Time: Auburn Blvd to Blue Oaks Blvd	SOV	9:16	7:52	9:38	9:07	45:38
	HOV	9:11	6:28	6:30	6:29	15:38

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

- The AM peak-hour SOV travel time from Blue Oaks Boulevard to Antelope Road for the build alternatives (1, 2, and 3) is worse under design year conditions than existing conditions. Even with a future project to provide an auxiliary lane from Douglas Boulevard to Riverside Avenue, this location is predicted to be a bottleneck. (Alternative 5 shows a better travel time for SOVs primarily due to different forecasts as noted above.)
- The PM peak-hour SOV travel time from Auburn Boulevard to Blue Oaks Boulevard for the build alternatives is similar or better under design year than existing conditions. The improvement is due to auxiliary lane and HOV lane improvements that are common to all alternatives.
- AM and PM HOV travel times are better than existing conditions for all build alternatives.

Specific details about design year freeway and arterial intersection operations are discussed in more detail in the following sections.

5.1.1. Freeway Operations

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM and 4:30 to 5:30 PM) of the four hour AM and PM peak periods. The AM and PM peak-hour served volume and percentage of the demand volume are listed in Table 18. The AM and PM peak hour results for select

locations are reported in Tables 19 and 20, respectively. The full set of results is available in the Technical Appendix. Figures 41 through 48 display the average speed in the mixed-flow lanes throughout the network during the peak periods for each alternative.

TABLE 18: FREEWAY SERVED VOLUME AND PERCENT DEMAND SERVED – DESIGN YEAR AM AND PM PEAK HOUR CONDITIONS

Freeway Section	Alternative 1		Alternative 2		Alternative 3		Alternative 5	
	AM	PM	AM	PM	AM	PM	AM	PM
Eastbound I-80: Douglas Blvd to Eureka Rd	8,082 109%	9,169 100%	8,229 110%	9,124 100%	8,089 109%	8,928 100%	6,263 93%	4,403 52%
Eastbound I-80: Eureka Rd to Taylor Rd/SR 65	7,986 109%	9,947 100%	8,379 112%	9,934 99%	8,018 101%	9,600 99%	5,129 88%	4,706 59%
Eastbound I-80: SR 65 to Rocklin Rd	4,933 108%	6,031 98%	5,019 111%	6,011 98%	5,025 109%	6,021 98%	4,093 91%	3,900 67%
Westbound I-80: Rocklin Rd to SR 65	5,388 104%	5,476 106%	5,328 104%	5,422 106%	5,472 103%	5,583 105%	5,272 103%	4,648 90%
Westbound I-80: SR 65/Taylor Rd to Atlantic St	8,747 103%	7,929 102%	9,071 104%	8,083 102%	8,583 103%	7,771 102%	7,685 95%	6,159 84%
Westbound I-80: Atlantic St to Douglas Blvd	7,982 101%	7,211 97%	8,016 101%	7,374 99%	7,899 101%	7,252 98%	6,990 93%	5,670 80%
Northbound SR 65: I-80 to Stanford Ranch Rd	6,507 107%	8,034 101%	6,592 109%	7,905 99%	6,502 107%	8,164 100%	4,219 72%	4,397 69%
Northbound SR 65: Stanford Ranch Rd to Pleasant Grove Blvd	5,979 107%	7,329 99%	6,151 110%	7,277 97%	5,942 107%	7,283 98%	4,602 73%	5,046 78%
Northbound SR 65: Pleasant Grove Blvd to Blue Oaks Blvd	5,336 108%	6,404 98%	5,551 112%	6,341 97%	5,342 109%	6,349 97%	4,366 73%	4,941 79%
Southbound SR 65: Blue Oaks Blvd to Pleasant Grove Blvd	5,796 104%	5,545 100%	5,773 95%	5,613 101%	5,781 103%	5,600 101%	5,355 113%	4,857 88%
Southbound SR 65: Pleasant Grove Blvd to Galleria Blvd	6,505 104%	6,462 100%	6,483 96%	6,534 101%	6,461 103%	6,537 101%	5,615 110%	5,461 88%
Southbound SR 65: Galleria Blvd to I-80	6,631 104%	6,689 100%	6,535 97%	6,711 99%	6,605 104%	6,845 99%	5,067 110%	4,866 85%

Note: The served volume in vehicles per hour is reported.
Source: Fehr & Peers, 2014

TABLE 19: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
EB I-80	Auburn Blvd On-ramp	Merge	D / 33	E / 36	D / 33	**F / 55**
	Auburn Blvd to Douglas Blvd	Basic	E / 40	E / 37	E / 39	**F / 78**
	Douglas Blvd EB Off-ramp	Diverge	D / 31	D / 29	D / 33	**F / 71**
	Douglas Blvd WB Off-ramp	Diverge	C / 26	C / 26	E / 36	**F / 127**
	Douglas Blvd On-ramp	Merge	D / 35	C / 26	C / 26	**F / 153**
	Eureka Rd Off-ramp	Diverge	E / 37			**F / 114**
	Eureka Rd to SR 65	Weave	C / 23	D / 30	D / 31	**F / 131**
	Taylor Rd Off-ramp	Diverge	B / 16	-	-	
	SR 65 Off-ramp	Diverge	-	C / 25	C / 25	**F / 86**
	SR 65 On-ramp	Merge	D / 30	D / 30	D / 30	B / 20
WB I-80	Rocklin Rd to HOV Lane Start	Basic	D / 32	D / 31	D / 32	D / 29
	SR 65 Off-ramp	Diverge	C / 24	C / 22	C / 23	C / 27
	SR 65 to Atlantic St	Weave	**F / 90**	**F / 83**	**F / 78**	C / 27
	Atlantic St EB Off-ramp	Diverge	**F / 112**	**F / 107**	**F / 111**	**F / 53**
	Atlantic St On-ramp	Merge	**F / 75**	**F / 73**	**F / 77**	C / 28
	Douglas Blvd Off-ramp	Diverge	**F / 63**	**F / 60**	**F / 63**	C / 21
	Douglas Blvd WB On-ramp	Merge	**F / 113**	**F / 113**	**F / 112**	C / 25
	Douglas Blvd EB On-ramp	Merge	**F / 77**	**F / 76**	**F / 76**	C / 23
	Truck Scales to Elkhorn Blvd	Basic	**F / 56**	**F / 57**	**F / 55**	E / 39
	Elkhorn Blvd WB On-ramp	Merge	**F / 72**	**F / 55**	**F / 80**	C / 28
	Elkhorn Blvd EB On-ramp	Merge	**F / 67**	**F / 61**	**F / 71**	E / 39

TABLE 19: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3	Alternative 5
NB SR 65	I-80 to Stanford Ranch Rd	Weave	C / 27	C / 26	C / 26	**F / 57**
	Stanford Ranch Rd On-ramp	Merge	**F / 61**	**F / 57**	**F / 61**	D / 30
	Pleasant Grove Blvd Off-ramp	Diverge	E / 40	E / 39	E / 40	
	Whitney Ranch Pkwy WB On-ramp	Merge	C / 26	D / 30	C / 25	C / 24
	Twelve Bridges Dr Off-ramp	Diverge	D / 30	D / 33	D / 28	C / 26
SB SR 65	Ferrari Ranch Rd EB On-ramp	Merge	**F / 133**	**F / 97**	**F / 104**	C / 24
	Lincoln Blvd to Twelve Bridges Dr	Weave	**F / 87**	**F / 87**	**F / 87**	E / 37
	Twelve Bridges Dr On-ramp	Merge	**F / 73**	**F / 74**	**F / 73**	**F / 61**
	Placer Pkwy WB On-ramp	Merge	**F / 54**	E / 42	E / 43	C / 28
	Sunset Blvd WB On-ramp	Merge	E / 36	E / 37	E / 36	E / 43
	Blue Oaks Blvd WB On-ramp	Merge	E / 43	E / 37	E / 36	D / 34
	Pleasant Grove Blvd EB On-ramp	Merge	E / 38	E / 36	D / 34	E / 44
	Galleria Blvd Off-ramp	Diverge	D / 29	D / 29	D / 29	**F / 55**
	Galleria Blvd to I-80	Weave	C / 26	C / 26	C / 28	**F / 77**

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
[1] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

Source: Fehr & Peers, 2014

TABLE 20: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
EB I-80	Auburn Blvd On-ramp	Merge	C / 28	D / 29	E / 36	**F / 164**
	Auburn Blvd to Douglas Blvd	Basic	D / 33	D / 33	E / 37	**F / 154**
	Douglas Blvd EB Off-ramp	Diverge	E / 37	D / 30	E / 37	**F / 107**
	Douglas Blvd WB Off-ramp	Diverge	D / 30	C / 27	E / 39	**F / 180**
	Douglas Blvd On-ramp	Merge	E / 35	C / 27	C / 26	**F / 181**
	Eureka Rd Off-ramp	Diverge	E / 38			**F / 149**
	Eureka Rd to SR 65	Weave	C / 27	D / 32	D / 33	**F / 142**
	Taylor Rd Off-ramp	Diverge	B / 17	-	-	
	SR 65 Off-ramp	Diverge	-	C / 25	C / 28	**F / 65**
	SR 65 On-ramp	Merge	D / 33	D / 32	D / 33	C / 21
WB I-80	Rocklin Rd to HOV Lane Start	Basic	E / 36	E / 37	E / 40	**F / 113**
	SR 65 Off-ramp	Diverge	C / 23	C / 21	C / 22	**F / 114**
	SR 65 to Atlantic St	Weave	E / 39	C / 24	D / 28	E / 41
	Atlantic St EB Off-ramp	Diverge	**F / 91**	**F / 51**	E / 39	**F / 61**
	Atlantic St On-ramp	Merge	**F / 84**	**F / 79**	**F / 61**	**F / 100**
	Douglas Blvd Off-ramp	Diverge	**F / 77**	**F / 71**	**F / 70**	**F / 108**
	Douglas Blvd WB On-ramp	Merge	**F / 114**	**F / 111**	**F / 114**	C / 20
	Douglas Blvd EB On-ramp	Merge	**F / 74**	**F / 75**	**F / 73**	B / 15
	Truck Scales to Elkhorn Blvd	Basic	D / 29	D / 29	D / 29	C / 21
	Elkhorn Blvd WB On-ramp	Merge	C / 26	C / 26	C / 26	B / 18
	Elkhorn Blvd EB On-ramp	Merge	D / 29	D / 28	D / 28	C / 22

TABLE 20: SELECTED FREEWAY OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

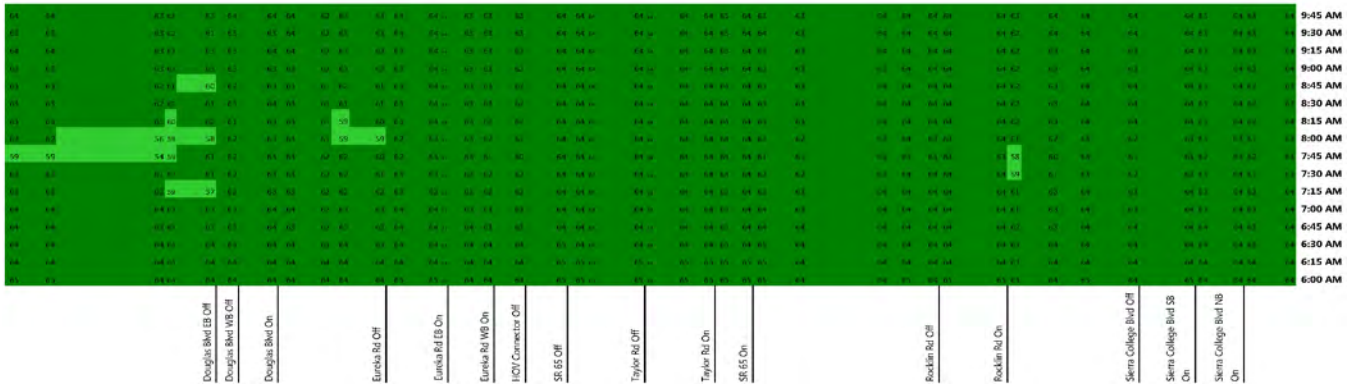
Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3	Alternative 5
NB SR 65	I-80 to Stanford Ranch Rd	Weave	E / 44	**F / 71**	**F / 65**	**F / 84**
	Stanford Ranch Rd On-ramp	Merge	**F / 73**	**F / 75**	**F / 72**	D / 30
	Pleasant Grove Blvd Off-ramp	Diverge	D / 33	D / 34	D / 34	
	Whitney Ranch Pkwy WB On-ramp	Merge	E / 37	E / 35	E / 41	D / 29
	Twelve Bridges Dr Off-ramp	Diverge	E / 37	E / 37	E / 38	D / 30
SB SR 65	Ferrari Ranch Rd EB On-ramp	Merge	B / 13	B / 13	B / 13	B / 16
	Lincoln Blvd to Twelve Bridges Dr	Weave	C / 22	C / 22	C / 23	C / 21
	Twelve Bridges Dr On-ramp	Merge	C / 27	C / 28	C / 28	C / 25
	Placer Pkwy WB On-ramp	Merge	C / 24	C / 24	C / 24	B / 18
	Sunset Blvd WB On-ramp	Merge	D / 29	D / 29	D / 29	D / 32
	Blue Oaks Blvd WB On-ramp	Merge	D / 32	D / 33	D / 32	C / 28
	Pleasant Grove Blvd EB On-ramp	Merge	D / 30	D / 32	D / 32	D / 29
	Galleria Blvd Off-ramp	Diverge	D / 29	D / 30	D / 30	D / 33
	Galleria Blvd to I-80	Weave	C / 25	C / 25	C / 26	E / 39

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
[1] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

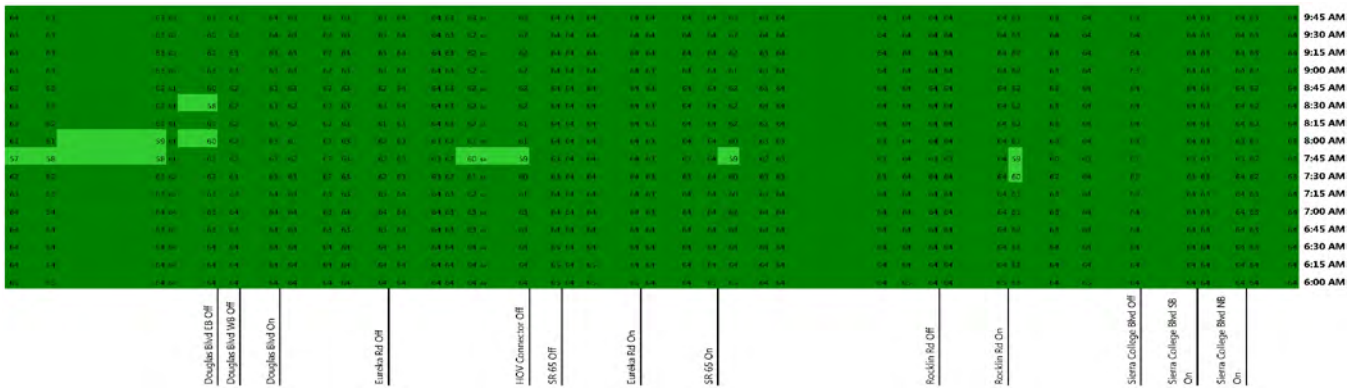
Source: Fehr & Peers, 2014

FIGURE 41 – EASTBOUND I-80 DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

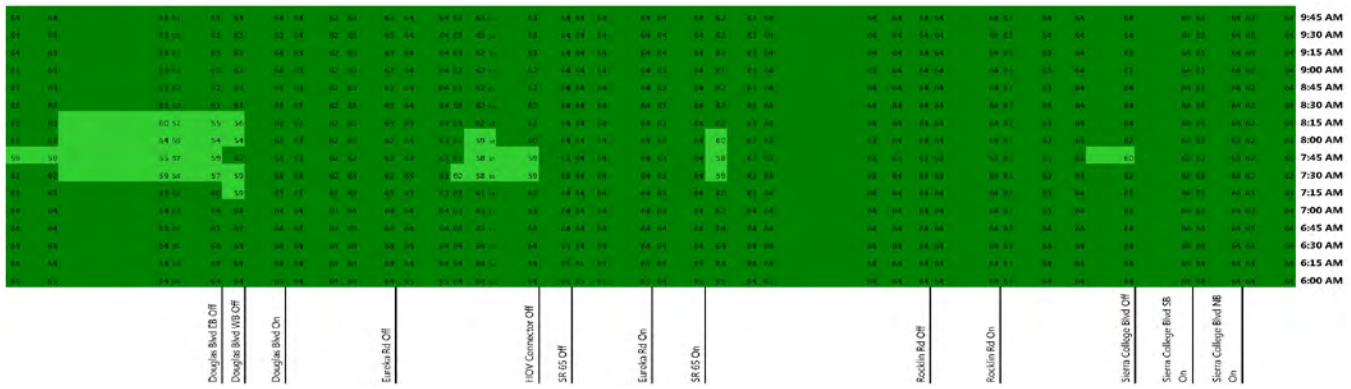
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

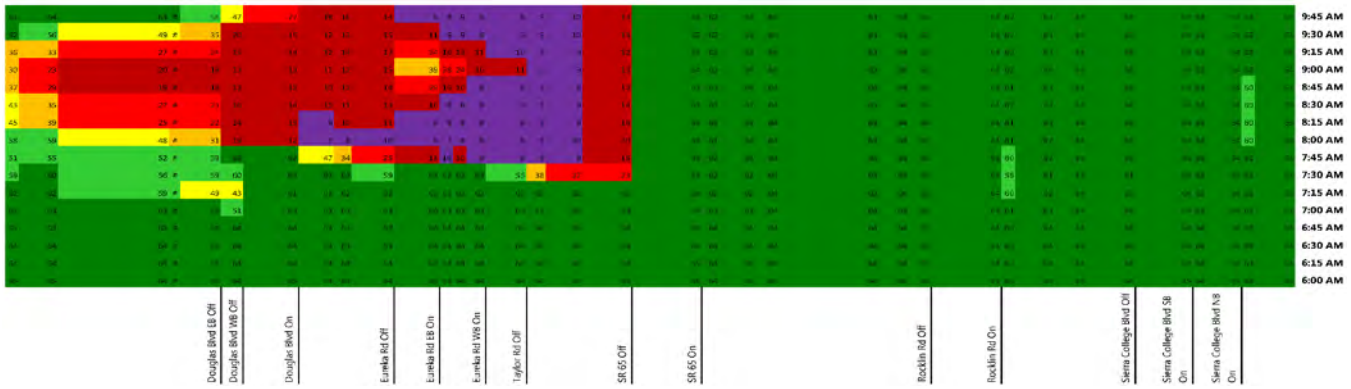
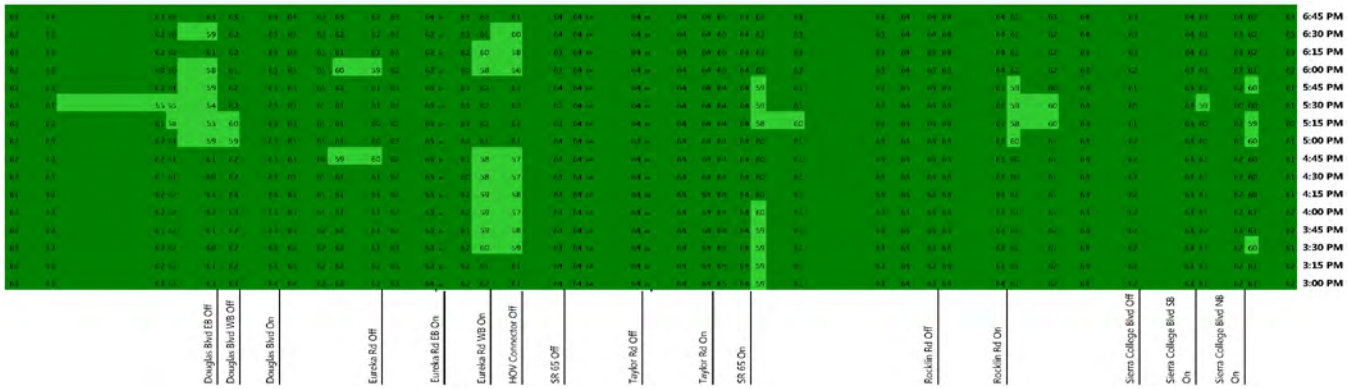
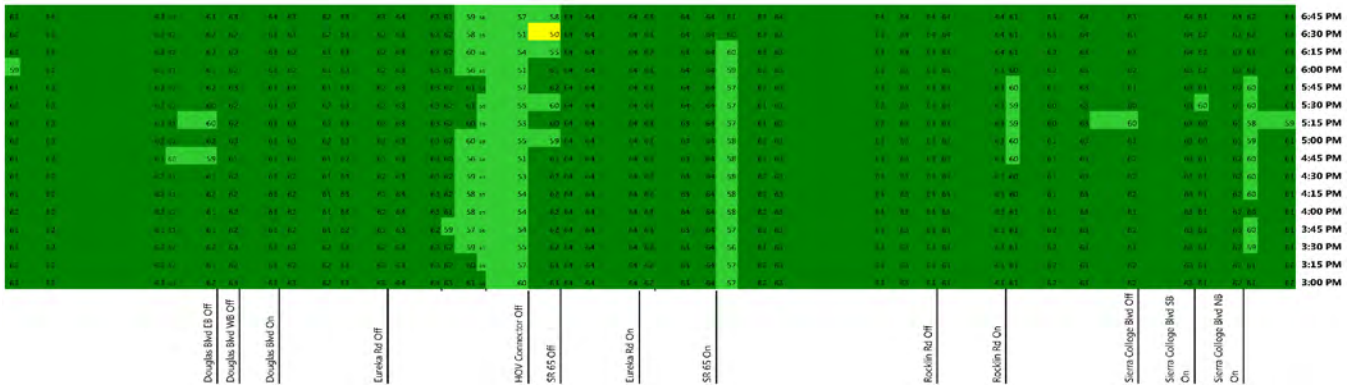


FIGURE 42 – EASTBOUND I-80 DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

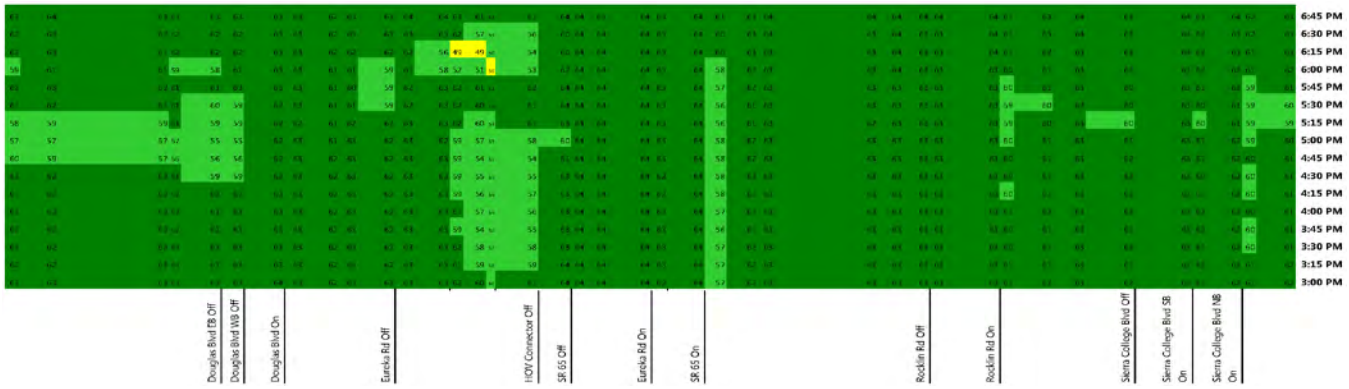
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

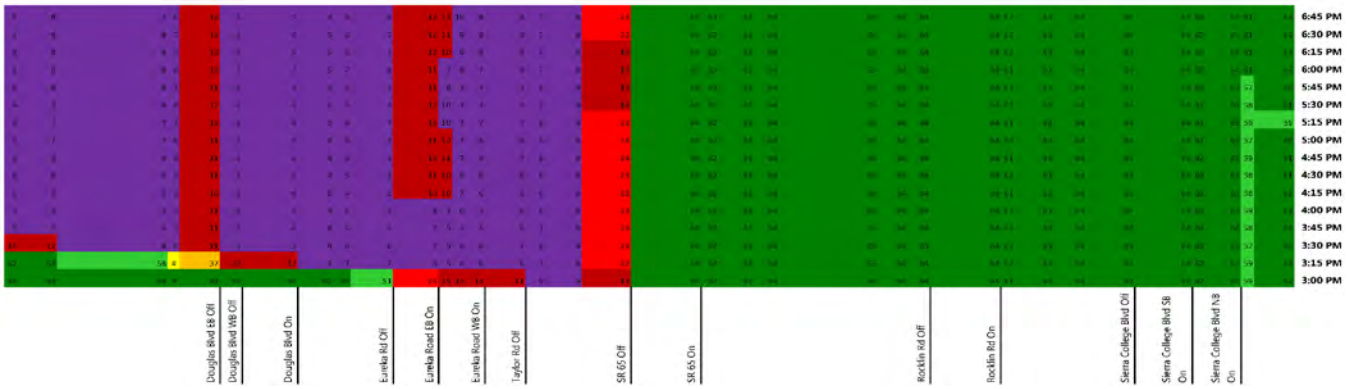
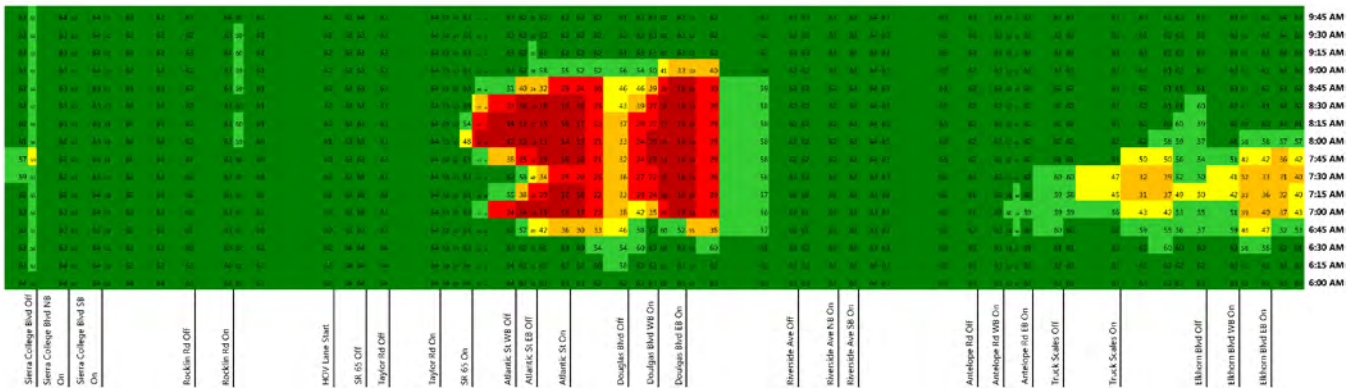
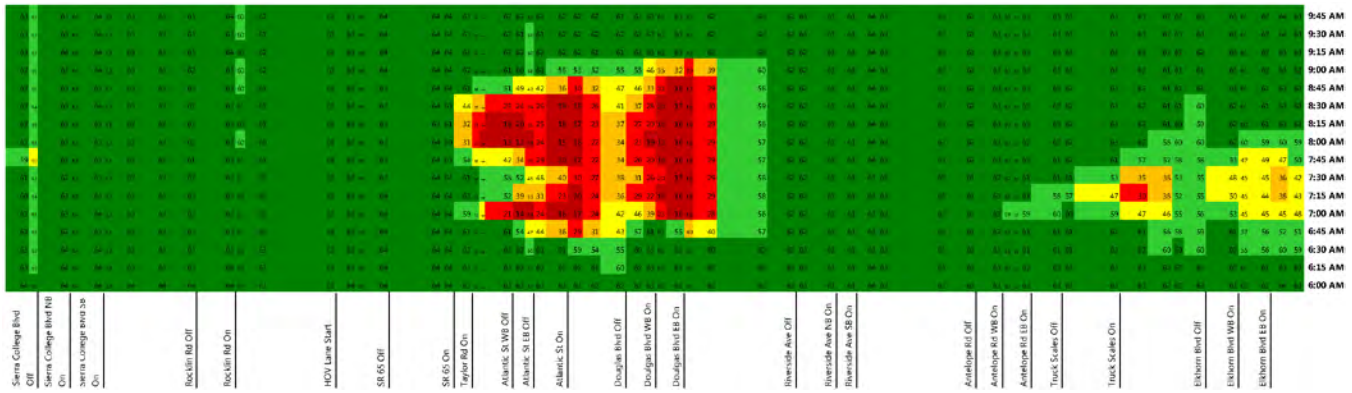


FIGURE 43 – WESTBOUND I-80 DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

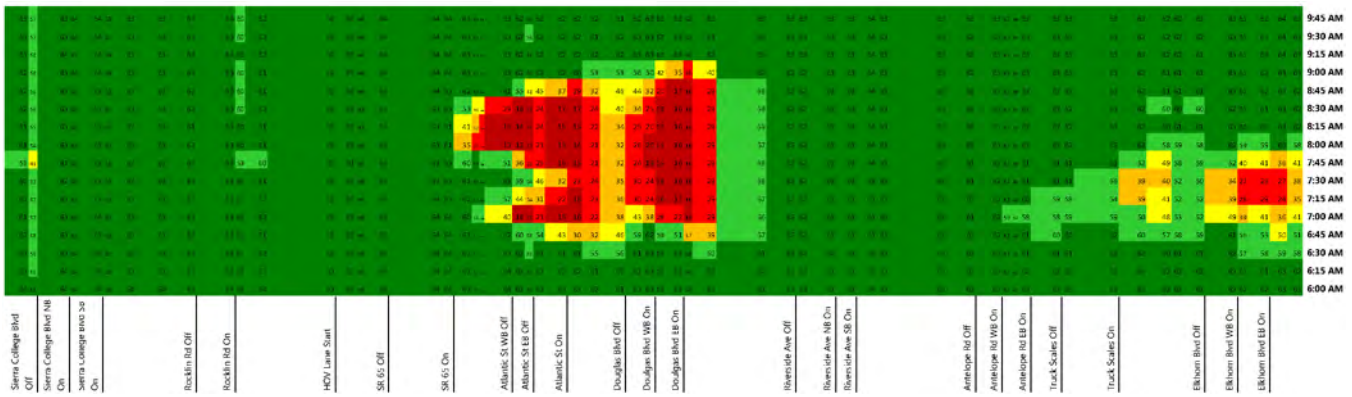
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

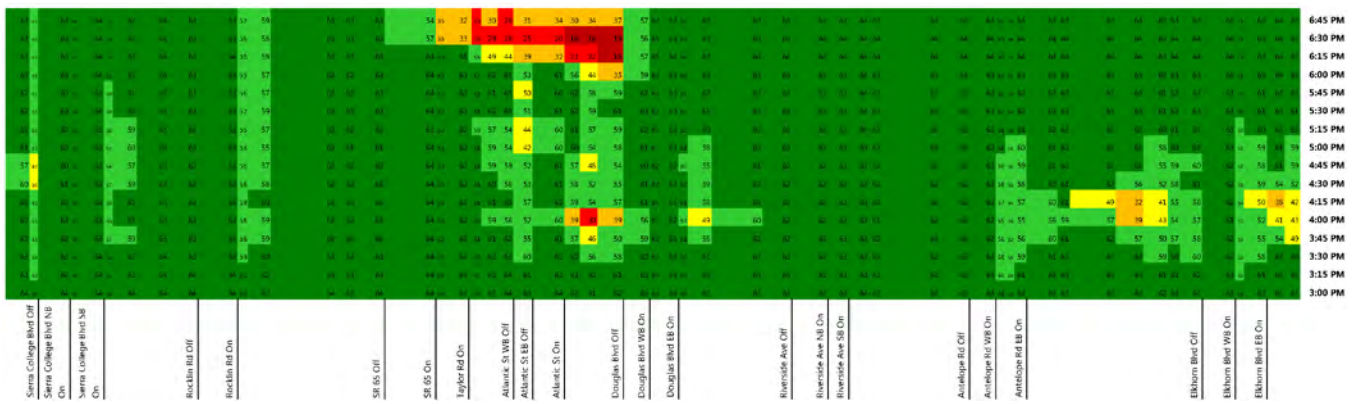
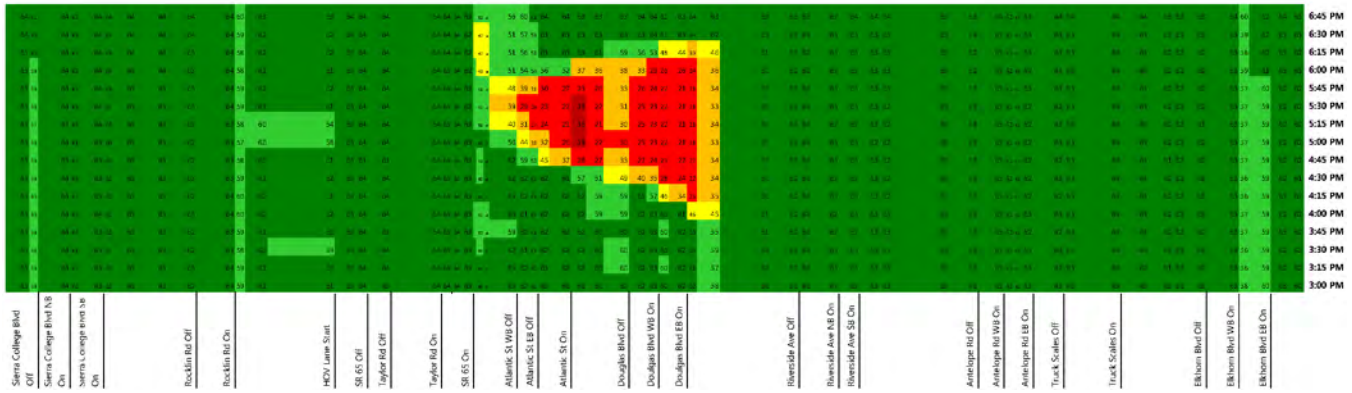
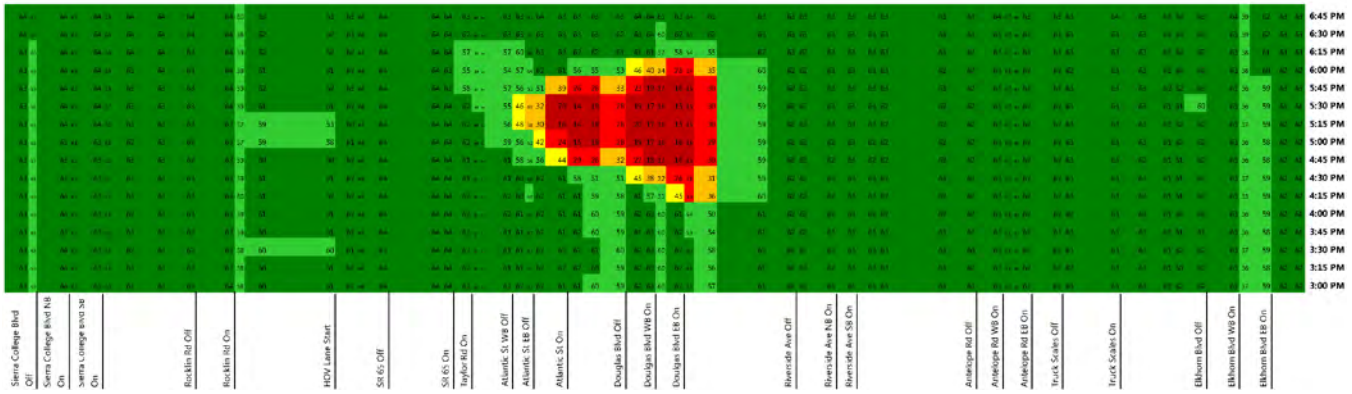


FIGURE 44 – WESTBOUND I-80 DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

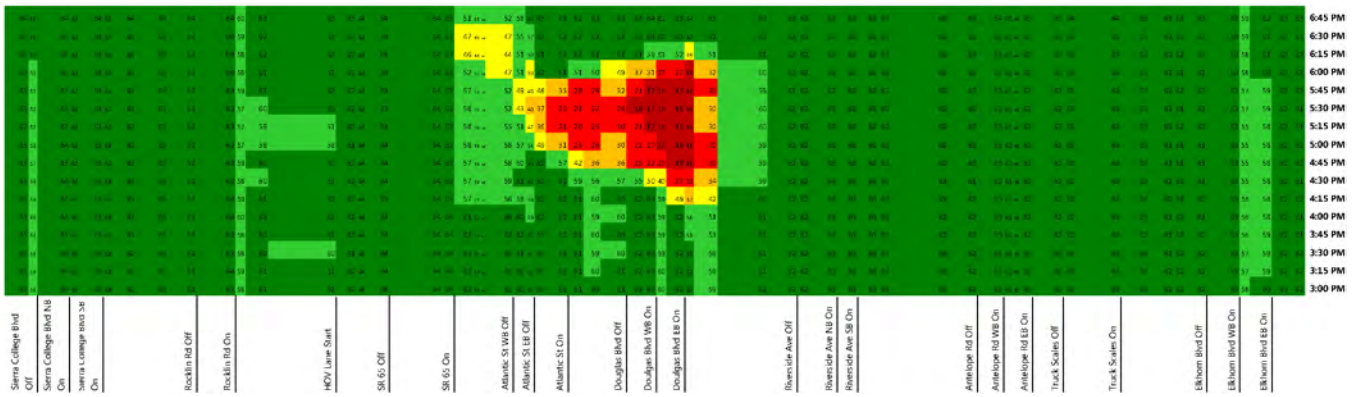
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

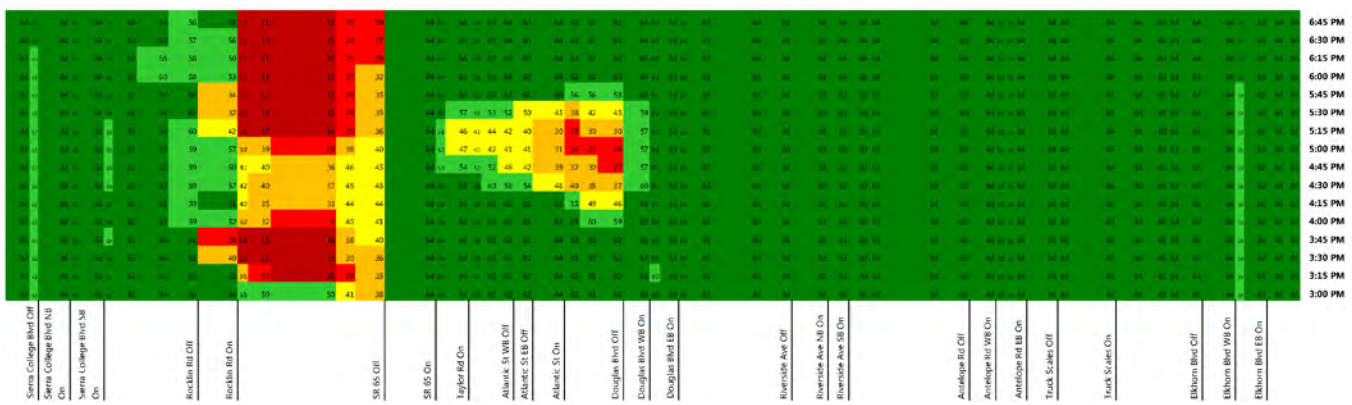
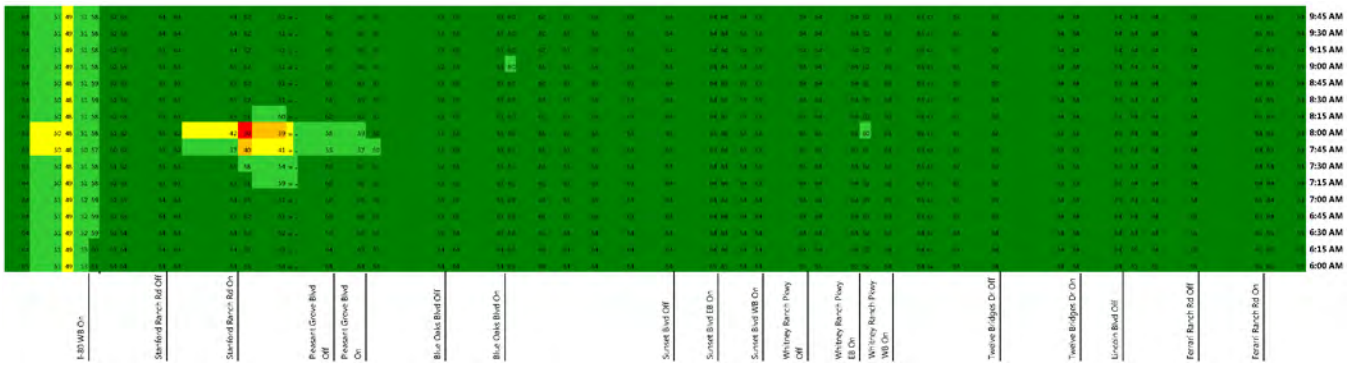
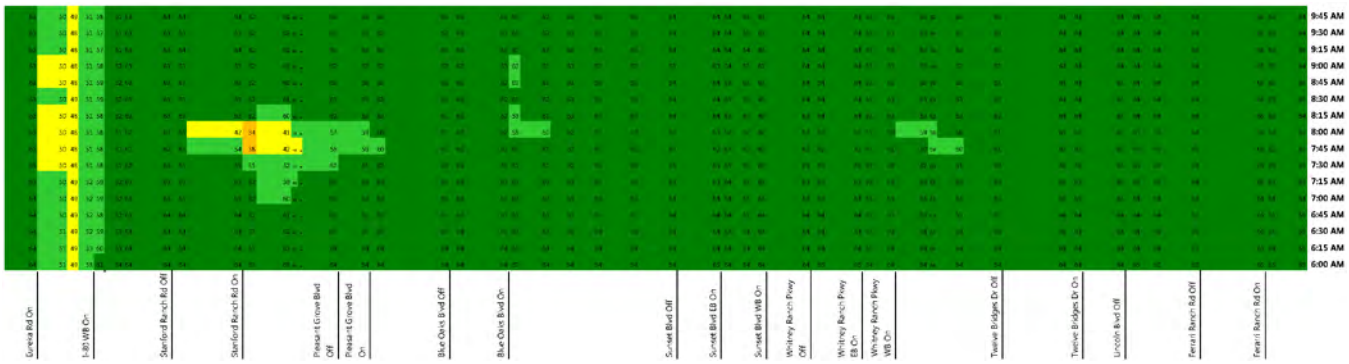


FIGURE 45 – NORTHBOUND SR 65 DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

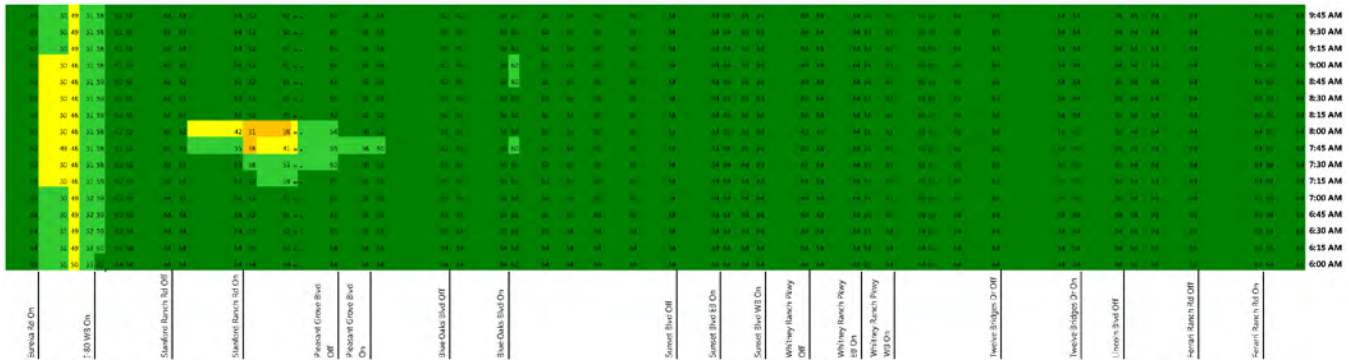
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

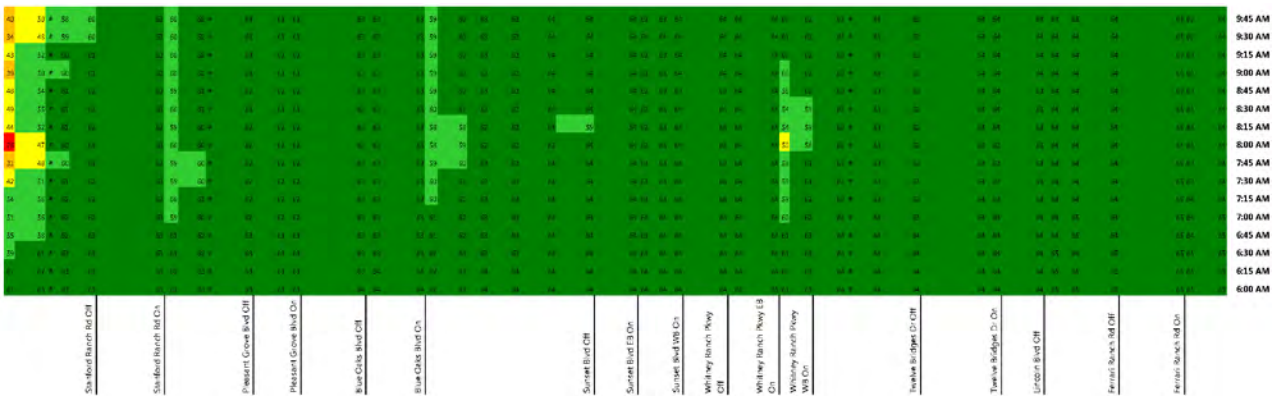
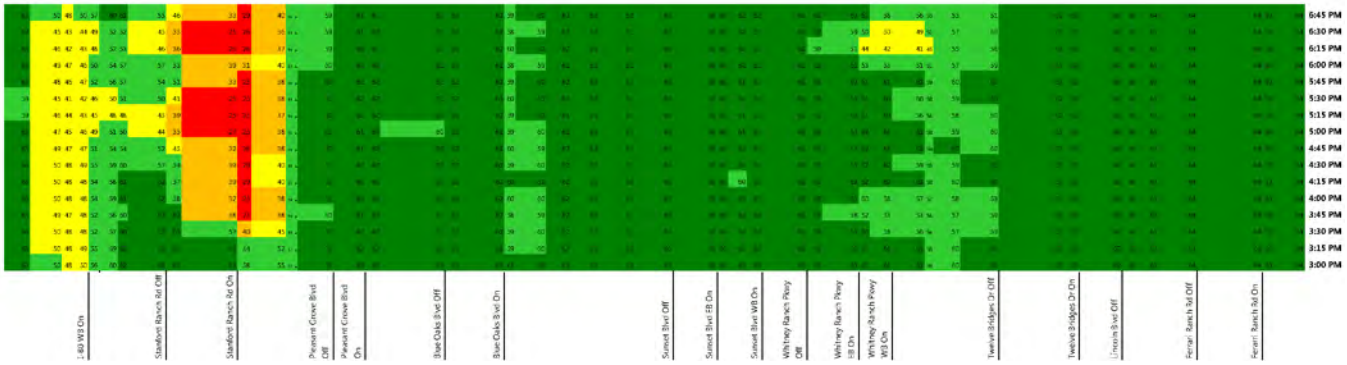
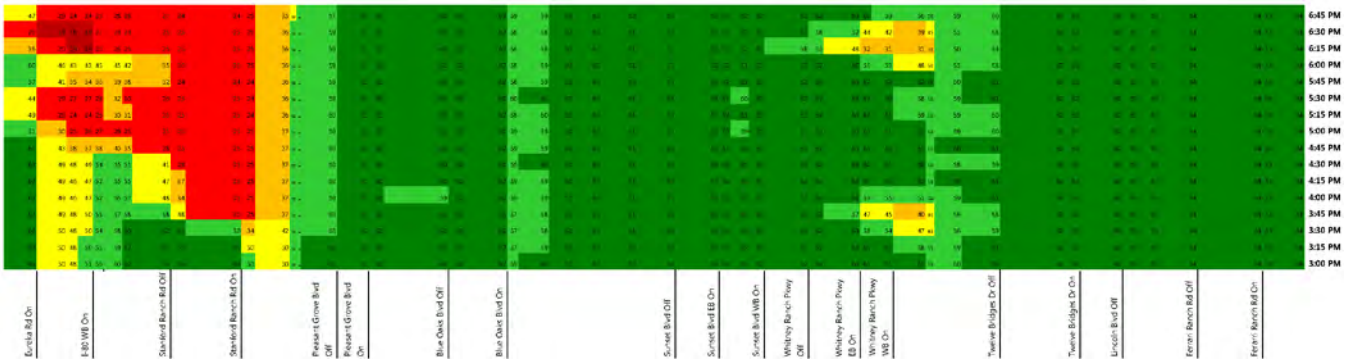


FIGURE 46 – NORTHBOUND SR 65 DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

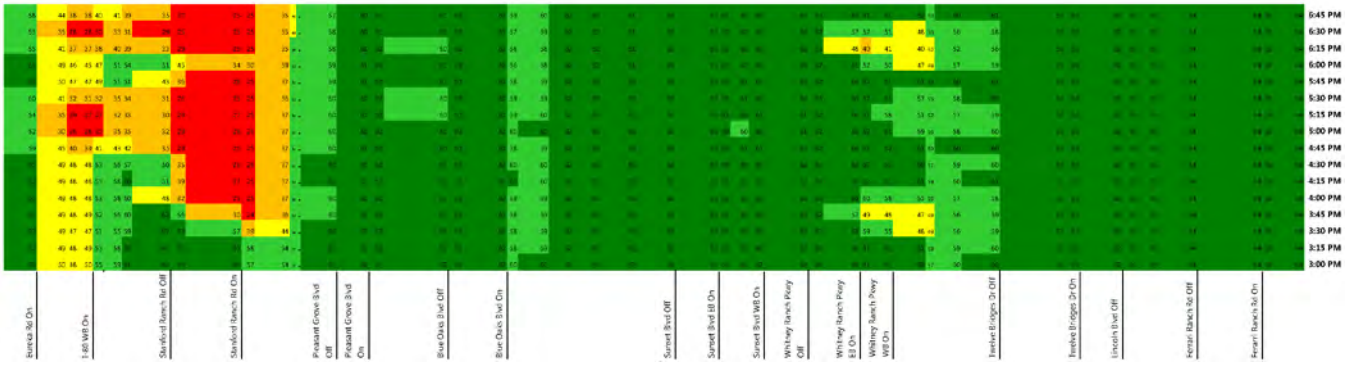
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

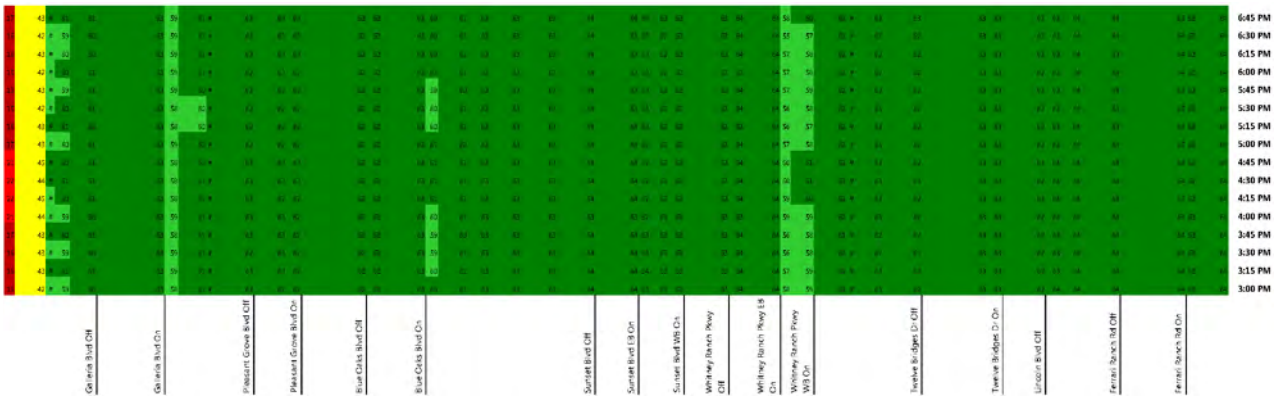
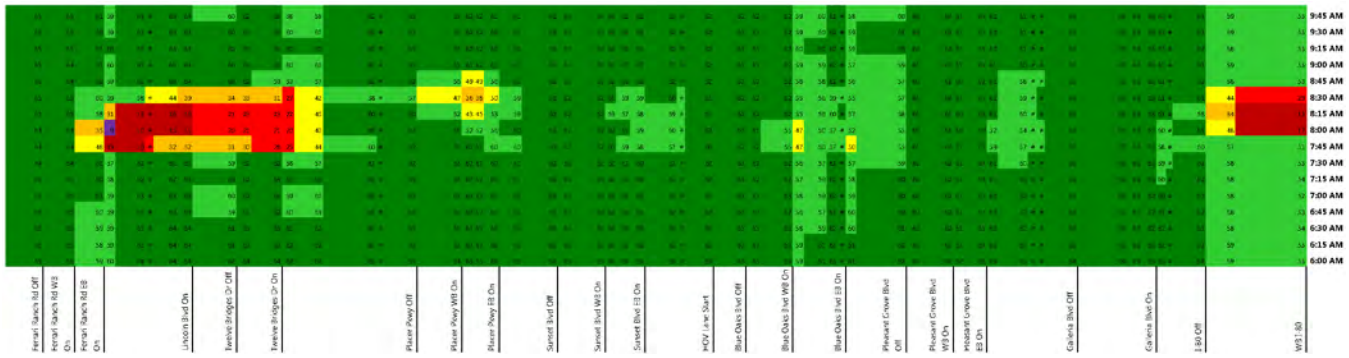
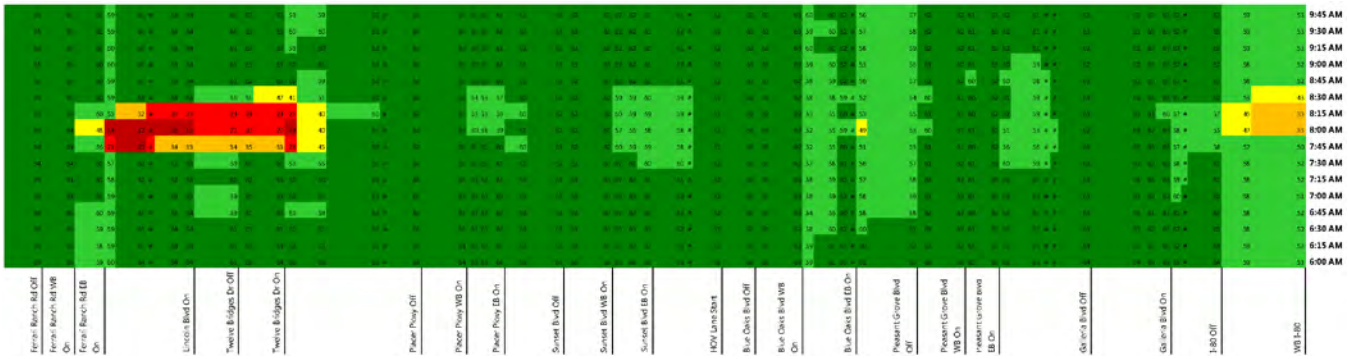


FIGURE 47 – SOUTHBOUND SR 65 DESIGN YEAR AM PEAK PERIOD SPEED CONTOUR MAP

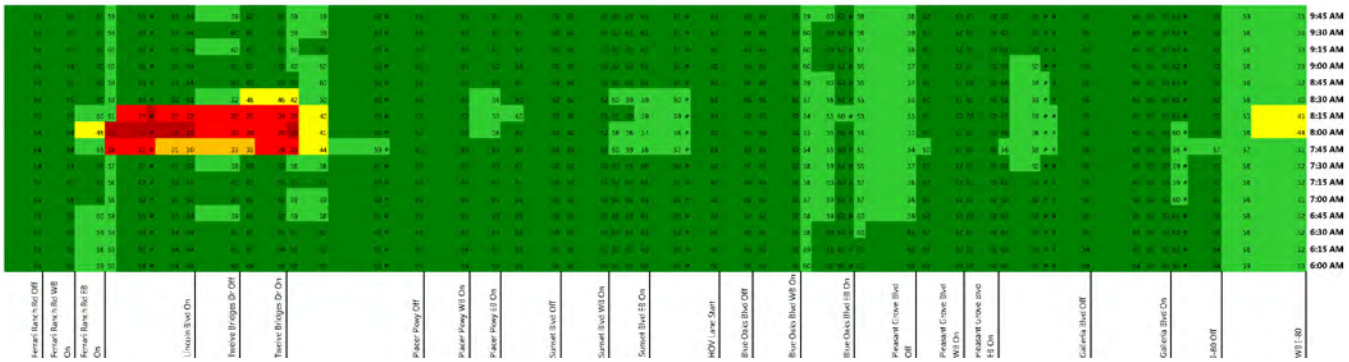
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

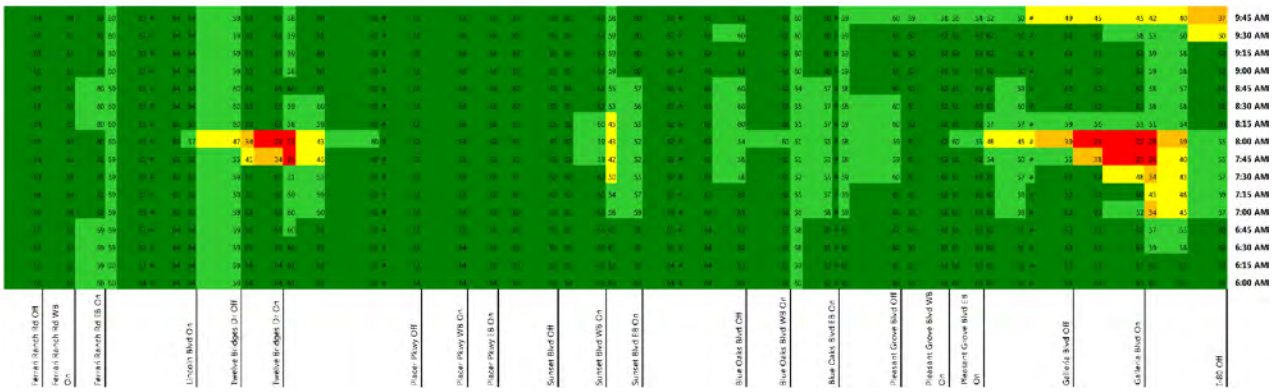
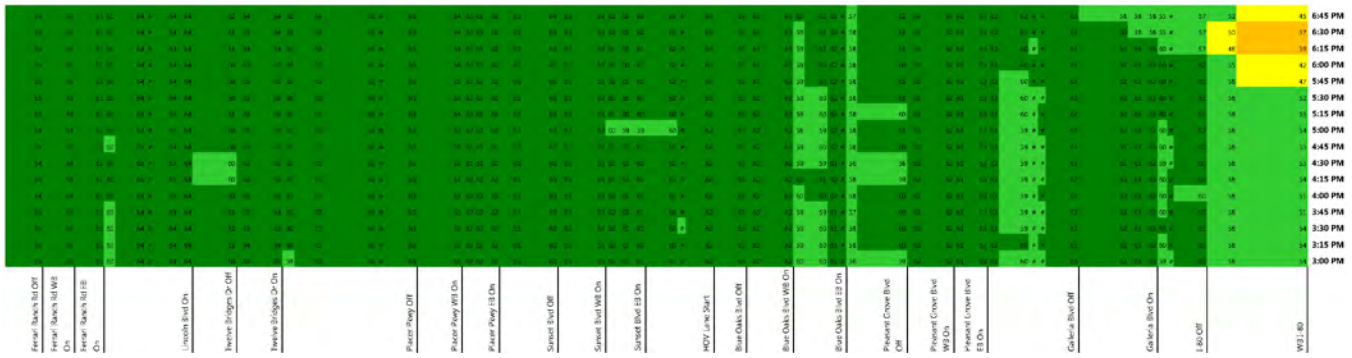
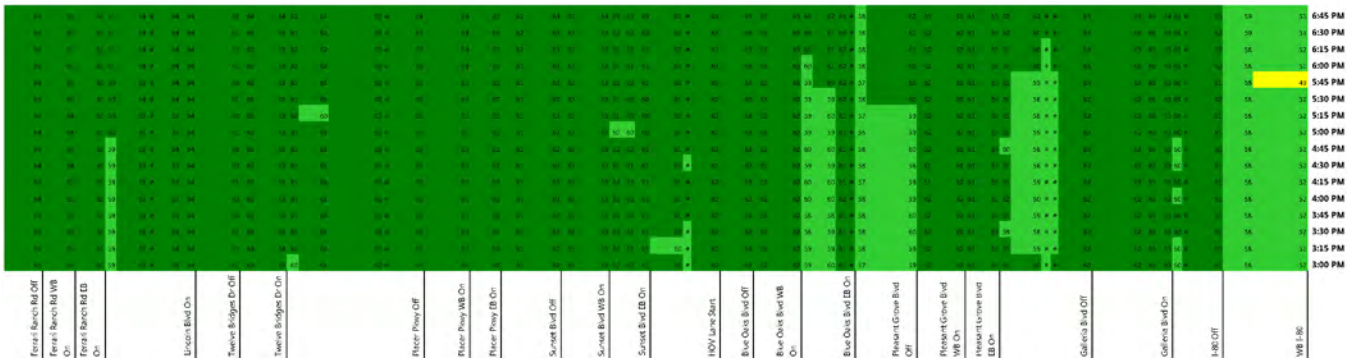


FIGURE 48 – SOUTHBOUND SR 65 DESIGN YEAR PM PEAK PERIOD SPEED CONTOUR MAP

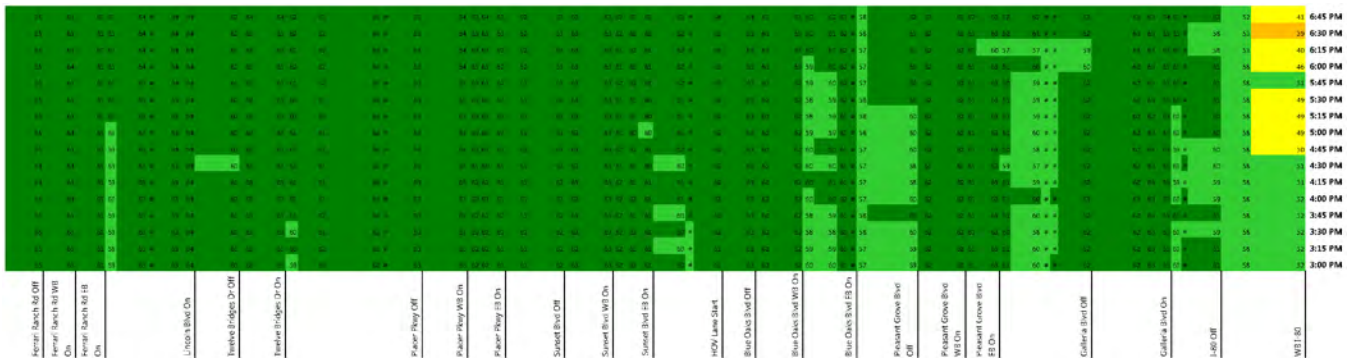
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



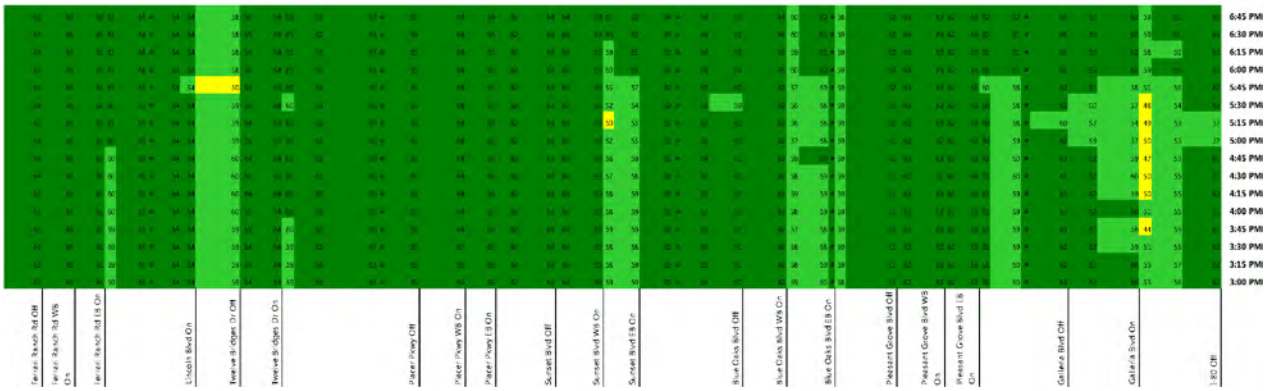
COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)



Eastbound I-80

The freeway operations results indicate the No Build alternative would result in LOS F operations on I-80 in the eastbound direction between the beginning of the analysis area at Auburn Blvd and the SR 65 off-ramp during the AM and PM peak periods. The speed for vehicles in the mixed flow lanes would be less than 10 mph for most of this section, and about 60 percent of the demand would be served in the PM peak hour. All of the build alternatives provide significant congestion relief in both the AM and peak periods; therefore, no deficiencies occur on eastbound I-80. Most segments would operate with LOS D or better conditions. Under all build alternatives, LOS E would occur between Auburn Boulevard and Douglas Boulevard. Unlike the LOS D conditions under the other two build alternatives, Alternative 1 (Taylor Road Full Access Interchange) would have LOS E between Douglas Boulevard and Eureka Road since no auxiliary lane would be constructed. During the PM peak hour, Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated) would have minor slowing (less than 30 minutes) due to congestion from the SR 65 northbound connector ramp.

Westbound I-80

During the AM peak period, congestion would occur between SR 65 and Douglas Boulevard and between the truck scales and Elkhorn Boulevard. The build alternatives would have LOS F from the SR 65 to Atlantic Street weaving section to the eastbound Douglas Boulevard on-ramp. In contrast, the Alternative 5 (No Build) would have LOS F only at the eastbound Atlantic Street off-ramp. The difference is caused in part by different forecast assumptions (as discussed above) and in part by upstream congestion on southbound SR 65 between Pleasant Grove Boulevard and Galleria Boulevard. The proposed project (Alternatives 1, 2, and 3) would result in impacts at the following locations on westbound I-80 in the AM peak hour.

- From the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp
- Truck Scales off-ramp to on-ramp (Alternative 1 only)
- From the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp

To mitigate the impact for the section from SR 65 through Douglas Boulevard, an additional through lane could be constructed at the Douglas Boulevard and Riverside Avenue interchanges. This capacity improvement may have secondary impacts downstream at Elkhorn Boulevard. An alternate mitigation would be to use more restrictive metering of westbound I-80 and southbound SR 65 on-ramps, and potentially installing a meter signal on the southbound SR 65 to westbound I-80 connector.

The impact to the section from the truck scales to Elkhorn Boulevard could be mitigated by providing additional mainline capacity such as a continuous auxiliary lane between the truck scales on-ramp and Elkhorn Boulevard off-ramp or more restrictive metering on-ramps. More restrictive metering for ramps

at Elkhorn Boulevard, Antelope Road, and Riverside Avenue could cause queuing that would extend onto the local street network.

During the PM peak hour, LOS F conditions would occur between Atlantic Street and Douglas Boulevard under Alternatives 1, 2, and 3. For Alternative 5 (No Build), LOS F would also occur in this area, the upstream section between Rocklin Road and SR 65 would also have LOS F. Under Alternative 5, congestion on SR 65 northbound would spill back onto westbound I-80 for longer than the four-hour peak period. This bottleneck would constrain westbound through volumes (95 percent demand served downstream after SR 65) which would result in better conditions downstream for the no build alternative compared to the build alternatives. The proposed project (Alternatives 1, 2, and 3) would result in impacts on westbound I-80 in the PM peak hour at Atlantic Street and at Douglas Boulevard. The potential mitigations are the same as discussed above: mainline widening at Douglas Boulevard and Riverside Avenue or more restrictive ramp meter operation.

Northbound SR 65

During the AM peak hour, Alternatives 1, 2, and 3 would have LOS F conditions at Stanford Ranch Road. The lane drop at the Pleasant Grove Boulevard off-ramp would be the bottleneck. Despite the LOS F conditions, the congested period would last for about 30 minutes (see Figure 45). Alternative 5 (No Build) would have in LOS F conditions at the I-80 westbound on-ramp to northbound SR 65. This bottleneck would constrain traffic (72 percent demand served) such that the downstream segments at Stanford Ranch Road would have LOS D conditions. The proposed project (Alternatives 1, 2, and 3) would result in an impact at the following locations.

- Stanford Ranch Road off-ramp to on-ramp
- Stanford Ranch Road on-ramp
- Stanford Ranch Road to Pleasant Grove Boulevard

These impacts could be mitigated by adding mainline capacity such as another through lane at Pleasant Grove Boulevard.

The PM peak hour results show the same trends as the AM peak hour; however, the demand volumes are higher, which results in more congestion. Alternative 1 (Taylor Road Full Access Interchange) has LOS F conditions at the same locations as in the AM peak hour. For Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated), the LOS F conditions extend back to SR 65. Despite this congestion, the build alternatives would serve 97 to 99 percent of the peak-hour demand volume. Alternative 5 (No Build) has LOS F conditions at the I-80 westbound on-ramp and would serve about 70 percent of the demand. As shown in Figure 46, the northbound SR 65 bottleneck at Pleasant Grove Boulevard would occur for longer than three hours even in the build alternatives. Farther north, LOS E

conditions occur for the build alternatives between Whitney Ranch Parkway and Twelve Bridges Drive indicating that further increases in volume may result in congested conditions.

Alternatives 2 (Collector-Distributor System Ramps) and 3 (Taylor Road Interchange Eliminated) show more congestion compared to Alternative 1 (Taylor Road Full Access Interchange). The three build alternatives have similar peak-hour volumes (within 40 vehicles per hour). However, the volume of weaving traffic between Stanford Ranch Road and Pleasant Grove Boulevard differs. The 4 to 5 PM demand volume for the weaving movements (on-ramp to downstream mainline and upstream mainline to off-ramp) are 46 vehicles per hour lower for Alternative 1 compared to Alternative 2 and 33 vehicles per hour lower for Alternative 3. The higher weaving volume disrupts the traffic flow in Alternatives 2 and 3, which results in worse operations compared to Alternative 1.

The proposed project (Alternatives 1, 2, and 3) would result in impacts to the segment between the Stanford Ranch Road off-ramp and on-ramp and at the Stanford Ranch Road on-ramp. These impacts could be mitigated by adding mainline capacity such as another through lane at Pleasant Grove Boulevard.

Southbound SR 65

During the AM peak hour, all project alternatives have LOS F conditions on southbound SR 65 at the Twelve Bridges Drive on-ramp. For the build alternatives, LOS F conditions extend upstream to the Ferrari Ranch Road interchange. As noted previously, the difference is caused by different forecasts used for the analysis of Alternative 5 (No Build). For Alternatives 1, 2, and 3, slowing is also present at the Placer Parkway, Sunset Boulevard, and Blue Oaks Boulevard westbound on-ramps, and at the Pleasant Grove Boulevard interchange. For Alternative 5, a bottleneck at the Galleria Boulevard to I-80 weaving section causes LOS F conditions to extend back to Pleasant Grove Boulevard. Alternatives 1 and 2 have LOS F conditions on the connector to westbound I-80 due to downstream bottlenecks at Douglas Boulevard.

The proposed project (Alternatives 1, 2, and 3) would result in impacts at the following locations on southbound SR 65 during the AM peak hour.

- Between the eastbound Ferrari Ranch Road on-ramp and the Twelve Bridges Drive on-ramp
- Westbound Placer Parkway westbound on-ramp (Alternative 1 only)
- Southbound SR 65 to westbound I-80 connector (Alternatives 1 and 2 only)

To mitigate the impacts between Ferrari Ranch Road and Twelve Bridges Drive, additional mainline capacity is needed such as an auxiliary lane between Twelve Bridges Drive and Placer Parkway. This improvement would likely create additional impacts to facilities downstream by allowing more vehicles to reach locations that already operate at LOS E or worse, such as the ramps at Sunset Boulevard, Blue Oaks Boulevard, and Pleasant Grove Boulevard. Further, improving mixed-flow bottlenecks may influence

demand for future HOV lanes. This suggests that the long-term solution for SR 65 carefully consider where additional mixed-flow lanes versus auxiliary lanes are warranted between Lincoln Boulevard and Pleasant Grove Boulevard. The impact to the Placer Parkway on-ramp can be mitigated by extending the auxiliary lane that starts at the eastbound on-ramp upstream to start at the westbound on-ramp. Potential mitigation for the impacts to the westbound I-80 connector is discussed above in the westbound I-80 section.

All of the study facilities operate at LOS E or better in the southbound direction during the PM peak hour.

5.1.2. Arterial Intersection Operations

Tables 21 and 23 show the LOS and average delay at key study intersections under design year conditions during the AM and PM peak hours, respectively. Tables 22 and 24 show the average maximum queue length at off-ramps under design year conditions during the AM and PM peak hours. Based on the evaluation criteria for this study, Alternative 1 (Taylor Road Full Access Interchange) has five impacts, Alternative 2 (Collector-Distributor System Ramps) has four impacts, and Alternative 3 (Taylor Road Interchange Eliminated) has six impacts. See the Technical Appendix for all study intersection results.

TABLE 21: SELECTED INTERSECTION OPERATIONS RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Intersection	Alternative 1	Alternative 2	Alternative 3	Alternative 5
6. Blue Oaks Blvd / Washington Blvd	**D / 45**	**D / 49**	**D / 50**	**F / 136**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 10	B / 11	B / 12	**F / 116**
10. Stanford Ranch Rd / Five Star Blvd	C / 28	C / 26	C / 28	**F / 151**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 16	C / 25	B / 19	**F / 127**
12. Galleria Blvd / SR 65 SB Ramps	C / 24	C / 34	C / 25	D / 38
14. Galleria Blvd / Roseville Pkwy	D / 45	D / 45	D / 46	D / 39
15. Roseville Pkwy / Creekside Ridge Dr	A / 7	A / 7	A / 7	B / 10
16. Roseville Pkwy / Taylor Rd	**E / 61**	**E / 62**	**F / 95**	**F / 98**
19. Atlantic St / I-80 WB Ramps	**D / 43**	C / 25	**D / 38**	B / 12
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 32	C / 29	D / 42	E / 55
21. Eureka Rd / Sunrise Ave	**D / 38**	**D / 37**	**D / 39**	C / 29
23. Douglas Blvd / Harding Blvd	C / 28	C / 29	C / 30	C / 25
26. Douglas Blvd / Sunrise Ave	D / 37	D / 40	D / 47	C / 35
29. Rocklin Rd / Granite Dr	C / 27	C / 25	D / 42	D / 29

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

TABLE 22: SELECTED MAXIMUM QUEUE LENGTH RESULTS – DESIGN YEAR AM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eureka Rd	1,700	600	650	900
Eastbound I-80 at Taylor Rd	>1,000	325	25	-
Eastbound I-80 at Rocklin Rd	1,080	275	275	275
Westbound I-80 at Rocklin Rd	1,230	200	175	200
Westbound I-80 at Taylor Rd	>1,000	325	-	-
Westbound I-80 at Douglas Blvd	1,530	375	375	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	150	200	150
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	75	75	75
Southbound SR 65 at Southbound Galleria Blvd	1,130	275	300	300
Southbound SR 65 at Northbound Galleria Blvd	1,780	50	75	75

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

TABLE 23: SELECTED INTERSECTION OPERATIONS RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Intersection	Alternative 1	Alternative 2	Alternative 3	Alternative 5
6. Blue Oaks Blvd / Washington Blvd	**F / 165**	**F / 164**	**F / 175**	**F / >240**
7. Blue Oaks Blvd / SR 65 NB Ramps	**F / 85**	**E / 69**	**E / 80**	**F / 115**
10. Stanford Ranch Rd / Five Star Blvd	**E / 56**	**E / 55**	**E / 59**	**D / 36**
11. Stanford Ranch Rd / SR 65 NB Ramps	C / 26	C / 22	C / 22	D / 36
12. Galleria Blvd / SR 65 SB Ramps	C / 24	C / 23	C / 25	C / 29
14. Galleria Blvd / Roseville Pkwy	**F / 91**	**F / 131**	**F / 102**	**F / 213**
15. Roseville Pkwy / Creekside Ridge Dr	**E / 77**	**E / 72**	**D / 40**	C / 24
16. Roseville Pkwy / Taylor Rd	D / 54	D / 53	**E / 71**	D / 48
19. Atlantic St / I-80 WB Ramps	B / 15	B / 18	C / 34	**D / 51**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	**F / 104**	**F / 103**	**F / 104**	**F / 92**
21. Eureka Rd / Sunrise Ave	**F / 99**	**F / 132**	**F / 113**	**F / 184**
23. Douglas Blvd / Harding Blvd	**F / 81**	E / 80	**F / 111**	**F / >240**
26. Douglas Blvd / Sunrise Ave	**F / 158**	**F / 240**	**F / 166**	**F / >240**
29. Rocklin Rd / Granite Dr	**F / 83**	**F / 97**	**F / 105**	**F / >240**

Note: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

TABLE 24: SELECTED MAXIMUM QUEUE LENGTH RESULTS – DESIGN YEAR PM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eureka Rd	1,700	725	450	1,000
Eastbound I-80 at Taylor Rd	>1,000	300	75	-
Eastbound I-80 at Rocklin Rd	1,080	275	275	275
Westbound I-80 at Rocklin Rd	1,230	375	400	450
Westbound I-80 at Taylor Rd	>1,000	300	-	-
Westbound I-80 at Douglas Blvd	1,530	425	425	450
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	425	375	400
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	100	125	125
Southbound SR 65 at Southbound Galleria Blvd	1,130	325	325	350
Southbound SR 65 at Northbound Galleria Blvd	1,780	125	100	125

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

The following intersections would operate an unacceptable peak hour LOS based on the evaluation criteria under all project alternatives.

- Blue Oaks Boulevard/Washington Boulevard (AM and PM)
- Blue Oaks Boulevard/SR 65 Northbound Ramps (PM)
- Stanford Ranch Road/Five Star Boulevard (PM)
- Galleria Boulevard/Roseville Parkway (PM)
- Roseville Parkway/Taylor Road (AM)
- Eureka Road/Taylor Road/I-80 Eastbound Ramps (PM)
- Eureka Road/Sunrise Avenue (PM)
- Douglas Boulevard/Sunrise Avenue (PM)
- Rocklin Road/Granite Drive (PM)

The analysis results indicate these intersections will need significant capacity enhancements with and without the proposed project to operate within the established LOS thresholds for these locations. Before any improvements are proposed though, the interaction between these locations and the rest of the network should be considered. In some cases, the operation of these intersections meters traffic accessing the freeway. This may be desirable in certain locations, such as at Blue Oaks Boulevard/

Washington Boulevard, at least until sufficient capacity is available on SR 65 to accommodate the demand levels. In other locations, improvements to the freeway system, such as an auxiliary lane, may reduce demand and/or queuing that would improve intersection operations.

During the AM peak hour, the two project impacts are on the Atlantic Street/Eureka Road corridor. For Alternative 1 (Taylor Road Full Access Interchange) and 3 (Taylor Road Interchange Eliminated) have LOS D conditions at the Atlantic Street/I-80 Westbound I-80 ramps intersection. The LOS threshold is C, and Alternative 5 (No Build) has LOS B. All three build alternatives have LOS D conditions at Eureka Road/Sunrise Avenue, while the No Build alternative has LOS C conditions, which is also the LOS threshold. Freeway congestion constrains demand at these intersections under Alternative 5. With the build alternatives, more traffic demand can reach the intersections resulting in higher average delays.

The impact at the Westbound I-80 ramps intersection is likely caused by queues from the ramp meter. So, potential mitigation would include changes to the meter signal operation or widening of the on-ramp to provide more storage. The design year model includes planned improvements at the Sunrise Avenue intersection. Further improvements could add third and fourth through lanes on some approaches. Alternately, the threshold could be adjusted to LOS D given that the intersection is accommodating a relatively high demand volume.

During the AM peak hour, the average maximum queue lengths for freeway off-ramps at all study intersections are less than the ramp storage length under all build alternatives. Even with an additional left-turn pocket lane, Alternative 3 has the longest queue on the eastbound I-80 off-ramp at Eureka Road. However, the queue is less than the ramp length, so the queue would not extend to the freeway mainline.

During the PM peak hour, the proposed project (Alternatives 1, 2, and 3) would have impacts at the following study intersections.

- Stanford Ranch Road/Five Star Boulevard
- Roseville Parkway/Creekside Ridge Drive
- Roseville Parkway/Taylor Road (Alternative 3 only)
- Eureka Road/Taylor Road/I-80 Eastbound Ramps

Under Alternative 5, traffic demand is constrained on eastbound I-80 at the SR 65 interchange. As a result, less traffic can reach the Stanford Ranch Road, Roseville Parkway, and Taylor Road corridors. With the project improvements, the increased volume results in a delay at the Five Star Boulevard intersection that is within 5 seconds of the LOS E threshold of 55 seconds for all three build alternatives. The impact at the Creekside Ridge Drive intersection is caused by the signal timings used at the adjacent Galleria Boulevard intersection. The westbound queue at Galleria Boulevard extends upstream into the Creekside Ridge Drive intersection.

At Eureka Road/Taylor Road, the average delay increases by about 10 seconds for all three build alternatives compared to the no build alternative. Even though Alternative 3 (Taylor Road Interchange Eliminated) has additional capacity on the northbound and southbound legs compared to Alternatives 1 (Taylor Road Full Access Interchange) and 2 (Collector-Distributor System Ramps), all three alternatives have about the same average delay. The additional westbound right-turn pocket for Alternative 3 at the Roseville Parkway/Taylor Road intersection provides LOS E rather than LOS F conditions, but the intersection threshold is LOS D.

Intersection mitigations would involve additional approach lanes. At Five Star Boulevard, prohibiting northbound U-turns and adding an eastbound right-turn overlap phase would likely reduce intersection delay without roadway widening. However, this change may increase out-of-direction travel for motorists. For Creekside Ridge Drive, the signal timing or geometry at the adjacent Galleria Boulevard intersection would need to be modified. The Roseville Parkway/Taylor Road intersection already has right-turn overlap phases and dual left-turn lanes. Further improvements could include a fourth east or westbound through lane or a third southbound left-turn lane. For Eureka Road/Taylor Road, the Alternative 3 improvements (a second northbound left-turn lane and a second southbound right-turn lane) could be applied to Alternatives 1 and 2. The Alternative 3 intersection is built-out, so grade separation of certain movements – for example, westbound Eureka Road to eastbound I-80 – may be needed. Mitigation of the impact at Roseville Parkway/Taylor Road under Alternative 3 may be accomplished by adding a third southbound left-turn lane.

5.2. **Construction Year Conditions**

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 25 and 26 below, respectively.

TABLE 25: COMPARISON OF OVERALL NETWORK PERFORMANCE – CONSTRUCTION YEAR AM PEAK PERIOD

Performance Measure		Existing Conditions	Construction Year Conditions			
			Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)		143,450 (100%)	168,990 (100%)	167,770 (99%)	167,860 (99%)	163,780 (96%)
VMT		645,270	794,080	788,250	788,060	740,650
PMT		786,260	976,830	970,480	970,660	909,000
VHT		13,760	16,990	16,800	16,760	23,040
VHD (% of VHT)		2,670 (19%)	3,360 (20%)	3,300 (20%)	3,260 (20%)	10,330 (45%)
Average Delay per Vehicle (min)		1.12	1.19	1.18	1.17	3.78
PHD		3,240	3,990	3,930	3,890	12,370
Average Speed		46.9	46.7	46.9	47.0	32.1
Average Speed for HOVs		47.0	49.0	49.2	49.1	34.4
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	8:56	8:45	9:22	17:10
	HOV	9:27	8:30	8:30	8:39	13:58

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

Reviewing the results in Tables 25 and 26 should consider the following information.

- Overall, the build alternatives improve overall network performance compared to no build conditions.
- The three build alternatives serve all of the peak period demand volume, but Alternative 5 (No Build) does not. The performance metrics do not fully account for vehicles that could not enter the network during the peak periods.
- During the AM peak period, Alternative 3 (Taylor Road Interchange Eliminated) has the lowest delay and highest average speed. However, all three build alternatives have about the same results.

TABLE 26: COMPARISON OF OVERALL NETWORK PERFORMANCE – CONSTRUCTION YEAR PM PEAK PERIOD

Performance Measure		Existing Conditions	Construction Year Conditions			
			Alternative 1	Alternative 2	Alternative 3	Alternative 5
Volume Served (% of total demand)		198,170 (101%)	234,970 (101%)	235,230 (101%)	235,090 (101%)	216,610 (91%)
VMT		730,100	934,490	931,460	930,080	805,450
PMT		880,180	1,155,450	1,152,400	1,151,470	998,020
VHT		16,850	21,500	21,290	21,620	37,230
VHD (% of VHT)		3,950 (23%)	5,080 (24%)	4,940 (23%)	5,300 (25%)	23,020 (62%)
Average Delay per Vehicle (min)		1.20	1.30	1.26	1.35	6.38
PHD		4,670	6,140	5,970	6,420	27,150
Average Travel Speed		43.3	43.5	43.7	43.0	21.6
Average HOV Speed		44.7	45.2	45.4	44.7	25.8
Travel Time: Auburn Blvd to Blue Oaks Blvd	SOV	9:16	6:26	6:28	6:26	35:10
	HOV	9:11	6:23	6:23	6:23	14:07

Notes: PMT = person miles of travel, PHD = person hours of delay
Source: Fehr & Peers, 2014

- During the PM peak period, Alternative 2 (Collector-Distributor System Ramps) has the lowest delay and highest average speed. Since all three build alternatives have similar freeway operations (no congested segments), the arterial network is performing more efficiently for Alternative 2.
- The AM peak-hour SOV travel time from Blue Oaks Boulevard to Antelope Road is better for Alternative 2 than 3 even though Alternative 3 (Taylor Road Interchange Eliminated) has lower overall delay.
- The PM peak-hour travel time from Auburn Boulevard to Blue Oaks Boulevard for the build alternatives is similar.
- AM and PM travel times are better than existing conditions for all build alternatives.

Specific details about construction year freeway and arterial intersection operations are discussed in more detail in the following sections.

5.2.1. Freeway Operations

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM and 4:30 to 5:30 PM) of the four hour AM and PM peak periods. The AM and PM peak-hour served volume are percentage of the demand volume are listed in Table 27. The AM and PM peak hour results for select locations are reported in Tables 28 and 29, respectively. The remaining results are available in the Technical Appendix. Figures 49 through 56 display the average speed in the mixed-flow lanes throughout the network during the peak periods for each alternative.

TABLE 27: FREEWAY SERVED VOLUME AND PERCENT DEMAND SERVED – CONSTRUCTION YEAR AM AND PM PEAK HOUR CONDITIONS

Freeway Section	Alternative 1		Alternative 2		Alternative 3		Alternative 5	
	AM	PM	AM	PM	AM	PM	AM	PM
Eastbound I-80: Douglas Blvd to Eureka Rd	7,691 109%	8,659 101%	7,736 109%	8,661 101%	7,670 109%	8,586 101%	6,942 107%	5,418 70%
Eastbound I-80: Eureka Rd to Taylor Rd/SR 65	7,075 109%	8,977 101%	7,223 108%	9,118 101%	7,062 108%	8,779 102%	5,841 107%	5,599 76%
Eastbound I-80: SR 65 to Rocklin Rd	4,385 110%	5,299 100%	4,346 110%	5,266 100%	4,382 109%	5,250 100%	4,001 101%	4,074 78%
Westbound I-80: Rocklin Rd to SR 65	4,953 104%	4,607 104%	4,813 104%	4,527 104%	5,082 104%	4,708 104%	5,037 104%	3,782 90%
Westbound I-80: SR 65/Taylor Rd to Atlantic St	8,146 105%	6,951 101%	8,333 105%	7,044 101%	7,885 104%	6,800 101%	7,279 97%	5,879 92%
Westbound I-80: Atlantic St to Douglas Blvd	7,792 105%	6,869 101%	7,736 104%	6,868 101%	7,630 104%	6,716 101%	6,978 98%	5,917 92%
Northbound SR 65: I-80 to Stanford Ranch Rd	5,551 107%	6,875 102%	5,600 107%	6,980 102%	5,665 107%	7,188 103%	4,241 102%	4,329 80%
Northbound SR 65: Stanford Ranch Rd to Pleasant Grove Blvd	4,894 108%	5,905 101%	4,869 107%	5,881 101%	4,870 107%	5,915 102%	4,301 104%	4,267 83%
Northbound SR 65: Pleasant Grove Blvd to Blue Oaks Blvd	4,215 109%	5,002 101%	4,216 109%	5,004 101%	4,184 108%	5,022 101%	3,916 105%	4,022 84%
Southbound SR 65: Blue Oaks Blvd to Pleasant Grove Blvd	4,969 107%	4,499 102%	4,930 106%	4,508 102%	4,934 106%	4,535 103%	3,338 76%	3,615 87%
Southbound SR 65: Pleasant Grove Blvd to Galleria Blvd	5,646 106%	5,272 102%	5,586 105%	5,253 102%	5,575 105%	5,265 102%	4,022 82%	4,320 91%
Southbound SR 65: Galleria Blvd to I-80	5,810 106%	5,679 99%	5,696 105%	5,665 100%	5,796 105%	5,764 100%	4,120 88%	4,459 91%

Note: The served volume in vehicles per hour is reported.
Source: Fehr & Peers, 2014

TABLE 28: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
EB I-80	Auburn Blvd On-ramp	Merge	D / 29	D / 29	D / 29	E / 37
	Auburn Blvd to Douglas Blvd	Basic	E / 36	E / 36	E / 36	E / 39
	Douglas Blvd EB Off-ramp	Diverge	D / 30	D / 30	D / 30	D / 34
	Douglas Blvd WB Off-ramp	Diverge	C / 24	C / 24	C / 25	E / 40
	Douglas Blvd On-ramp	Merge	E / 35	C / 24	C / 24	D / 28
	Eureka Rd Off-ramp	Diverge	E / 38			D / 30
	Eureka Rd to SR 65	Weave	C / 20	D / 27	D / 27	C / 25
	Taylor Rd Off-ramp	Diverge	B / 15	-	-	
	SR 65 Off-ramp	Diverge	-	C / 22	C / 22	**F / 66**
	SR 65 On-ramp	Merge	C / 27	C / 26	C / 26	B / 20
WB I-80	Rocklin Rd to HOV Lane Start	Basic	D / 28	D / 27	D / 29	D / 28
	SR 65 Off-ramp	Diverge	C / 22	C / 21	C / 22	**F / 51**
	SR 65 to Atlantic St	Weave	C / 25	C / 23	C / 23	D / 32
	Atlantic St EB Off-ramp	Diverge	D / 29	D / 30	D / 28	**F / 93**
	Atlantic St On-ramp	Merge	**F / 47**	E / 41	C / 22	**F / 107**
	Douglas Blvd Off-ramp	Diverge	**F / 51**	E / 43	E / 37	**F / 46**
	Douglas Blvd WB On-ramp	Merge	**F / 99**	**F / 86**	**F / 87**	**F / 114**
	Douglas Blvd EB On-ramp	Merge	**F / 77**	**F / 76**	**F / 74**	**F / 71**
	Truck Scales to Elkhorn Blvd	Basic	**F / 67**	**F / 66**	**F / 64**	E / 41
	Elkhorn Blvd WB On-ramp	Merge	**F / 96**	**F / 96**	**F / 92**	**F / 93**
	Elkhorn Blvd EB On-ramp	Merge	**F / 76**	**F / 76**	**F / 76**	**F / 82**

TABLE 28: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3	Alternative 5
NB SR 65	I-80 to Stanford Ranch Rd	Weave	C / 21	C / 21	C / 22	**F / 87**
	Stanford Ranch Rd On-ramp	Merge	B / 11	B / 10	B / 11	**F / 64**
	Pleasant Grove Blvd Off-ramp	Diverge	D / 35	D / 34	D / 34	D / 33
	Blue Oaks Blvd On-ramp	Merge	C / 23	C / 23	C / 23	C / 21
	Twelve Bridges Dr Off-ramp	Diverge	B / 18	B / 18	B / 18	B / 17
SB SR 65	Ferrari Ranch Rd EB On-ramp	Merge	B / 16	B / 15	B / 14	E / 38
	Lincoln Blvd to Twelve Bridges Dr	Weave	C / 27	C / 25	C / 25	**F / 153**
	Twelve Bridges Dr On-ramp	Merge	E / 40	D / 35	E / 35	**F / 164**
	Placer Pkwy WB On-ramp	Merge	E / 35	D / 34	D / 31	**F / 165**
	Sunset Blvd EB On-ramp	Merge	**F / 51**	E / 45	E / 43	**F / 126**
	Blue Oaks Blvd WB On-ramp	Merge	E / 39	E / 35	E / 36	**F / 111**
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	E / 40	E / 38	E / 37	**F / 96**
	Pleasant Grove Blvd WB On-ramp	Merge	D / 29	D / 29	D / 29	**F / 79**
	Pleasant Grove Blvd EB On-ramp	Merge	D / 32	D / 32	D / 33	**F / 58**
	Galleria Blvd Off-ramp	Diverge	C / 28	D / 28	D / 28	D / 34
	Galleria Blvd to I-80	Weave	C / 24	C / 24	C / 24	C / 26

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
[1] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

Source: Fehr & Peers, 2014

TABLE 29: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS						
Freeway	**Location**	**Type[1]**	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Alternative 5**
EB I-80	Auburn Blvd On-ramp	Merge	C / 27	C / 27	C / 27	**F / 180**
	Auburn Blvd to Douglas Blvd	Basic	D / 32	D / 32	D / 32	**F / 142**
	Douglas Blvd EB Off-ramp	Diverge	D / 29	D / 29	D / 29	**F / 103**
	Douglas Blvd WB Off-ramp	Diverge	C / 25	C / 25	C / 25	**F / 158**
	Douglas Blvd On-ramp	Merge	D / 33	C / 25	C / 25	**F / 165**
	Eureka Rd Off-ramp	Diverge	E / 35			**F / 131**
	Eureka Rd to SR 65	Weave	C / 24	D / 30	D / 31	**F / 135**
	Taylor Rd Off-ramp	Diverge	B / 16	-	-	
	SR 65 Off-ramp	Diverge	-	C / 24	C / 25	**F / 79**
	SR 65 On-ramp	Merge	D / 28	C / 27	C / 28	B / 19
WB I-80	Rocklin Rd to HOV Lane Start	Basic	D / 27	C / 25	D / 26	**F / 128**
	SR 65 Off-ramp	Diverge	C / 20	B / 19	B / 19	**F / 140**
	SR 65 to Atlantic St	Weave	C / 20	B / 20	B / 20	C / 25
	Atlantic St EB Off-ramp	Diverge	C / 22	C / 23	C / 21	C / 28
	Atlantic St On-ramp	Merge	C / 25	C / 25	B / 20	C / 20
	Douglas Blvd Off-ramp	Diverge	D / 31	D / 31	D / 30	B / 15
	Douglas Blvd WB On-ramp	Merge	C / 26	C / 26	C / 26	D / 29
	Douglas Blvd EB On-ramp	Merge	C / 26	C / 25	C / 24	D / 33
	Truck Scales to Elkhorn Blvd	Basic	D / 29	D / 28	D / 28	C / 26
	Elkhorn Blvd WB On-ramp	Merge	C / 27	C / 26	C / 26	C / 23
	Elkhorn Blvd EB On-ramp	Merge	D / 29	D / 29	D / 29	C / 27

TABLE 29: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

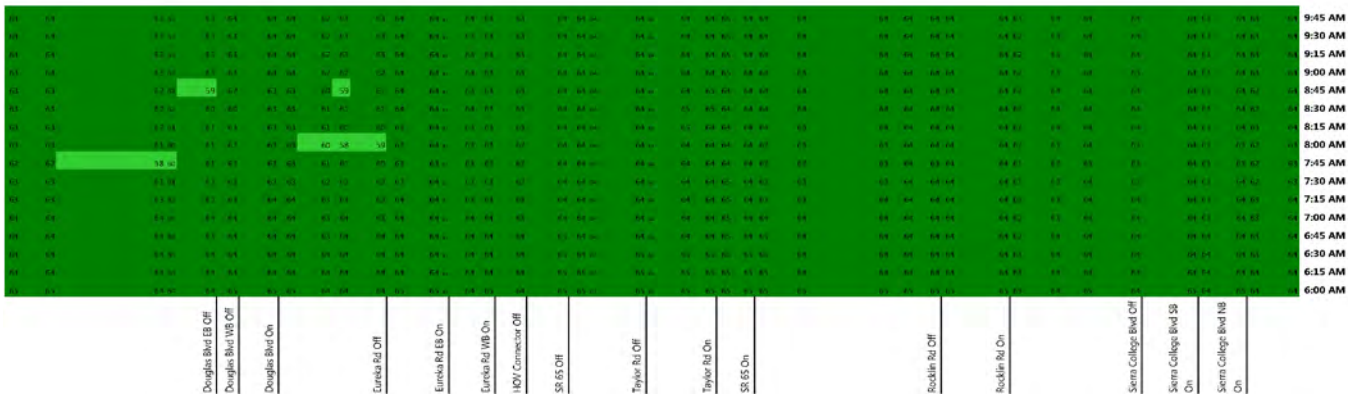
Freeway	Location	Type[1]	Alternative 1	Alternative 2	Alternative 3	Alternative 5
NB SR 65	I-80 to Stanford Ranch Rd	Weave	C / 24	C / 25	C / 26	F / 90
	Stanford Ranch Rd On-ramp	Merge	B / 18	B / 18	B / 18	F / 83
	Pleasant Grove Blvd Off-ramp	Diverge	D / 35	E / 36	E / 35	D / 31
	Blue Oaks Blvd On-ramp	Merge	E / 36	E / 38	E / 39	C / 22
	Twelve Bridges Dr Off-ramp	Diverge	D / 30	D / 29	D / 30	C / 25
SB SR 65	Ferrari Ranch Rd EB On-ramp	Merge	A / 7	A / 7	A / 7	A / 7
	Lincoln Blvd to Twelve Bridges Dr	Weave	B / 14	B / 14	B / 14	B / 13
	Twelve Bridges Dr On-ramp	Merge	B / 19	B / 19	B / 19	B / 18
	Placer Pkwy WB On-ramp	Merge	B / 18	B / 18	B / 18	B / 18
	Sunset Blvd EB On-ramp	Merge	D / 34	D / 33	D / 33	**F / 113**
	Blue Oaks Blvd WB On-ramp	Merge	C / 27	C / 27	C / 28	**F / 129**
	Pleasant Grove Blvd EB On-ramp	Merge	C / 27	C / 26	C / 26	**F / 60**
	Galleria Blvd Off-ramp	Diverge	C / 25	C / 25	C / 25	E / 36
	Galleria Blvd to I-80	Weave	C / 22	C / 22	C / 23	D / 29

Notes: Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and average density for the study segment are reported.
[1] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

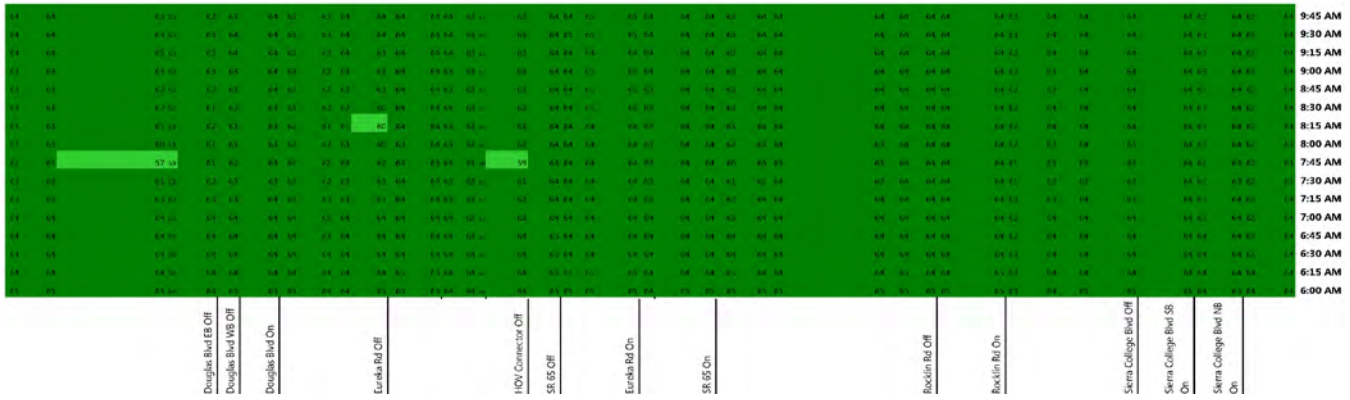
Source: Fehr & Peers, 2014

FIGURE 49 – EASTBOUND I-80 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

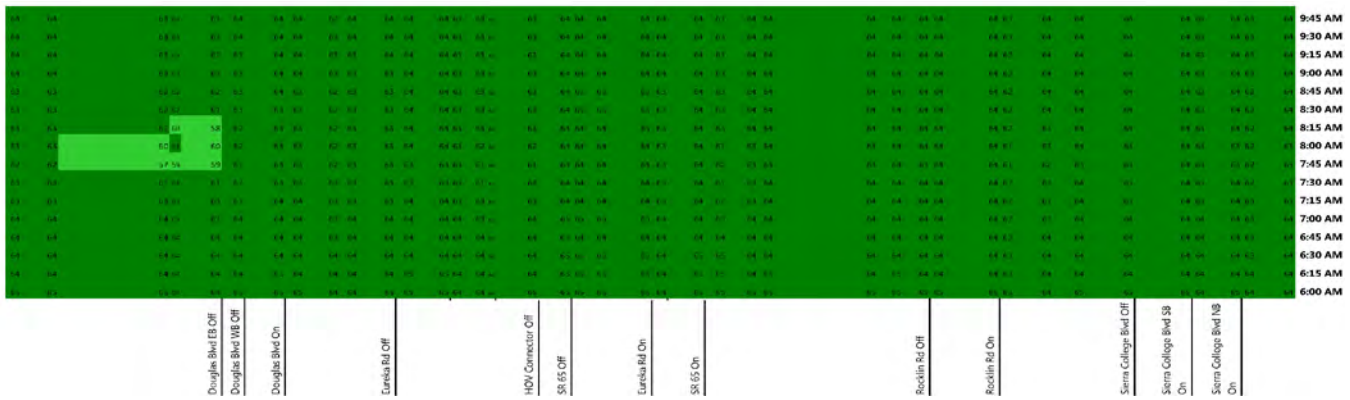
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

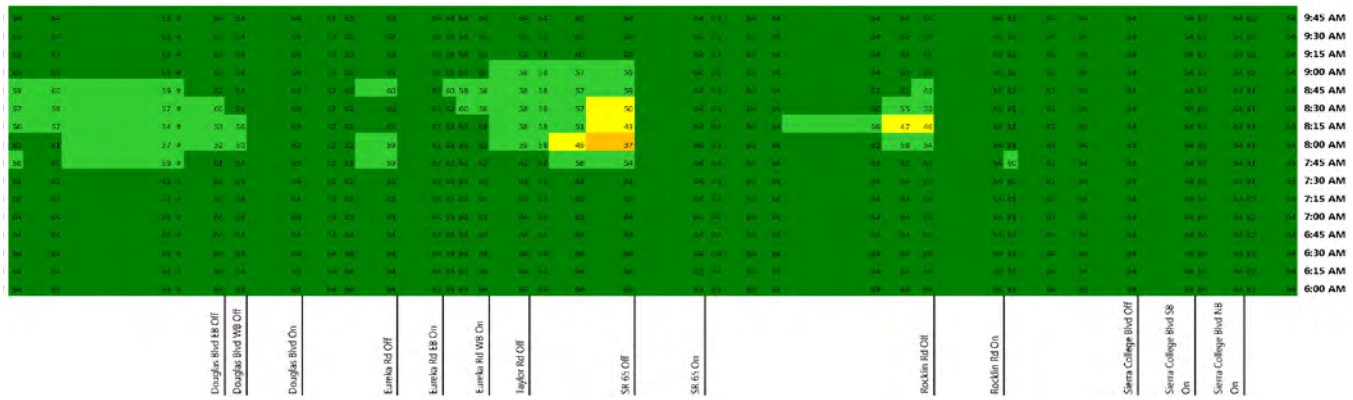
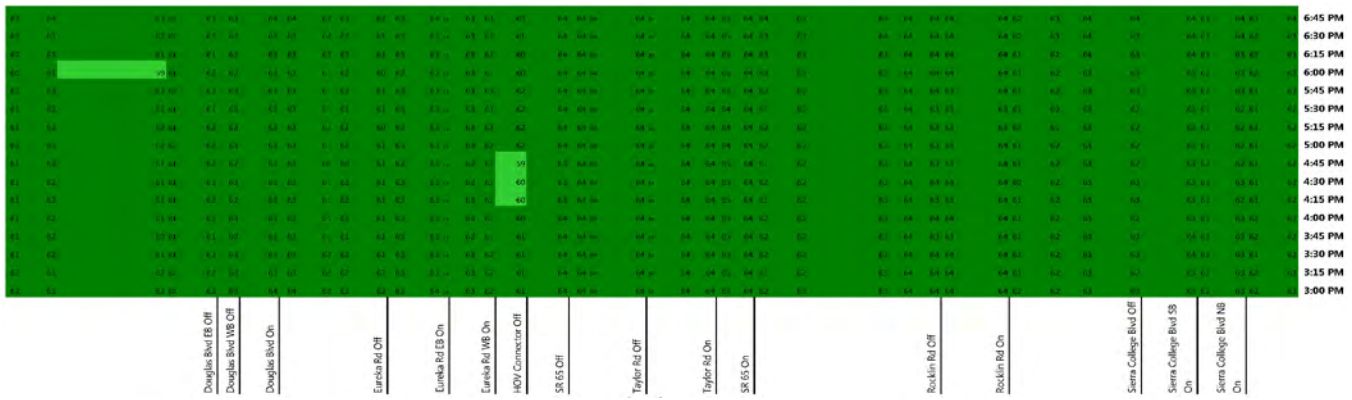
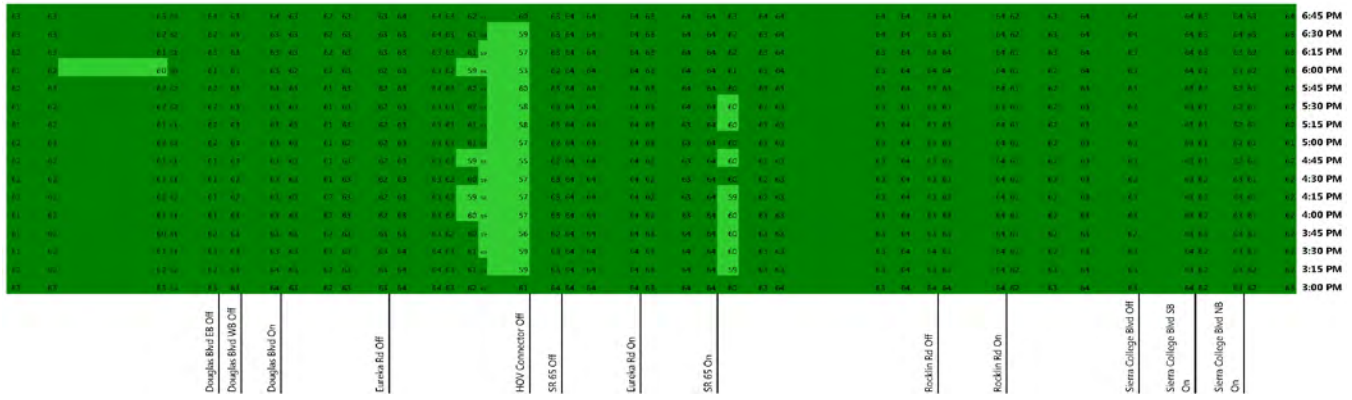


FIGURE 50 – EASTBOUND I-80 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

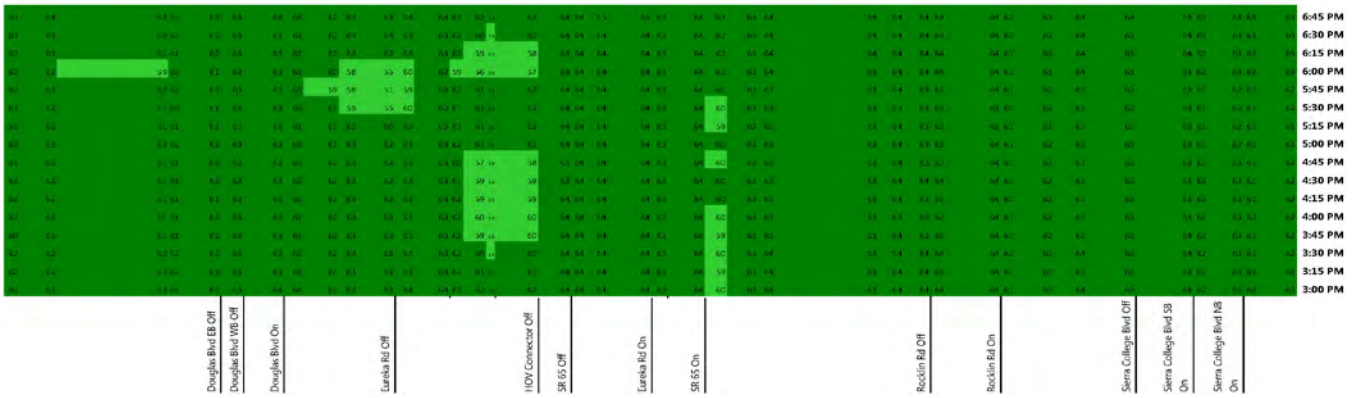
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

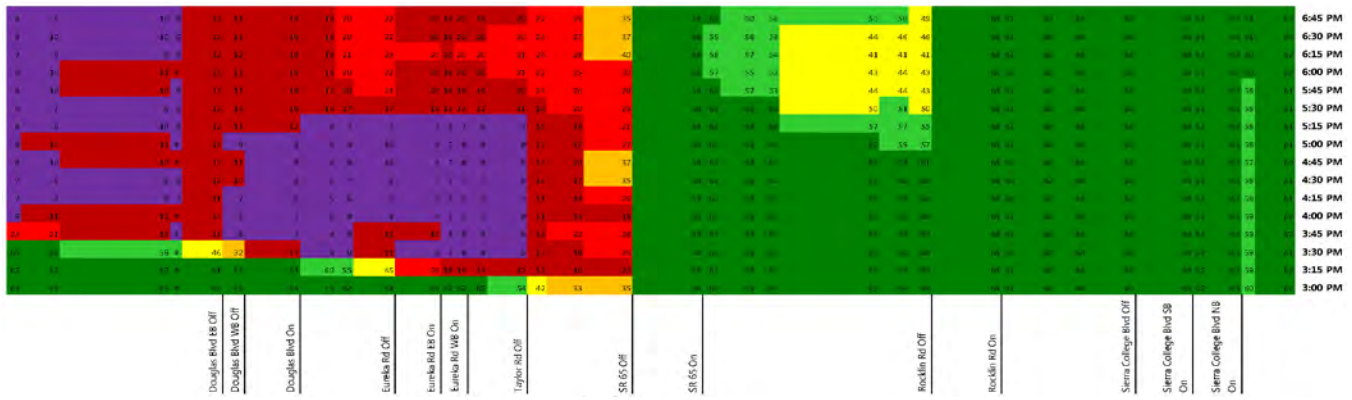
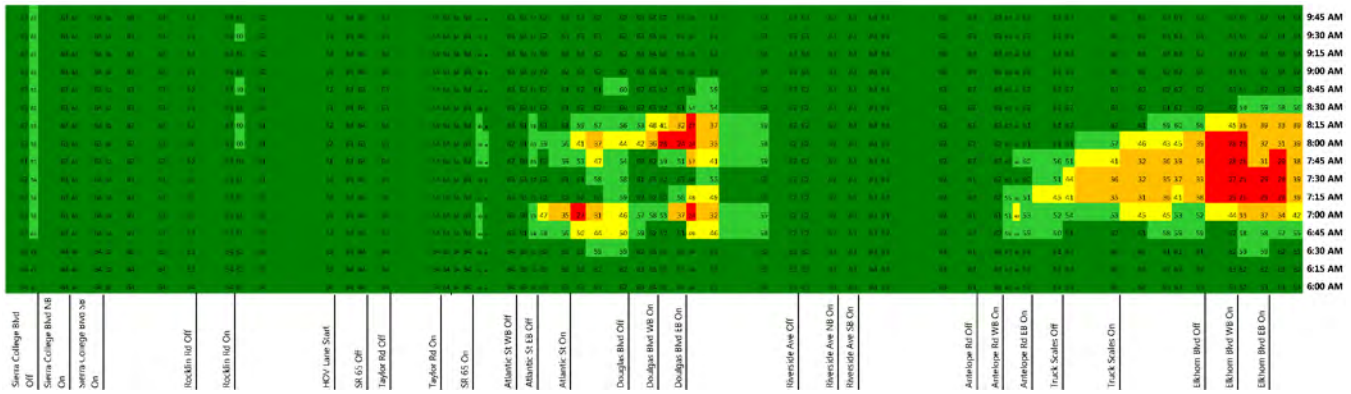
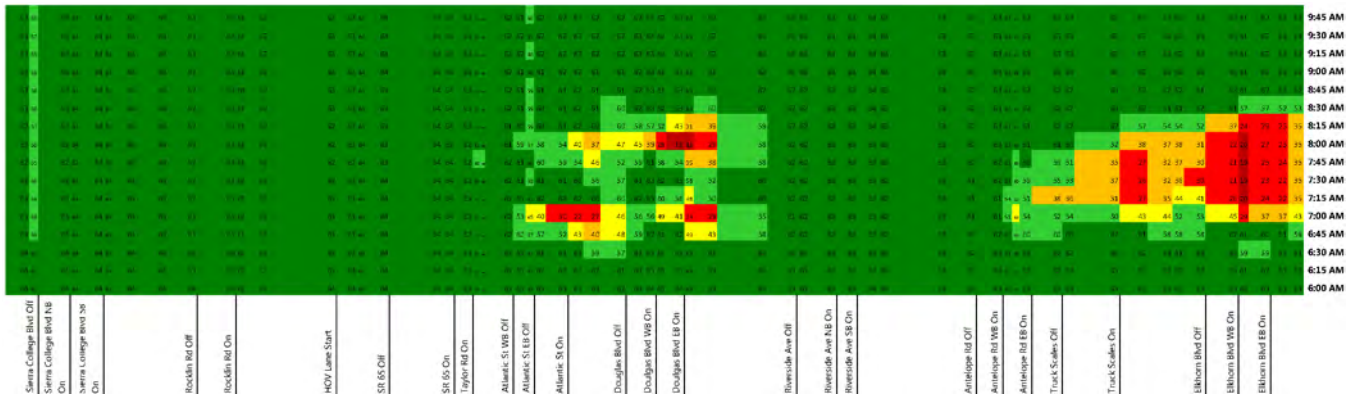


FIGURE 51 – WESTBOUND I-80 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

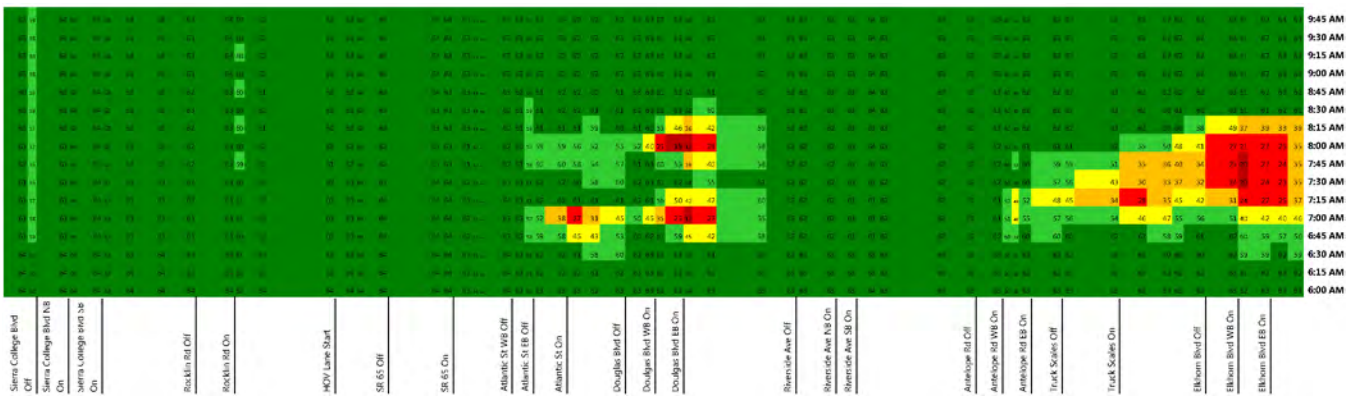
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

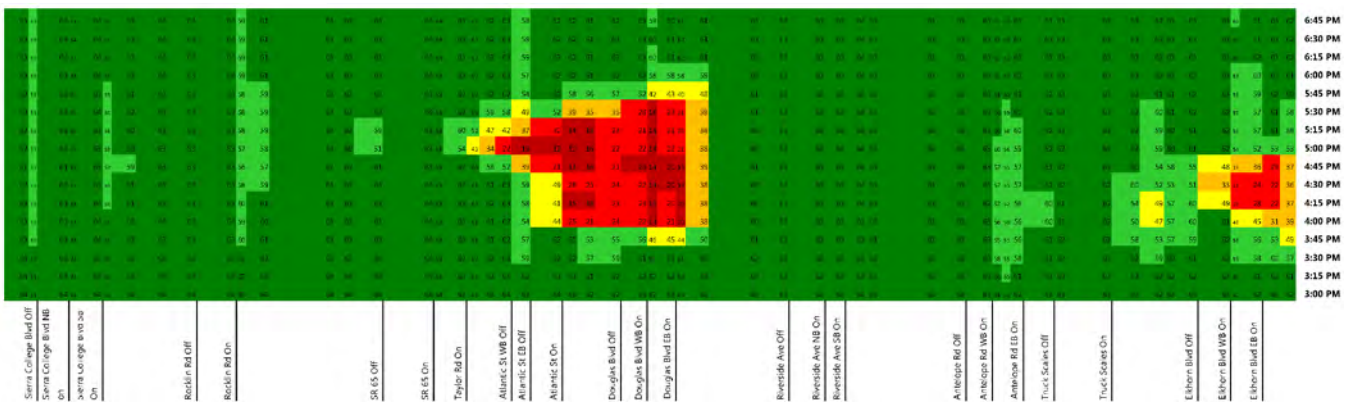
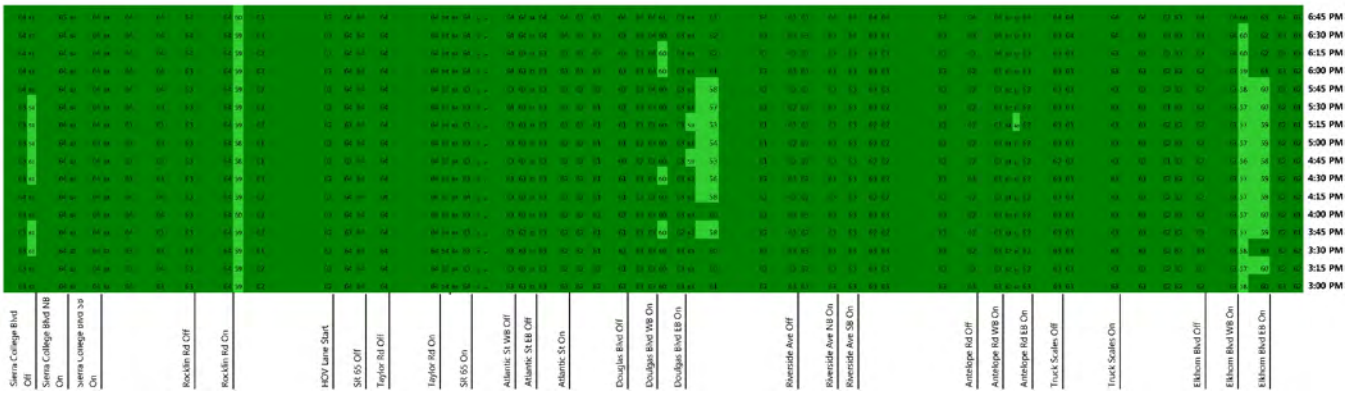
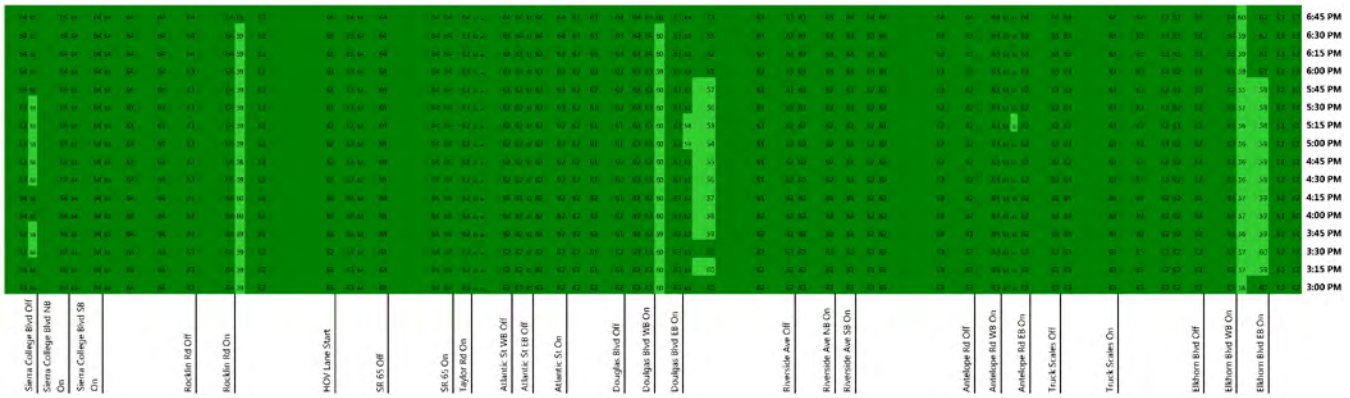


FIGURE 52 – WESTBOUND I-80 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

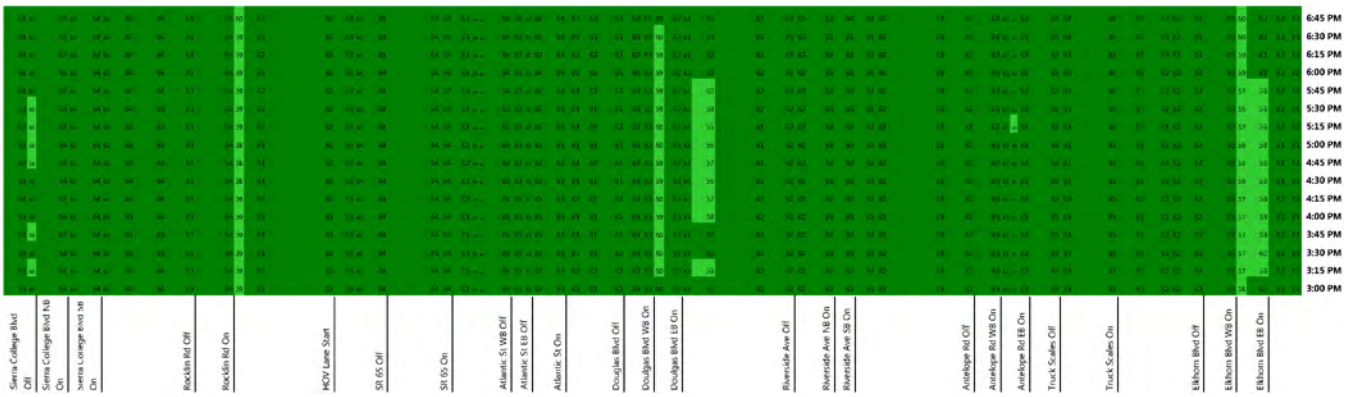
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

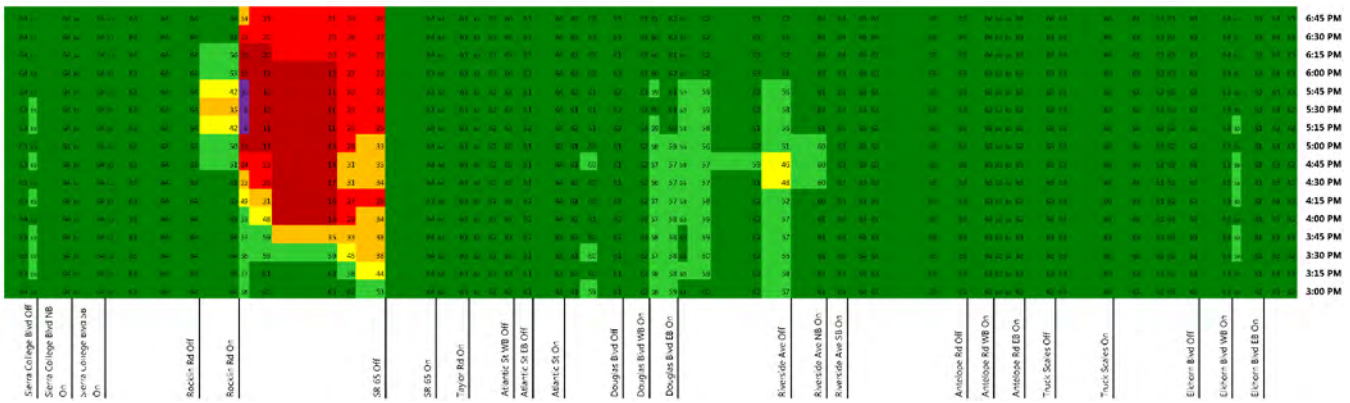
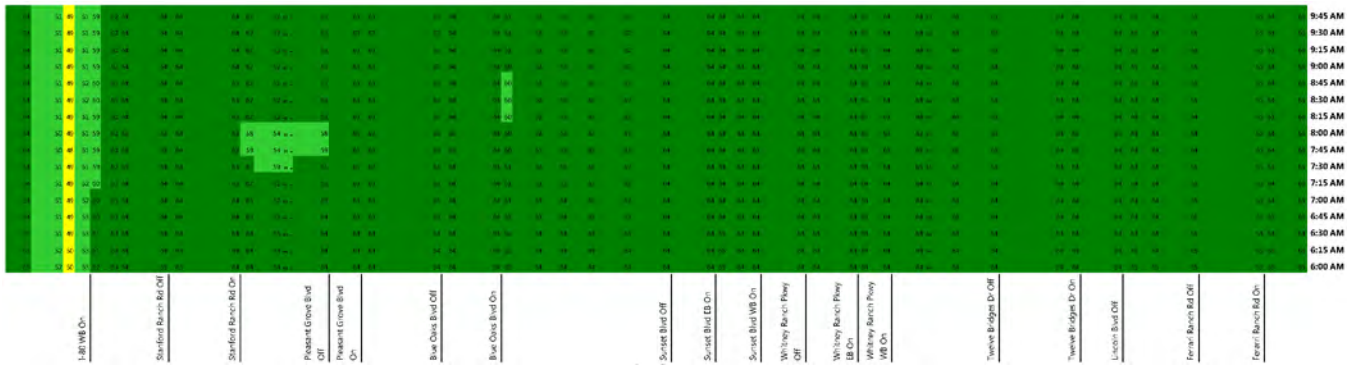
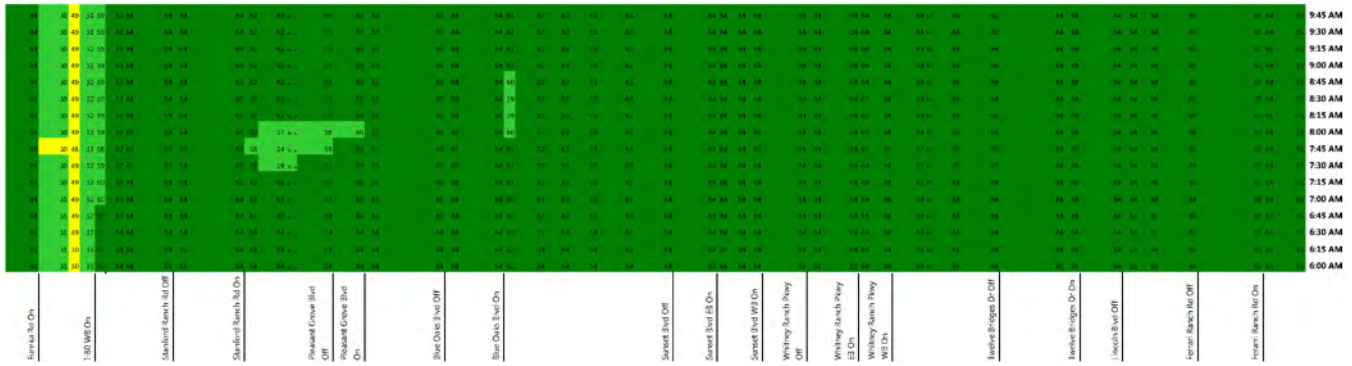


FIGURE 53 – NORTHBOUND SR 65 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

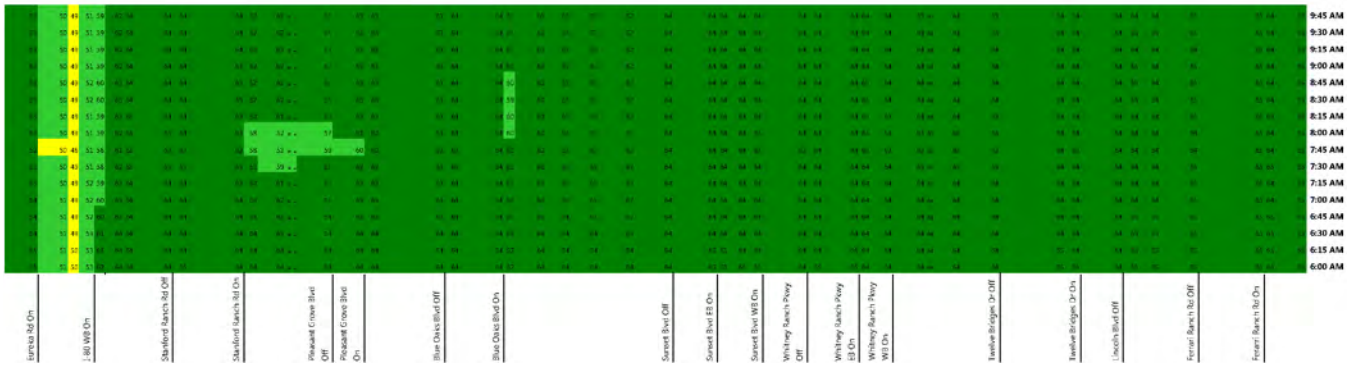
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

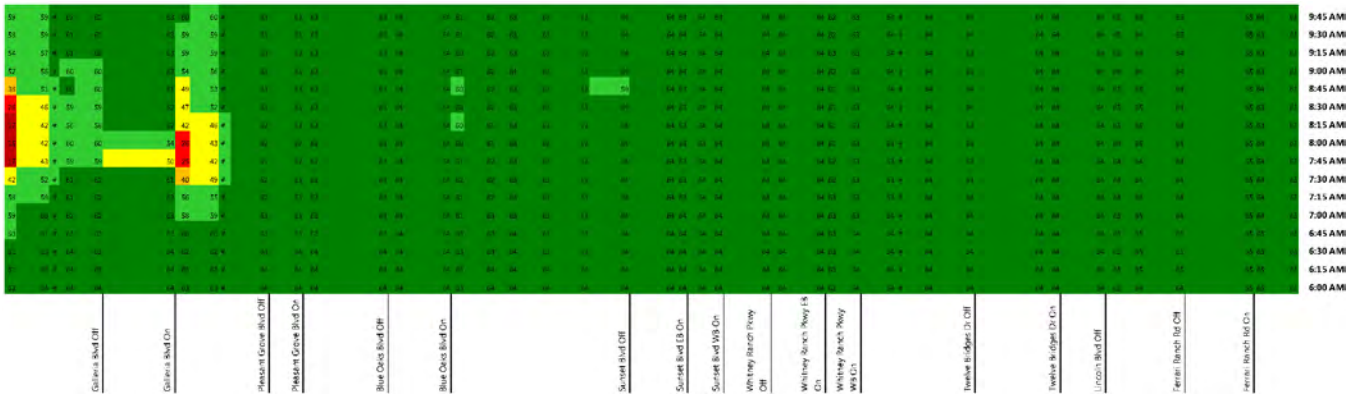
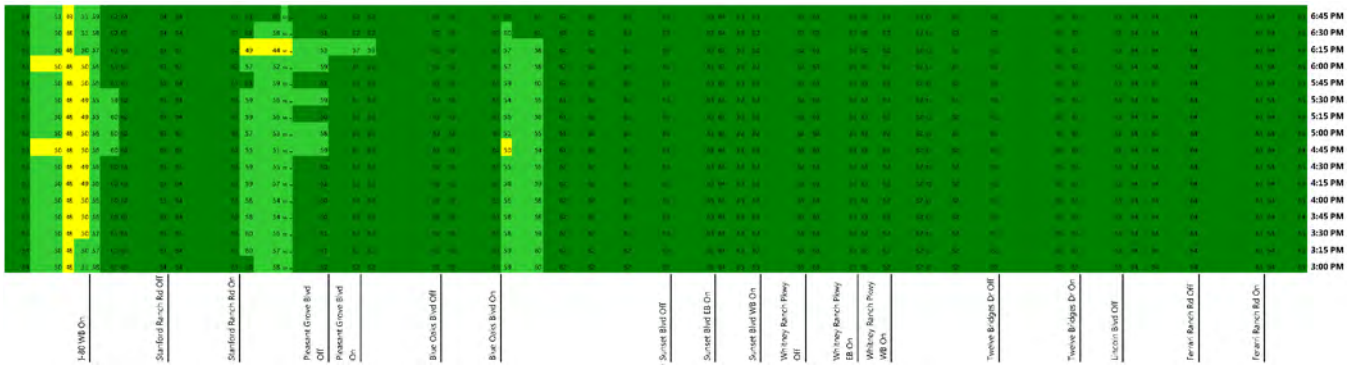
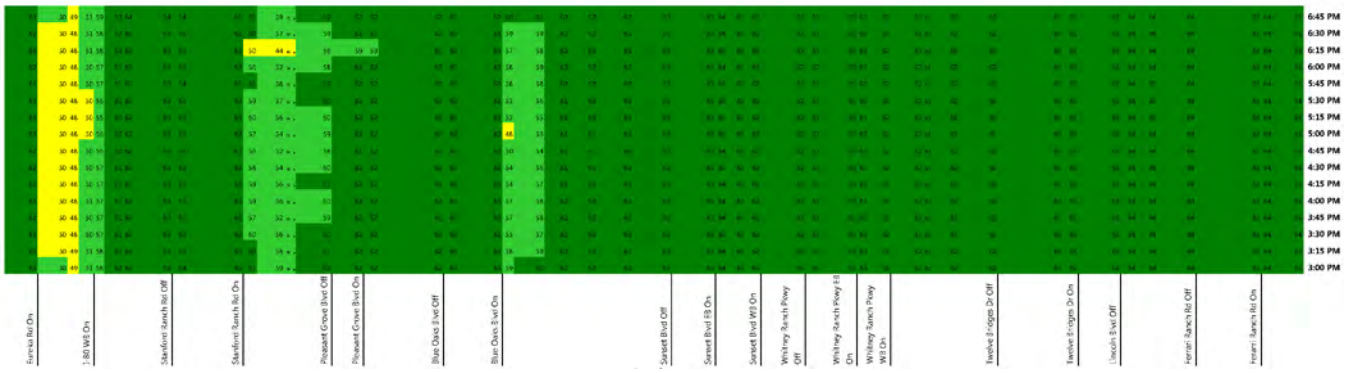


FIGURE 54 – NORTHBOUND SR 65 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

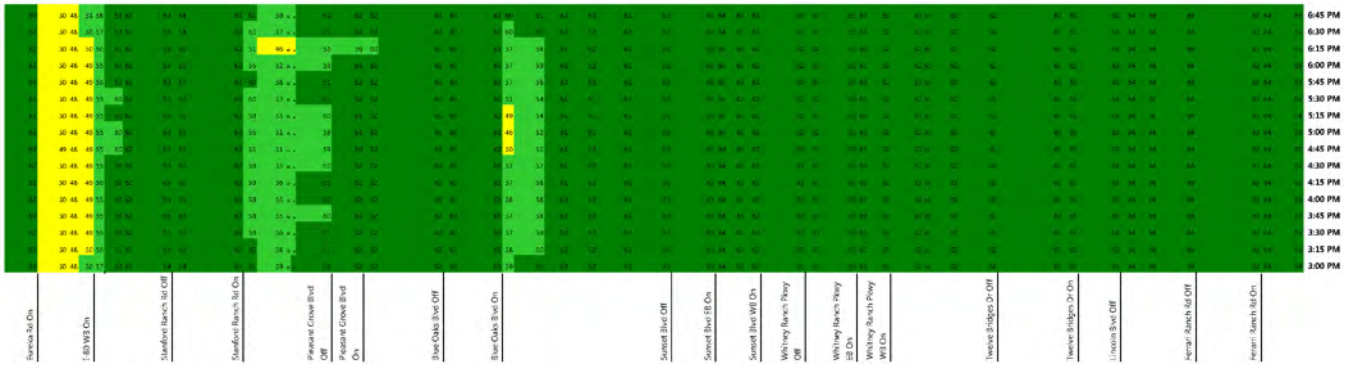
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

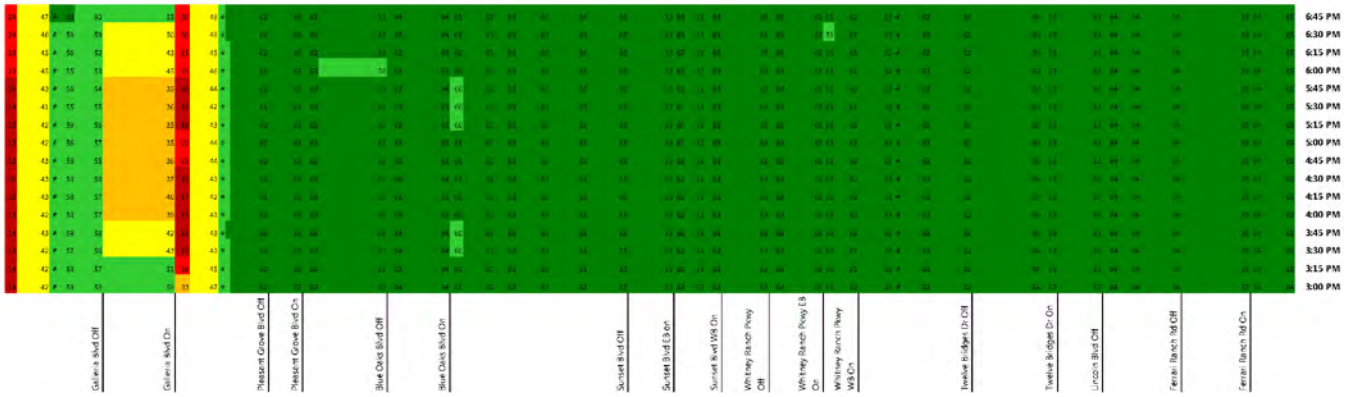
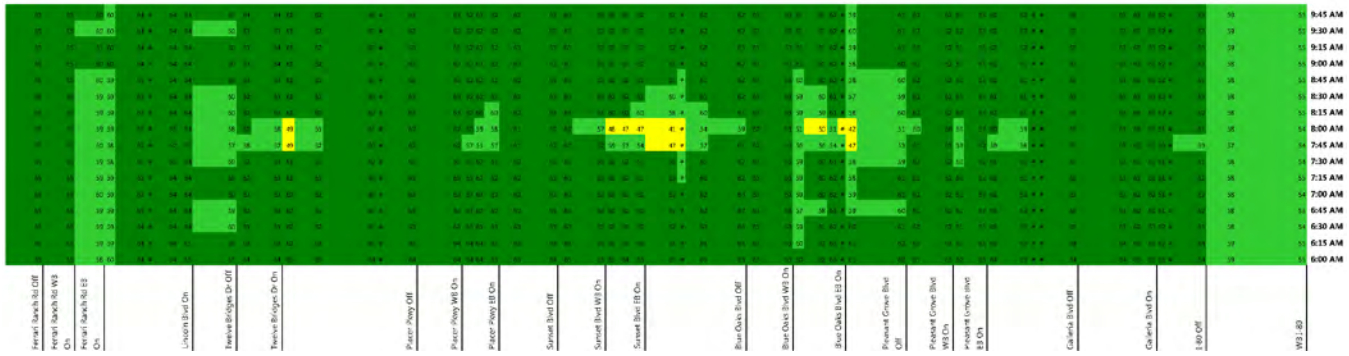
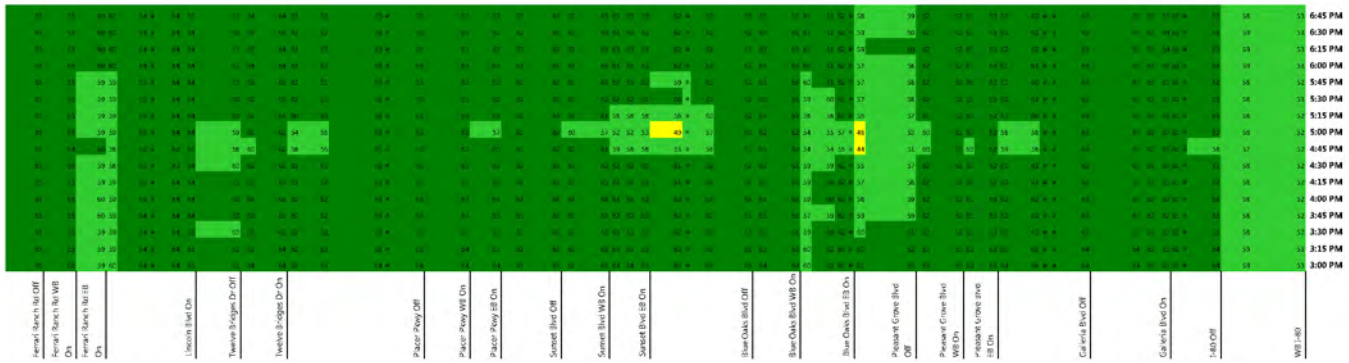


FIGURE 55 – SOUTHBOUND SR 65 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

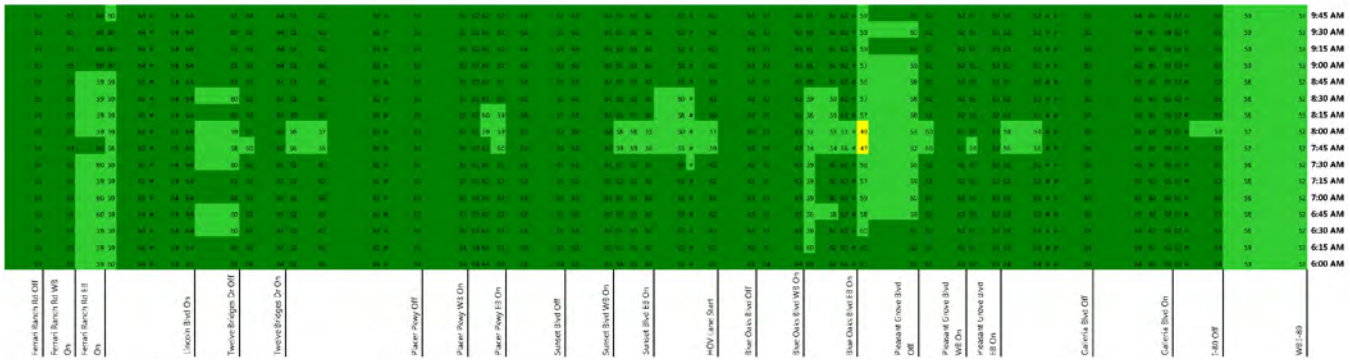
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)

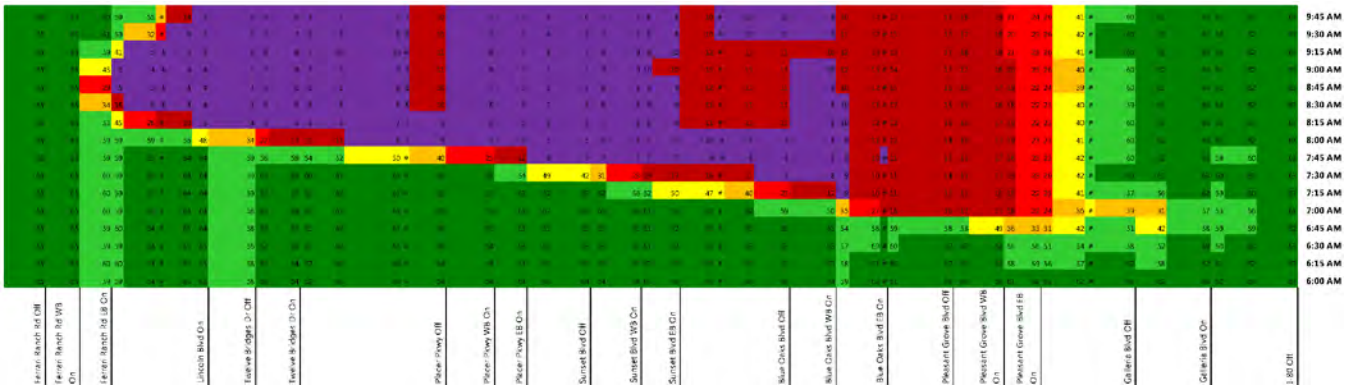
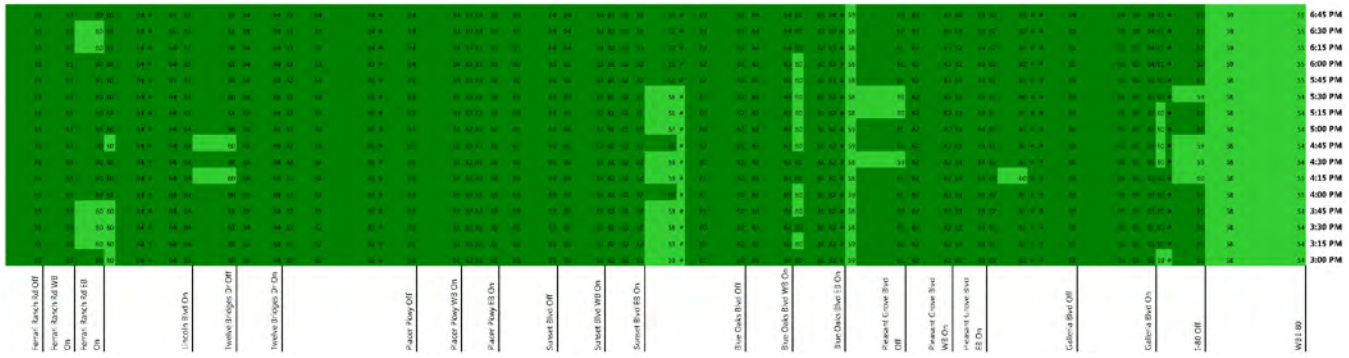
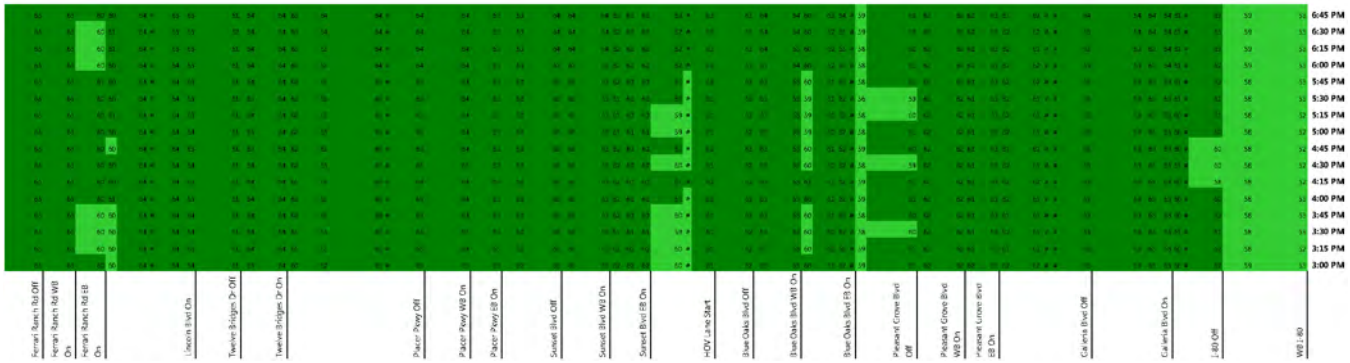


FIGURE 56– SOUTHBOUND SR 65 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

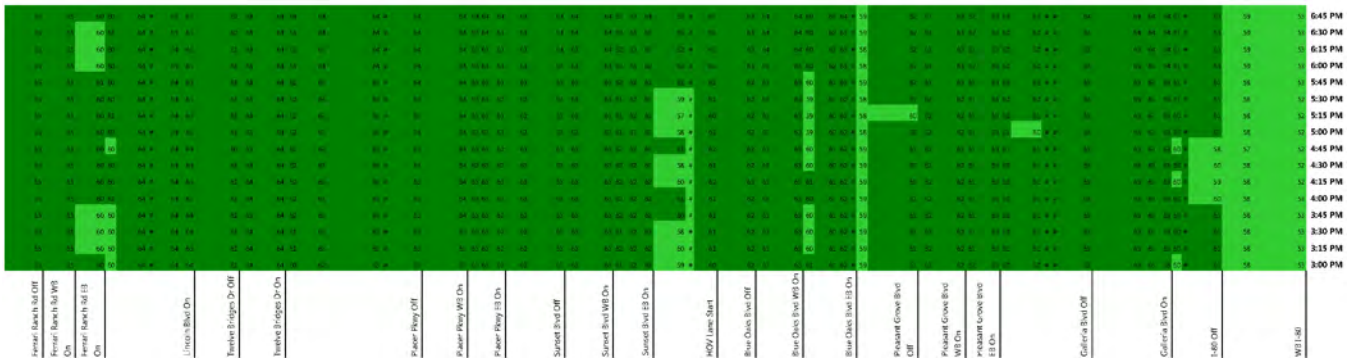
TAYLOR ROAD FULL ACCESS INTERCHANGE (ALTERNATIVE 1)



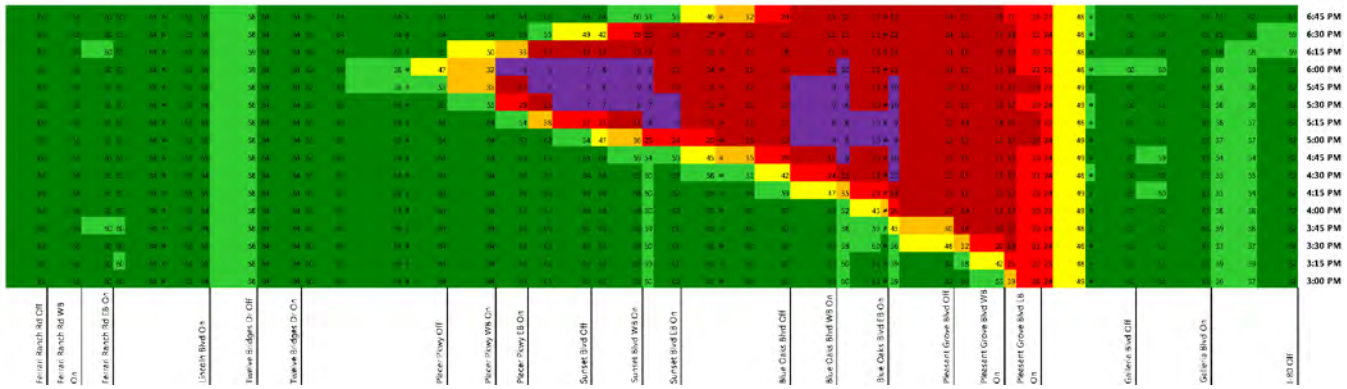
COLLECTOR-DISTRIBUTOR SYSTEM RAMPS (ALTERNATIVE 2)



TAYLOR ROAD INTERCHANGE ELIMINATED (ALTERNATIVE 3)



NO BUILD (ALTERNATIVE 5)



Eastbound I-80

The freeway operations results indicate that Alternative 5 (No Build) would result in LOS F operations on I-80 at the off-ramps to northbound SR 65 and Rocklin Road during the AM peak hour. In contrast, the build alternatives have LOS C or better conditions east of Eureka Road. All alternatives show LOS E between Auburn Boulevard and Douglas Boulevard. Only Alternative 1 (Taylor Road Full Access Interchange) has LOS E between Douglas Boulevard and Eureka Road due to the lack of an auxiliary lane compared to Alternatives 2 and 3.

During the PM peak hour, the No Build alternative would result in LOS F conditions from the beginning of the analysis area at Auburn Boulevard to the SR 65 off-ramp. In this area, speeds would be less than 20 mph for the majority of the peak period, and about 75 percent of the peak hour demand would be served. With the improvements at the SR 65 interchange, the build alternatives have LOS D or better conditions with one exception. Alternative 1 has LOS E at the Eureka Road off-ramp. As above, the lack of an auxiliary lane at this location compared to the other two build alternatives results in a higher density.

None of the build alternatives have in impacts on I-80 eastbound in the AM and PM peak hours.

Westbound I-80

During the AM peak period, bottlenecks would exist under all alternatives at Douglas Boulevard and Elkhorn Boulevard. Figure 51 shows that the build alternatives generally have higher levels of congestion between Antelope Road and Elkhorn Boulevard because the increase in capacity at the I-80/SR 65 interchange allows more vehicles to arrive at those locations during the peak hour. Alternative 5 has more congestion at Douglas Boulevard, which constrains traffic demand (to 92 percent) and causes less congestion downstream at Elkhorn Boulevard. As noted previously, the Alternative 5 uses different forecasts, which may partly explain these differences. The proposed project (Alternatives 1, 2, & 3) would result in impacts at the following locations during the AM peak hour.

- Douglas Boulevard off-ramp (Alternative 1 only)
- Eastbound Douglas Boulevard on-ramp
- From the Truck Scales off-ramp to westbound Elkhorn Boulevard on-ramp
- Westbound Elkhorn Boulevard on-ramp (Alternatives 1 & 2 only)
- Eastbound Elkhorn Boulevard on-ramp

To mitigate the impact for the sections at Douglas Boulevard, an additional through lane could be constructed at the Douglas Boulevard and Riverside Avenue interchanges. This capacity improvement may have secondary impacts downstream at Elkhorn Boulevard. An alternate mitigation would be to use more restrictive metering of westbound I-80 and southbound SR 65 on-ramps, and potentially installing a meter signal on the southbound SR 65 to westbound I-80 connector.

The impact to the section from the truck scales to Elkhorn Boulevard could be mitigated by providing additional mainline capacity such as a continuous auxiliary lane between the truck scales on-ramp and Elkhorn Boulevard off-ramp or more restrictive metering on-ramps. More restrictive metering for ramps at Elkhorn Boulevard, Antelope Road, and Riverside Avenue could cause queuing that would extend onto the local street network.

During the PM peak hour, LOS F conditions would occur between Rocklin Road and SR 65 under Alternative 5 (No Build) due to traffic queued from northbound SR 65. Under the build alternatives, all segments would operate with LOS D or better conditions.

Northbound SR 65

During the AM and PM peak hours, the No Build alternative would have LOS F conditions at the I-80 westbound on-ramp and the Stanford Ranch Road on-ramp. The build alternatives would have LOS E conditions at Pleasant Grove Boulevard in both peak hours and at the Blue Oaks Boulevard on-ramp in the PM peak hour. The latter location would be a project impact that could be mitigated through more aggressive ramp metering or providing an auxiliary lane. All other study facilities on northbound SR 65 – including the I-80 and Stanford Ranch Road on-ramps – are projected to operate acceptably. There are no project impacts under construction year on northbound SR 65.

Southbound SR 65

During the AM peak hour, the No Build alternative would result in LOS F operations between Ferrari Ranch Road and Pleasant Grove Boulevard. Figure 55 indicates the travel speed would be less than 20 mph for most of the AM peak period.

The three build alternatives offer significantly less delay and higher travel speeds. Alternative 1 (Taylor Road Full Access Interchange) would have LOS F for the Sunset Boulevard eastbound on-ramp, but the other two alternatives would have LOS E or better at all locations. LOS E conditions would occur under all build alternatives between Sunset Boulevard and Pleasant Grove Boulevard.

During the PM peak hour, the Alternative 5 would have significant delays from Placer Parkway to Pleasant Grove Boulevard. The build alternatives would result in acceptable operations at all study facilities on southbound SR 65 during the PM peak hour. There are no project impacts under construction year on southbound SR 65.

5.2.2. Arterial Intersection Operations

Tables 30 and 32 show the LOS and average delay at key study intersections under construction year conditions during the AM and PM peak hours, respectively. Tables 31 and 33 show the average maximum queue length at off-ramps under construction year conditions during the AM and PM peak hours. Based

on the evaluation criteria for this study, Alternative 1 (Taylor Road Full Access Interchange) results in three impacts, Alternative 2 (Collector-Distributor System Ramps) results in two impacts, and Alternative 3 (Taylor Road Interchange Eliminated) has one impact. See the Technical Appendix for all study intersection results.

TABLE 30: SELECTED INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Intersection	Alternative 1	Alternative 2	Alternative 3	Alternative 5
6. Blue Oaks Blvd / Washington Blvd	C / 33	C / 33	C / 33	**F / 187**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 12	B / 11	B / 11	B / 12
10. Stanford Ranch Rd / Five Star Blvd	C / 24	C / 25	C / 24	C / 29
11. Stanford Ranch Rd / SR 65 NB Ramps	A / 7	A / 7	A / 8	C / 27
12. Galleria Blvd / SR 65 SB Ramps	B / 20	B / 19	B / 19	C / 23
14. Galleria Blvd / Roseville Pkwy	C / 31	D / 36	C / 33	D / 36
16. Roseville Pkwy / Taylor Rd	D / 47	D / 46	D / 49	**F / 130**
19. Atlantic St / I-80 WB Ramps	C / 29	B / 12	C / 26	B / 16
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 26	C / 28	C / 31	C / 22
21. Eureka Rd / Sunrise Ave	**D / 36**	C / 34	**D / 35**	C / 25
23. Douglas Blvd / Harding Blvd	C / 22	C / 25	C / 23	C / 22
26. Douglas Blvd / Sunrise Ave	D / 35	D / 37	D / 37	C / 30
28. Pacific St / Sunset Blvd	C / 22	C / 22	B / 17	C / 28
29. Rocklin Rd / Granite Dr	B / 18	B / 19	B / 19	C / 21

Notes: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

TABLE 31: SELECTED MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR AM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eureka Rd	1,700	525	700	825
Eastbound I-80 at Taylor Rd	>1,000	400	25	-
Eastbound I-80 at Rocklin Rd	1,080	275	250	275
Westbound I-80 at Rocklin Rd	1,230	225	200	250
Westbound I-80 at Taylor Rd	>1,000	400	-	-
Westbound I-80 at Douglas Blvd	1,530	350	400	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	0	0	0
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	50	75	100
Southbound SR 65 at Southbound Galleria Blvd	1,130	225	250	225
Southbound SR 65 at Northbound Galleria Blvd	1,780	50	25	50

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

TABLE 32: SELECTED INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

Intersection	Alternative 1	Alternative 2	Alternative 3	Alternative 5
6. Blue Oaks Blvd / Washington Blvd	**D / 39**	**D / 43**	**D / 40**	**F / 188**
7. Blue Oaks Blvd / SR 65 NB Ramps	B / 11	B / 12	B / 12	C / 26
10. Stanford Ranch Rd / Five Star Blvd	**D / 43**	**D / 37**	**D / 37**	**F / 107**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 11	A / 10	B / 10	D / 45
12. Galleria Blvd / SR 65 SB Ramps	B / 17	B / 16	B / 17	D / 43
14. Galleria Blvd / Roseville Pkwy	E / 61	E / 56	E / 58	**F / 227**
16. Roseville Pkwy / Taylor Rd	D / 48	D / 42	D / 53	D / 37
19. Atlantic St / I-80 WB Ramps	B / 17	B / 12	C / 29	**D / 36**
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E / 63	E / 77	E / 78	D / 42
21. Eureka Rd / Sunrise Ave	**D / 52**	**E / 63**	**D / 48**	**D / 49**
23. Douglas Blvd / Harding Blvd	D / 42	D / 39	D / 49	**F / 123**
26. Douglas Blvd / Sunrise Ave	D / 50	**E / 56**	D / 47	**F / 203**
28. Pacific St / Sunset Blvd	**D / 39**	**D / 43**	C / 24	C / 30
29. Rocklin Rd / Granite Dr	**F / 101**	**F / 91**	**F / 110**	**F / 170**

Notes: Bold and underline font indicate unacceptable operations. Shaded cells indicate a project impact. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers, 2014

TABLE 33: SELECTED MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR PM PEAK HOUR CONDITIONS

Off-ramp	Storage	Alternative 1	Alternative 2	Alternative 3
Eastbound I-80 at Eureka Rd	1,700	900	525	1,325
Eastbound I-80 at Taylor Rd	>1,000	225	125	-
Eastbound I-80 at Rocklin Rd	1,080	400	275	350
Westbound I-80 at Rocklin Rd	1,230	225	250	300
Westbound I-80 at Taylor Rd	>1,000	225	-	-
Westbound I-80 at Douglas Blvd	1,530	375	350	375
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	25	125	0
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	175	200	150
Southbound SR 65 at Southbound Galleria Blvd	1,130	250	225	225
Southbound SR 65 at Northbound Galleria Blvd	1,780	100	125	125

Note: Bold and underline font indicate queues that exceed the ramp length. Shaded cells indicate a project impact. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

The following intersections would operate at an unacceptable LOS based on the evaluation criteria under all project alternatives during the PM peak hour.

- Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps
- Stanford Ranch Road/Five Star Boulevard
- Eureka Road/Sunrise Avenue
- Rocklin Road/Granite Drive

The analysis results indicate these intersections will need significant capacity enhancements with and without the proposed project to operate within the established LOS thresholds for these locations. Before any improvements are proposed though, the interaction between these locations and the rest of the network should be considered. In some cases, the operation of these intersections meters traffic accessing the freeway or contributes to queuing that may extend back onto the freeway. In other locations, improvements to the freeway system, such as an auxiliary lane, may reduce demand and/or queuing that would improve intersection operations.

During the AM peak hour, only one intersection would have deficient operations under the build alternatives. The Eureka Road/Sunrise Avenue intersection would have LOS D conditions for Alternatives 1 (Taylor Road Full Access Interchange and 3 (Taylor Road Interchange Eliminated) although the delay value is within two seconds of the LOS C/D threshold. Since the intersection would operate acceptably at LOS C

under the No Build Alternative, the intersection is also an impact. All intersections would operate acceptably under Alternative 2 (Collector-Distributor System Ramps) during the AM peak hour. Adjustments to the signal timing may mitigate this impact.

During the AM peak hour, the average maximum queue lengths for freeway off-ramps at all study intersections are less than the ramp storage length under all build alternatives. Even with an additional left-turn pocket lane, Alternative 3 (Taylor Road Interchange Eliminated) has the longest queue on the eastbound I-80 off-ramp at Eureka Road. However, the queue is less than the ramp length, so the queue would not extend to the freeway mainline.

During the PM peak hour, Alternatives 1 (Taylor Road Full Access Interchange) and 2 would have impacts at the following study intersections.

- Eureka Road/Sunrise Avenue
- Pacific Street/Sunset Boulevard

Under Alternative 5 (No Build), traffic volumes are constrained on eastbound I-80, which restricts the traffic that can reach these intersections. With the build alternatives, the volume served, and also the delay, are higher. At Eureka Road/Sunrise Avenue, the westbound queue from Eureka Road/Taylor Road extends to the intersection causing additional delay. To reduce the delay below the 49 seconds (LOS D) in Alternative 5 would likely require improvements at the Eureka Road/Taylor Road intersections that included with Alternative 3 (a second northbound left-turn lane and a second southbound right-turn lane).

At the Pacific Street/Sunset Boulevard intersection, Alternatives 1 and 2 would have LOS D conditions compared to LOS C for Alternatives 3 and 5. The intersection is planned to be widened as part of the widening of Sunset Boulevard from four to six lanes. This widening project is assumed to be in place by design year conditions. So, the proposed mitigation for this impact is to construct the planned widening of Sunset Boulevard.

Similar to AM peak hour conditions, the average maximum queues at the off-ramps do not exceed the ramp lengths. The longest queue for the build alternatives occurs on the eastbound off-ramp at Eureka Road. Alternative 3 has the longest queue. This alternative has the highest volume on this ramp due to the diversion of traffic with the closure of the eastbound off-ramp to Taylor Road.

Chapter 6. Summary and Conclusions

6.1. **Deficiencies**

The study locations that do not meet the LOS threshold are summarized below by alternative. The LOS thresholds are provided in Section 2.5.

Existing Conditions

- AM Peak Hour
    - Westbound I-80: from the westbound Antelope Road on-ramp to the Elkhorn Boulevard off-ramp
    - Northbound SR 65: westbound I-80 on-ramp
    - Southbound SR 65: from the westbound Blue Oaks Boulevard on-ramp to the eastbound Pleasant Grove Boulevard on-ramp
    - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps
- PM Peak Hour
    - Eastbound I-80: Eureka Road off-ramp and SR 65 off-ramp
    - Westbound I-80: SR 65 off-ramp
    - Northbound SR 65: from the westbound I-80 on-ramp to the Stanford Ranch Road off-ramp
    - Intersections: Eureka Road/Taylor Road/I-80 Westbound Ramps

Alternative 1 (Taylor Road Full Access Interchange)

- Design Year AM Peak Hour
    - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and Stanford Ranch Road on-ramp
    - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp, westbound Placer Parkway on-ramp, and westbound I-80 connector

  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Atlantic Street/I-80 Westbound Ramps, and Eureka Road/Sunrise Avenue

- Design Year PM Peak Hour
  - Westbound I-80: Eastbound Atlantic Street off-ramp to the eastbound Douglas Boulevard on-ramp
  - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and the Stanford Ranch Road on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/Sunrise Avenue, and Rocklin Road/Granite Drive
- Construction Year AM Peak Hour
  - Westbound I-80: from the Atlantic Street on-ramp to the eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
  - Southbound SR 65: eastbound Sunset Boulevard on-ramp
  - Intersections: Eureka Road/Sunrise Avenue
- Construction Year PM Peak Hour
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Eureka Road/Sunrise Avenue, Pacific Street/Sunset Boulevard, and Rocklin Road/Granite Drive

Alternative 2 (Collector-Distributor System Ramps)

- Design Year AM Peak Hour
  - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
  - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp, Stanford Ranch Road on-ramp, and Stanford Ranch Road to Pleasant Grove Boulevard
  - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp and westbound I-80 connector

  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Eureka Road/Sunrise Avenue, and Douglas Boulevard/I-80 Westbound Ramps

- Design Year PM Peak Hour
  - Westbound I-80: Eastbound Atlantic Street off-ramp to the eastbound Douglas Boulevard on-ramp
  - Northbound SR 65: Eureka Road on-ramp to Stanford Ranch Road on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, and Lincoln Boulevard/SR 65 Southbound on-ramp
- Construction Year AM Peak Hour
  - Westbound I-80: Douglas Boulevard off-ramp to westbound on-ramp section to eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
- Construction Year PM Peak Hour
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Eureka Road/Sunrise Avenue, Douglas Boulevard/Sunrise Avenue, Pacific Street/Sunset Boulevard, and Rocklin Road/Granite Drive

<u>Alternative 3 (Taylor Road Interchange Eliminated)</u>

- Design Year AM Peak Hour
  - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
  - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp, Stanford Ranch Road on-ramp, and Stanford Ranch Road to Pleasant Grove Boulevard
  - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp

  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Atlantic Street/I-80 Westbound Ramps, Eureka Road/Sunrise Avenue, and Douglas Boulevard/I-80 Westbound Ramps

- Design Year PM Peak Hour
  - Westbound I-80: Eastbound Atlantic Street off-ramp to on-ramp section to the eastbound Douglas Boulevard on-ramp
  - Northbound SR 65: Eureka Road on-ramp to Stanford Ranch Road on-ramp
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Roseville Parkway/Taylor Road, Atlantic Street/Wills Road, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, and Lincoln Boulevard/SR 65 Southbound On-ramp
- Construction Year AM Peak Hour
  - Westbound I-80: Douglas Boulevard off-ramp to westbound on-ramp section to eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
  - Intersections: Eureka Road/Sunrise Avenue
- Construction Year PM Peak Hour
  - Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Eureka Road/Sunrise Avenue, Rocklin Road/Granite Drive, and Rocklin Road/Aguilar Road

<u>Alternative 5 (No Build)</u>

- Design Year AM Peak Hour
  - Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp
  - Westbound I-80: Eastbound Atlantic Street off-ramp
  - Northbound SR 65: Westbound I-80 on-ramp
  - Southbound SR 65: Twelve Bridges Drive off-ramp to on-ramp, Twelve Bridges Drive on-ramp, and from the Pleasant Grove Boulevard to Galleria Boulevard section to the Galleria Boulevard on-ramp
  - Intersections: Lincoln Boulevard/Sterling Parkway, Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps,

Stanford Ranch Road/Five Star Boulevard, Stanford Ranch Road/SR 65 Northbound Ramps, Roseville Parkway/Taylor Road, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/I-80 Eastbound Ramps, Lincoln Boulevard/SR 65 Northbound Off-ramp, Lincoln Boulevard/SR 65 Southbound On-ramp, and Placer Parkway/SR 65 Northbound Ramps

- Design Year PM Peak Hour
    - Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp
    - Westbound I-80: Rocklin Road on-ramp to SR 65 off-ramp and Taylor Road on-ramp to Douglas Boulevard off-ramp
    - Northbound SR 65: Westbound I-80 on-ramp
    - Intersections: Lincoln Boulevard/Sterling Parkway, Twelve Bridges Drive/SR 65 Northbound Ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Blue Oaks Boulevard/SR 65 Northbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Sunrise Avenue, Atlantic Street/Wills Road, Atlantic Street/I-80 Westbound Ramps, Eureka Road/Taylor Road/I-80 Eastbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/I-80 Eastbound Ramps, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, Rocklin Road/I-80 Eastbound Ramps, Rocklin Road/Aguilar Road, Lincoln Boulevard/SR 65 Northbound Off-ramp, Lincoln Boulevard/SR 65 Southbound On-ramp, and Whitney Ranch Parkway/SR 65 Northbound Ramps
- Construction Year AM Peak Hour
    - Eastbound I-80: SR 65 off-ramp and Rocklin Road off-ramp
    - Westbound I-80: SR 65 off-ramp, Taylor Road on-ramp to eastbound Douglas Boulevard on-ramp, and from the Elkhorn Boulevard off-ramp to on-ramp section to the eastbound Elkhorn Boulevard on-ramp
    - Northbound SR 65: Westbound I-80 on-ramp and Stanford Ranch Road on-ramp
    - Southbound SR 65: from the Ferrari Ranch Road to Lane Drop section to the eastbound Pleasant Grove Boulevard on-ramp
    - Intersections: Twelve Bridges Drive/SR 65 Southbound Ramps, Twelve Bridges Drive/SR 65 Northbound Ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Pleasant Grove Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/I-80 Eastbound Ramps, Rocklin Road/I-80 Eastbound Ramps, Lincoln Boulevard/SR 65 Southbound On-ramp, and Placer Parkway/SR 65 Southbound Ramps

- Construction Year PM Peak Hour
    - Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp
    - Westbound I-80: Rocklin Road on-ramp to SR 65 off-ramp
    - Northbound SR 65: Westbound I-80 on-ramp, Stanford Ranch Road off-ramp to on-ramp, and Stanford Ranch Road on-ramp
    - Southbound SR 65: from the Placer Parkway to Sunset Boulevard weaving section to the eastbound Pleasant Grove Boulevard on-ramp
    - Intersections: Lincoln Boulevard/Sterling Parkway, Sunset Boulevard/SR 65 Southbound Ramps, Sunset Boulevard/SR 65 Northbound Ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 Southbound Ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Atlantic Street/I-80 Westbound Ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 Westbound Ramps, Douglas Boulevard/I-80 Eastbound Ramps, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, Rocklin Road/I-80 Westbound Ramps, Rocklin Road/I-80 Eastbound Ramps, Rocklin Road/Aguilar Road, and Lincoln Boulevard/SR 65 Northbound Off-ramp, and Lincoln Boulevard/SR 65 Southbound On-ramp

6.2. **Project Impacts**

The project impacts are summarized below by alternative. A project impact occurs where (1) the LOS threshold is exceeded and (2) the conditions are worse than the no build alternative (Alternative 5).

Alternative 1 (Taylor Road Full Access Interchange)

- Design Year AM Peak Hour
    - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and Stanford Ranch Road on-ramp
    - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp, westbound Placer Parkway on-ramp, and westbound I-80 connector
    - Intersections: Atlantic Street/I-80 Westbound Ramps and Eureka Road/Sunrise Avenue

- Design Year PM Peak Hour
    - Westbound I-80: Eastbound Atlantic Street off-ramp, eastbound Atlantic Street off-ramp to on-ramp, Douglas Boulevard off-ramp to westbound on-ramp, westbound Douglas Boulevard on-ramp, and eastbound Douglas Boulevard on-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and the Stanford Ranch Road on-ramp.
    - Intersections: Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, and Eureka Road/Taylor Road/I-80 Eastbound Ramps
- Construction Year AM Peak Hour
    - Westbound I-80: Douglas Boulevard off-ramp, eastbound Douglas Boulevard on-ramp, and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
    - Intersections: Eureka Road/Sunrise Avenue
- Construction Year PM Peak Hour
    - Intersections: Eureka Road/Sunrise Avenue and Pacific Street/Sunset Boulevard

Alternative 2 (Collector-Distributor System Ramps)

- Design Year AM Peak Hour
    - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp, Stanford Ranch Road on-ramp, and Stanford Ranch Road to Pleasant Grove Boulevard
    - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp and westbound I-80 connector
    - Intersections: Eureka Road/Sunrise Avenue
- Design Year PM Peak Hour
    - Westbound I-80: Eastbound Atlantic Street off-ramp to on-ramp, Douglas Boulevard off-ramp to westbound on-ramp, westbound Douglas Boulevard on-ramp, and eastbound Douglas Boulevard on-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and the Stanford Ranch Road on-ramp.
    - Intersections: Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, and Eureka Road/Taylor Road/I-80 Eastbound Ramps

- Construction Year AM Peak Hour
    - Westbound I-80: Eastbound Douglas Boulevard on-ramp and from the Truck Scales off-ramp to the eastbound Elkhorn Boulevard on-ramp
- Construction Year PM Peak Hour
    - Intersections: Eureka Road/Sunrise Avenue and Pacific Street/Sunset Boulevard

Alternative 3 (Taylor Road Interchange Eliminated)

- Design Year AM Peak Hour
    - Westbound I-80: from the SR 65 to Atlantic Street weave section to the eastbound Douglas Boulevard on-ramp and from the Truck Scales on-ramp to the eastbound Elkhorn Boulevard on-ramp except for the Elkhorn Boulevard off-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp, Stanford Ranch Road on-ramp, and Stanford Ranch Road to Pleasant Grove Boulevard
    - Southbound SR 65: eastbound Ferrari Ranch Road on-ramp to Twelve Bridges Drive on-ramp
    - Intersections: Atlantic Street/I-80 Westbound Ramps and Eureka Road/Sunrise Avenue
- Design Year PM Peak Hour
    - Westbound I-80: Douglas Boulevard off-ramp to westbound on-ramp, westbound Douglas Boulevard on-ramp, and eastbound Douglas Boulevard on-ramp
    - Northbound SR 65: Stanford Ranch Road off-ramp to on-ramp and the Stanford Ranch Road on-ramp.
    - Intersections: Stanford Ranch Road/Five Star Boulevard, Roseville Parkway/Creekside Ridge Drive, Roseville Parkway/Taylor Road, and Eureka Road/Taylor Road/I-80 Eastbound Ramps
- Construction Year AM Peak Hour
    - Westbound I-80: Eastbound Douglas Boulevard on-ramp, from the Truck Scales off-ramp to the westbound Elkhorn Boulevard on-ramp, and the eastbound Elkhorn Boulevard on-ramp
- Construction Year PM Peak Hour
    - None

6.3. **Potential Mitigation Measures**

The potential mitigation measures for the project impacts identified in the previous section are provided below.

Westbound I-80

- Impacts from SR 65 to Riverside Avenue can be mitigated by providing an additional through lane from the Douglas Boulevard off-ramp to the westbound on-ramp and from the Riverside Avenue off-ramp to the northbound on-ramp. This mitigation may cause a secondary impact downstream at Elkhorn Boulevard.
- Impacts from the truck scales to Elkhorn Boulevard can be mitigated by providing a full auxiliary lane from the truck scales to Elkhorn Boulevard or adding a through lane at Elkhorn Boulevard.
- An alternate mitigation to the above widening options would be to operate the ramp meters on westbound I-80 and southbound SR 65 at a more restrictive rate. With the more restrictive rates, longer ramp queues may cause secondary impacts to local streets.

Northbound SR 65

- Impacts from Stanford Ranch Road to Pleasant Grove Boulevard can be mitigated by providing an additional through lane from the Pleasant Grove Boulevard off-ramp to on-ramp. The additional lane may need to be extended past the Blue Oaks Boulevard interchange to mitigate potential secondary impacts.

Southbound SR 65

- Impacts from Ferrari Ranch Road to Twelve Bridges Drive can be mitigated by providing an auxiliary lane between Twelve Bridge Drive and Placer Parkway. Secondary impacts may occur at downstream sections.
- The impact to the westbound Placer Parkway on-ramp (Alternative 1 only) may be mitigated by extending the planned auxiliary lane between Placer Parkway and Sunset Boulevard to start at the westbound, instead of the eastbound, on-ramp.
- The impact to the southbound to westbound connector at I-80 (Alternatives 1 and 2) would be mitigated by widening westbound I-80 at Douglas Boulevard or adjusting ramp meter rates as discussed above under the westbound I-80 mitigation measures.

Intersections

- Stanford Ranch Road/Five Star Boulevard – The impact would likely be mitigated by prohibiting the northbound U-turn movement and adding a right-turn overlap phase although this change would increase out-of-direction travel.

- Roseville Parkway/Creekside Ridge Drive – The impact is caused by queuing from the adjacent intersection at Roseville Parkway/Galleria Boulevard, so signal timing adjustments or widening improvements would be needed at the adjacent signal.
- Roseville Parkway/Taylor Road (Alternative 3 only) – The impact may be mitigated by adding a third southbound left-turn lane.
- Atlantic Street/I-80 Westbound Ramps (Alternatives 1 and 3) – Peak hour delay can be reduced by adjusting the ramp meter rate or widening the on-ramp to provide more storage.
- Eureka Road/Taylor Road/I-80 Eastbound Ramps – For Alternatives 1 and 2, second northbound left-turn and southbound right-turn lanes could be added to reduce delays. Alternative 3 already includes these modifications, so further improvements, such as grade separation, would be needed to mitigate the impact.
- Eureka Road/Sunrise Avenue – Peak hour delay can be reduced by widening to provide a fourth through lane or a third left-turn lane on some approaches. Alternately, the impact threshold could be changed from LOS C to D given that the intersection handles a significant volume.
- Pacific Street/Sunset Boulevard (Alternatives 1 and 2) – This impact under construction year conditions can be mitigated by constructing the planned widening of Sunset Boulevard from four to six lanes, which is assumed to occur before the design year.

6.4. **Comparison of Project Alternatives**

In general, the three build alternatives perform similarly under design year conditions. During the AM peak period, Alternative 2 (Collector-Distributor System Ramps) has the best performance: highest volume served and lowest overall delay. During the PM peak period, Alternative 1 (Taylor Road Full Access Interchange) has the best peak period overall performance. In terms of project impacts, Alternatives 2 and 3 (Taylor Road Interchange Eliminated) have the fewest during the AM peak period (26, compared to 28 for Alternative 1), while Alternative 3 has the fewest during the PM peak period (9, compared to 10 for the other two build alternatives).

With regard to traffic operations, the build alternatives perform similarly for two of the three project objectives (see Section 1.3). The build alternatives reduce congestion compared to the no build alternative (Alternative 5). Because the project changes bottleneck locations, the congestion locations shift - and therefore project impacts occur, but the overall delay is reduced. The project alternatives consider all travel modes and users similarly. All alternatives would include accommodation for non-motorized modes at intersections, provide HOV-only facilities at ramp meters, and construct the HOV-only direct connectors.

For the third objective, the level of community access would differ somewhat (differences in design standards will be addressed in the Project Report). Alternative 1 would increase access to the freeway at

Taylor Road by providing a new interchange with all directions. Alternative 2 would maintain the existing connections at Taylor Road. Alternative 3 would eliminate the current Taylor Road access so that travelers would need to divert to other interchanges. In summary, Alternative 1 would best serve the project objectives when considering to traffic operations.

Chapter 7. References

This chapter contains the references cited in the Transportation Analysis Report.

California Department of Transportation, District 3. May 2009. *Interstate 80 and Capital City Freeway Corridor System Management Plan*.

California Department of Transportation, District 3. May 2009. *State Route 65 Corridor Systems Management Plan*.

California Department of Transportation. 2002. *Guidelines for Applying Traffic Microsimulation Modeling Software*.

California Department of Transportation. Traffic Accident Surveillance and Analysis System. April 1, 2009 – March 31, 2012.

California Department of Transportation. *Highway Design Manual, 6th Edition*. March 2014.

California Transportation Commission. 2010. *2010 California Regional Transportation Guidelines*.

Cervero, R. August 2002. *Induced Travel Demand: Research Design, Empirical Evidence, and Normative Policies*.

City of Lincoln. March 2008. *City of Lincoln General Plan*.

City of Rocklin. April 1991. *City of Rocklin General Plan*.

City of Roseville. May 2010. *City of Roseville General Plan*.

Federal Highway Administration, 2004. *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software*.

Sacramento Area Council of Governments. 2011. *2035 Metropolitan Transportation Plan/Sustainable Communities Strategy*.

Transportation Research Board. 2011. *Highway Capacity Manual*.

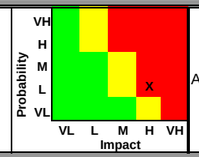
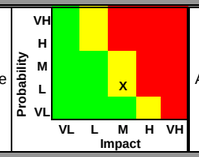
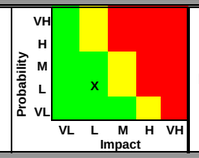
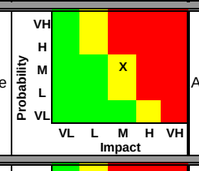
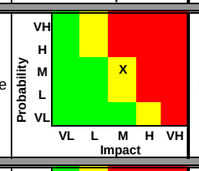
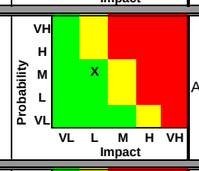
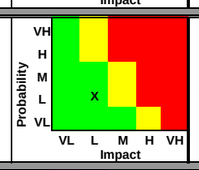
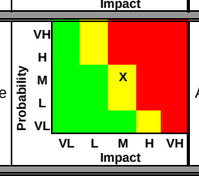
Dist - E.A 03-4E320K

PROJECT RISK MANAGEMENT PLAN

I-80 / SR65 Interchange Modification

Date 5/19/2009
Project Mngr S. Jordan **Telephone Number**
Revised by CH 7/25/2014

PROJECT RISK MANAGEMENT PLAN

Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(16)	(17)	(18)	(19)	(20)	(21)
Active	1-	10/1/2008 PID	Design	Traffic Analysis	Full traffic analysis was delayed to PA&ED, the traffic analysis may show that portions of alternatives do not perform well.	The risk occurs if traffic analysis shows that some of the scope of work is not performing to an acceptable level.	**Cost**	Low	High		Acceptance	Team will have to decide how to proceed with the project if risk occurs. Results may be dropping alternatives, downscoping or rescoping the project.	WBS 160 Perform Preliminary Engineering Studies and Prepare Draft Project Report	Traffic / Design	PA&ED	
Active	2-	4/1/2009 PID	Env/Design	A Section 4(f) evaluation becomes necessary.	A Section 4(f) evaluation becomes necessary if we do work near the Antelope trail.	Structures design / construction work impacts the trail	**Schedule** **Cost**	Low	Moderate		Avoidance	Avoid impacts to the Antelope Trail to the maximum extent possible.	WBS 160 Perform Preliminary Engineering Studies and Prepare Draft Project Report	Env / Design / R/W	Continuous	
Active	3-	5/6/2009 PID	Design	Utility conflicts	The utility towers south of I-80 between Eureka/Atlantic Rd and Taylor Rd willl need to be relocated.	The risk occurs if during survey work to confirm location and clearance requirements from the tower footings require less than a 2 foot shoulder at this location.	**Cost**	Low	Low		Mitigation	Add cost to relocate utility to estimate	WBS 160 Perform Preliminary Engineering Studies and Prepare Draft Project Report	Design	PA&ED	
Active	4-	5/19/2009 PID	PM	Staff turnover	The project schedule would be at risk if the current PE is removed from the PDT.	The risk ocurs if the PE or other Key PDT members are removed from the PDT	**Schedule**	Moderate	Moderate		Acceptance	•PM to coordinate with Design •Good project documentation		Project Manager	Ongoing	
Active	5-	5/6/2009 PID	Design	Terminus of HOV Lanes on SR 65	It was assumed that HOV Lanes would be present on SR 65 when this project is constructed.	The risk occurs if the HOV Lanes are not in place.	**Cost** **Scope**	Moderate	Moderate		Mitigation	Need to continue working with local partners on the schedule of the HOV lanes project. If HOV lanes are no longer going prior to this project then the design of the termination of the HOV lanes must be completed. May result in expansion of project limits to the	WBS 160 Perform Preliminary Engineering Studies and Prepare Draft Project Report	Design	PA&ED	
Active	6-	5/19/2009 PA&ED	Design	Project coordination	The project needs to coordinate with other HOV projects (accommodate future concepts) and other City/County projects.	The risk occurs if there are unknown project impacts from other projects	**Schedule**	Moderate	Low		Acceptance	Revise design as necessary to match any changes during final design/construction of 80 HOV Phase 3		oject Manager / Des	PSR for other projects	
Active	7-	5/19/2009 PID	Env/Design	Archaeological resources within the project limits.	There is one known site in the area that is well studied and documented. There may be another site nearby which will be discovered during the environmental process.	Field surveys locate sites within APE.	**Schedule** **Cost**	Low	Low		Mitigation	Identify potential sites within the APE as early as possible. Work with Design to avoid archaeological resources where possible. Where avoidance is not possible, mitigation will be required. As of May 23, 2006 the workplan should have adequate resources for	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Env/Design	Continuous	
Active	8-	5/19/2009 PID	Env/Design	Migratory birds may nest within the project area.	Migratory birds may nest in the project area. Vegetation should be removed the year prior to construction. If vegetation is not removed, preconstruction surveys will be required. If nesting birds are found, a work window or buffer may be	Vegetation is not removed the year prior to construction.	**Schedule** **Cost**	Moderate	Moderate		Avoidance	Work with design and PM to ensure that vegetation removal is completed the year prior to construction.	WBS 235 Mitigate Environmental Impacts and Clean-up Hazardous Waste	Env/Design/PM	Task 235	

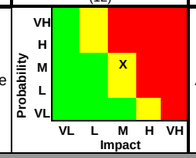
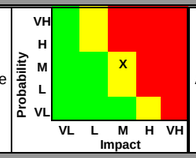
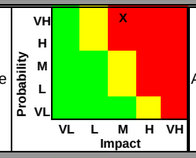
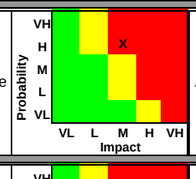
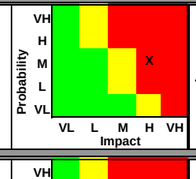
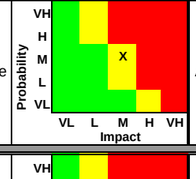
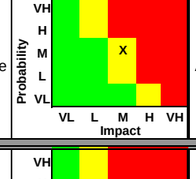
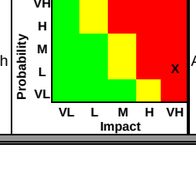
Dist - E.A 03-4E320K

PROJECT RISK MANAGEMENT PLAN

I-80 / SR65 Interchange Modification

Date 5/19/2009
Project Mngr S. Jordan **Telephone Number**
Revised by CH 7/25/2014

PROJECT RISK MANAGEMENT PLAN

Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(16)	(17)	(18)	(19)	(20)	(21)
Active	9-	5/19/2009 PID	Env/Design	Delays in the completion of consultant work (biology and archaeology)	Unforeseen delays in the completion of consultant tasks (biology and archaeology).	Tasks are not completed on schedule.	Schedule Cost	Moderate	Moderate		Avoidance	Work with consultants to ensure that tasks are completed on time. Require the submission of regular progress reports. Esnure that needed information is provided to consultants in a timely fashion.	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Environmental	Task 165	
Active	10-	5/19/2009 PID	Env/Design	Bats and swallows may nest under or within structures to be widened.	Bats and swallows may nest under or within structures. Exclusionary devices should be installed prior to construction. If exclusionary devices are not installed, preconstruction surveys will be required. If bats and/or swallows are found, a work	Exclusionary devices are not installed prior to construction.	Schedule Cost	Moderate	Moderate		Avoidance	Work with design and PM to ensure that exclusionary devices are installed prior to construction.	WBS 235 Mitigate Environmental Impacts and Clean-up Hazardous Waste	Env/Design/Maint.	Task 235	
Active	11-	5/19/2009 PID	Env/Design	Public Controversy/Opposition	Potential exists for public controversy and or opposition to the project. Removal of soundwalls and mature vegetation is likley to be of concern to residents as is construction related noise impacts.	Public controversy and/or opposition.	Scope Schedule	Very High	Moderate		Acceptance	Work with other functional units to ensure that there is an adequate public outreach/public involvement strategy. Ensure QA/QC reviews are done.	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Env/Design/PM	Continuous	
Active	12-	5/19/2009 PID	Env/Design	Project Scope Changes	Changes to project scope could delay timely completion of the environmental document. The later the changes are made, the more severe the impacts (for example, if the BA must be revised after submittal to USFWS or additional wetland	Changes to project scope.	Schedule Quality	High	Moderate		Avoidance	Work with Design to learn of potential changes as early as possible and work to avoid potential effects resulting from such changes. Communicate possible effects to Project Management. Ensure that changes are implemented using	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Env/Design	Continuous	
Active	13-	5/19/2009 PID	Env/Design	Delays in obtaining necessary approvals and/or permits from resource agencies.	Delays in obtaining necessary approvals, such as the Biological Opinion, and/or permits from the resource agencies, could cause schedule delays.	Delays in obtaining approvals and/or permits.	Schedule Cost	Moderate	High		Avoidance	Work with resource agencies to ensure that all needed information has been provided. Keep in close contact with resource agencies to ensure that approvals and/or permits are on schedule.	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Env/Design	Continuous	
Active	14-	5/19/2009 PID	Env/R/W	Delays in obtaining PTEs (if needed) could cause delay in environmental studies.	Delays in obtaining PTEs, if necessary, could cause delays in beginning environmental studies, creating project delays.	PTEs are not received on schedule.	Schedule Cost	Moderate	Moderate		Avoidance	Work with R/W to ensure that any needed PTEs are requested as soon as possible.	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Env/R/W	Continuous	
Active	15-	5/19/2009 PID	Env/Design	Delays in obtaining detailed mapping and other needed design information could cause delay in environmental studies.	Delays in obtaining detailed mapping and other needed design information could cause delays in beginning environmental studies, creating project delays.	A delay in the completion of detailed mapping will cause a delay in the initiation of some of the environmental studies. This information should be provided as soon as possible.	Schedule Cost	Moderate	Moderate		Avoidance	Work with Design to ensure that ESR has all needed information.	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Env/Design	Continuous	
Active	16-	5/19/2009 PID	Env/Design	A second season of biological surveys is required.	A second season of biological surveys becomes necessary, due to the presence of an unanticipated species. A second season of surveys will severely impact the project schedule. This is considered a low probability risk at this time.	It is determined that a second season of biological surveys is required.	Schedule Cost	Low	Very High		Acceptance	Work with appropriate resources agencies early to ensure that no species with special survey protocols are expected to be found within the ESL. Begin surveys this year so that another season remains for additional surveys.	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Env	Continuous	

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PROJECT RISK MANAGEMENT PLAN

I-80 / SR65 Interchange Modification

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PROJECT RISK MANAGEMENT PLAN

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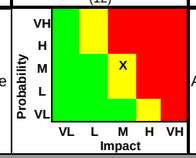
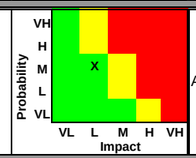
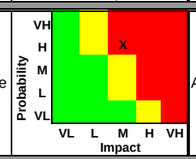
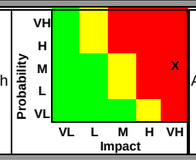
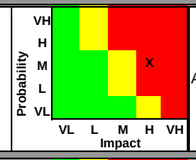
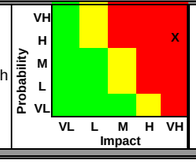
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(16)	(17)	(18)	(19)	(20)	(21)
Active	17-	5/19/2009 PID	Design	Stormwater requires mitigation.	Stormwater requirements may become more stringent, requiring additional mitigation.	Construction of detention basins may be required upon further analysis of stormwater flow rates.	**Cost**	Moderate	Moderate		Acceptance	Work with Stormwater Coordinator to ensure any potential changes in regulation and/or buildout in the area are anticipated and addressed properly.	WBS 160 Perform Preliminary Engineering Studies and Prepare Draft Project Report	Design	Continuous	
Active	18-	4/28/2009 PID	Env/Design	Noise Mitigation Requirement	Project is anticipated to meet definition of a Type 1 project needing a noise study.	Result of the noise study is that soundwalls/abatement are necessary.	**Cost**	Moderate	Low		Acceptance	Work with Design to make sure any required mitigation strategies are added to project.	WBS 165 Perform Environmental Studies and Prepare Draft Environmental Document (DED)	Env/Design	PA&ED	
Active	19-	5/19/2009 PID	R/W/Design	Condemnation of Property Required	Acquisition of right of way must go through the full condemnation process.	Property owner(s) unwilling to sell to State, resulting in condemnation process.	**Schedule**	High	Moderate		Acceptance	Adjust project schedule to assume full condemnation process is followed.	WBS 160 Perform Preliminary Engineering Studies and Prepare Draft Project Report	R/W/Design	Continuous	
Active	20-	5/6/2009 PID	Design	Mandatory Design Exceptions not approved in part or in whole.	Multiple design exceptions are required for the project.	HQ Design Coordinator determines project alternative has a fatal flaw or will not approve design exception	**Scope**	Moderate	Very High		Acceptance	Have design exception issue resolved prior to signing of the PID.	WBS 150 Develop Project Initiation Document (PID)	Design	PID	
Active	21-	6/1/2009 PID	HQ DES	Cost estimate for structures work is too low	The current state of the economy has resulted in lower construction costs than in the past.	Economy recovers before this project goes to construction.	**Cost**	Moderate	High		Acceptance	Continue to adjust the cost estimate at PA&ED, P&E and PS&E to reflect the current economic conditions and bidding climate.		Design/HQ DES	Continuous	
Active	22-	6/15/2009 PID	All	Cost estimate for support is too low	The support costs are capped at $7.4M but workplan estimates are coming in significantly higher.	Savings in the support estimate refinement is still greater than $7.4M.	**Cost**	High	Very High		N/A	Need to redevelop workplan and re-negotiate with local sponsor now that project scope is defined.		PPM	PID/PA&ED	

VA Implementation Meeting

I-80 / SR 65 INTERCHANGE IMPROVEMENTS
PROJECT APPROVAL & ENVIRONMENTAL DOCUMENT
(PA&ED) PHASE

October 15, 2014

I-80 / SR 65 Interchange Improvements

Goals and Objectives of the Project

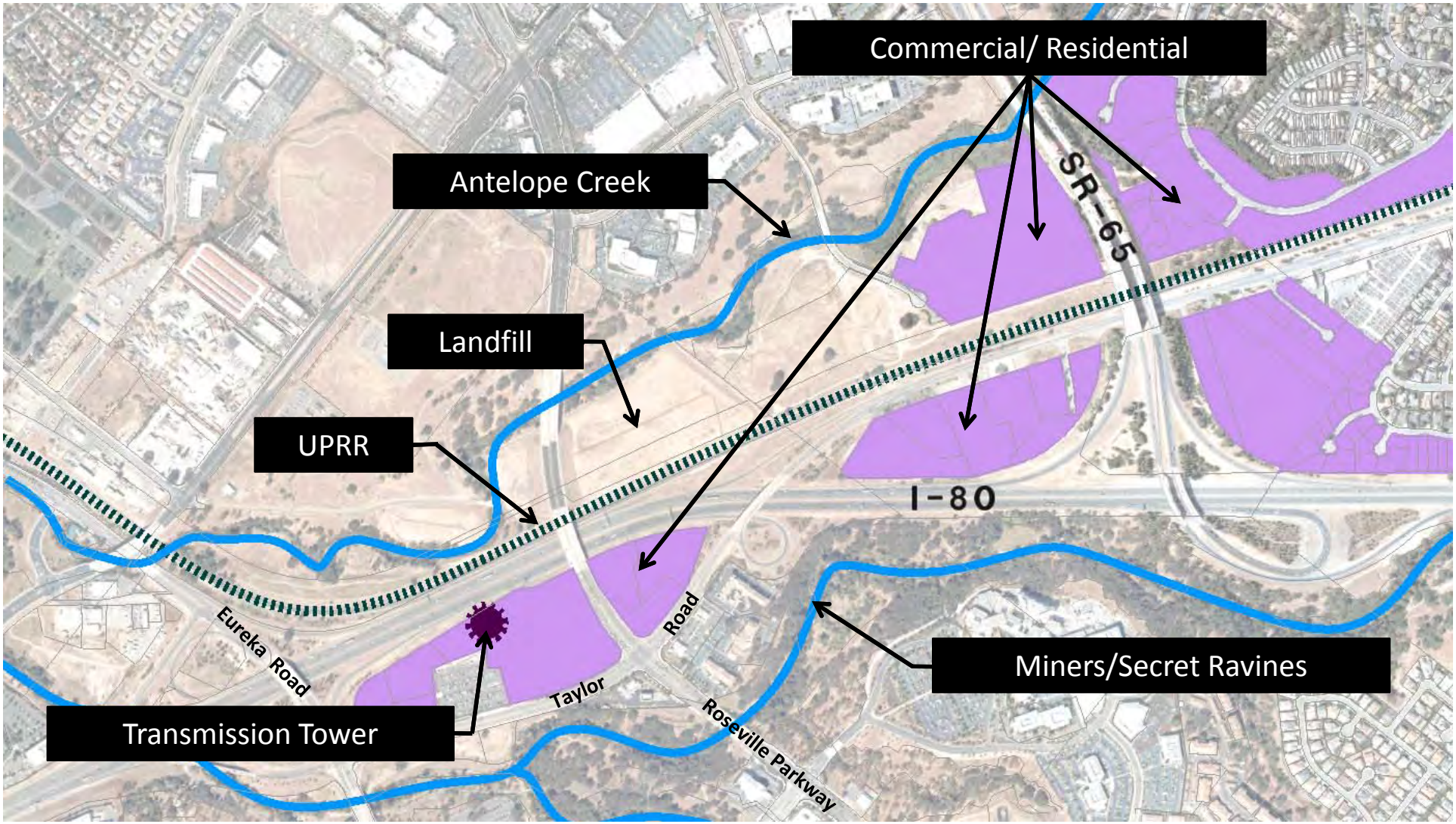
- Reduce congestion
- Improve traffic operations and enhance safety
- Maintain and/or enhance community access
- Consider all travel modes and users

Project Background/Schedule

- PSR phase completed by Caltrans in 2009
- PA/ED phase began in February 2011
- Current project alternatives presented to and approved by PCTPA Board – December 2013
- Env. Technical Studies Spring/Summer 2014
- Value Analysis Study – August 2014
- Draft Env. Document and PR – January 2015
- Project Approval – Summer 2016

I-80 / SR 65 Interchange Improvements

Adjacent Site Conditions/Constraints



Proposed Alternatives

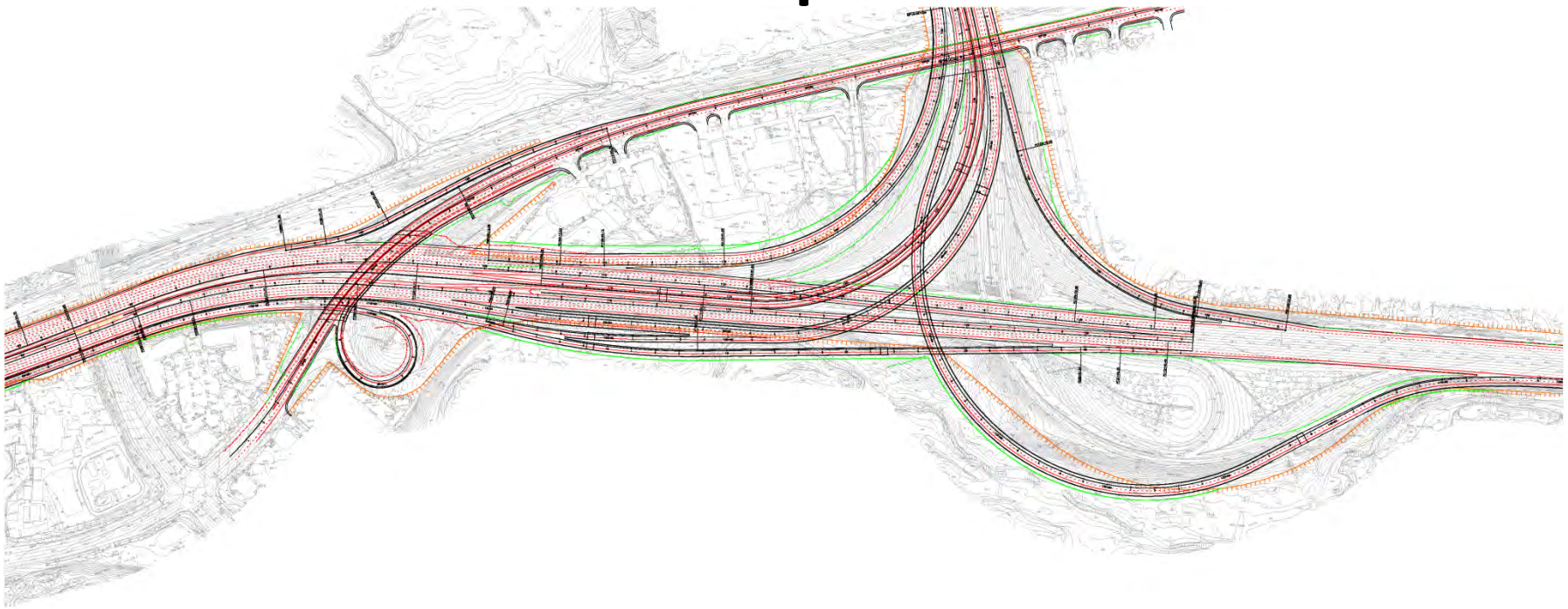
- **Alternative 1 – Taylor Road Full Access Interchange**
- **Alternative 2 – Collector-Distributor (C-D) System Ramps**
- **Alternative 3 – Taylor Road Interchange Eliminated**
- **Alternative 4 – Transportation System Management (TSM)**
- **Alternative 5 – No-Build (No Project)**

I-80 / SR 65 Interchange Improvements

Alternative 1 – Taylor Road Full Access Interchange

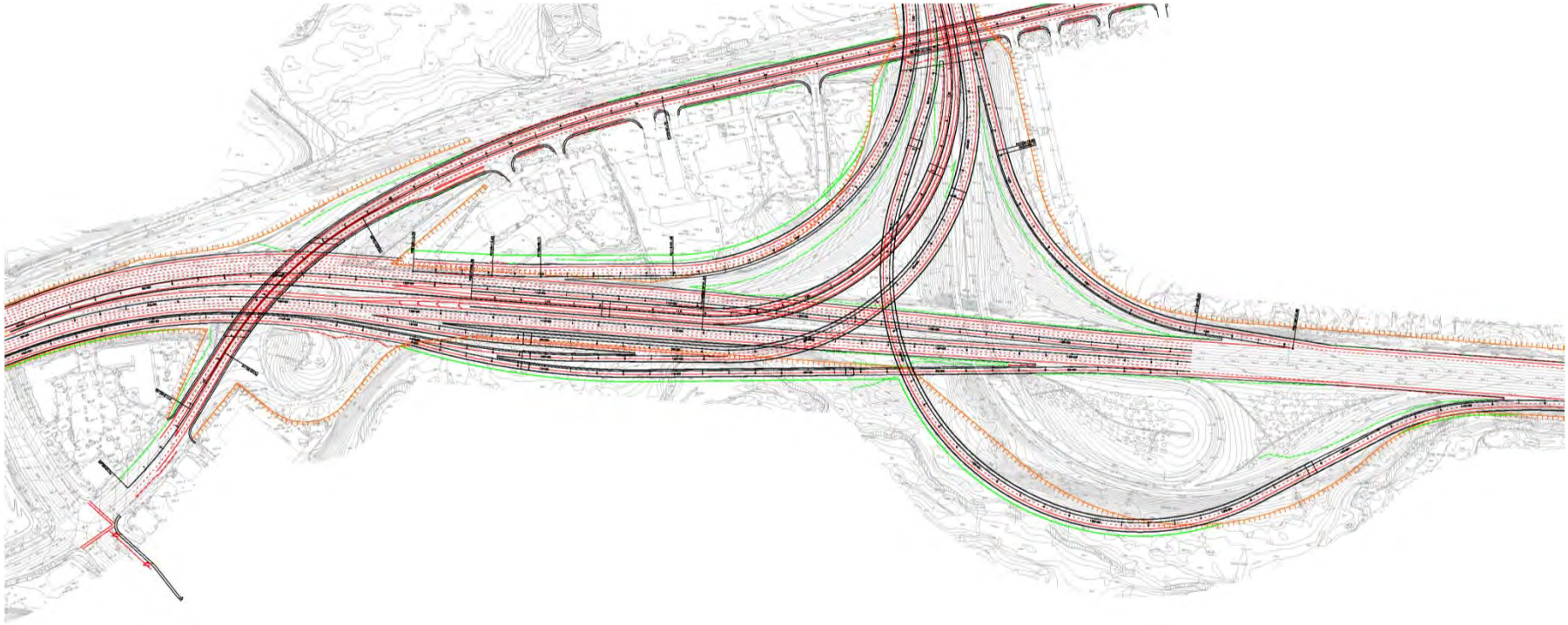
I-80 / SR 65 Interchange Improvements

Alternative 2 – Collector-Distributor (C-D) System Ramps



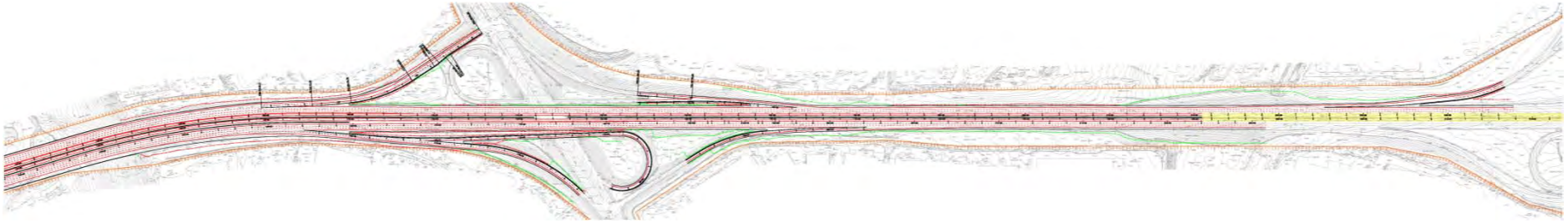
I-80 / SR 65 Interchange Improvements

Alternative 3 – Taylor Road Interchange Eliminated



I-80 / SR 65 Interchange Improvements

SR-65 Improvements



Cost Estimate Overview/Differences

Alternative 1 – Taylor Road Full Access Interchange

- $348.3M (2014) – Relatively high roadway, low structures, low R/W

Alternative 2 – Collector-Distributor (C-D) System Ramps

- $351.0M (2014) – Relatively low roadway, high structures, high R/W

Alternative 3 – Taylor Road Interchange Eliminated

- $342.0M (2014) – Relatively low roadway, medium structures, high R/W

VA Mission

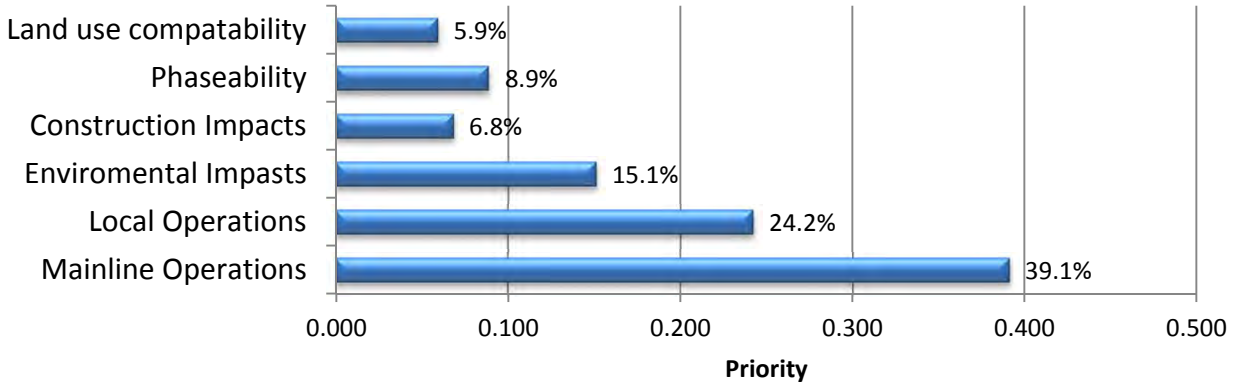
- **Expected Outcomes**
  - Cost savings without compromise to functional integrity.
  - Endorsement of a design concept using a Decision Analysis/rating system.
  - Overall and phased project funding summary.

- **Goals from VA Study**
  - Cost saving opportunities within each alternative.
  - Develop recommendations that provide safe facilities for users and workers.
  - Refinement of alternatives to better meet purpose and need.

I-80 / SR 65 Interchange Improvements

Priorities

Relative Importance of Performance Attributes

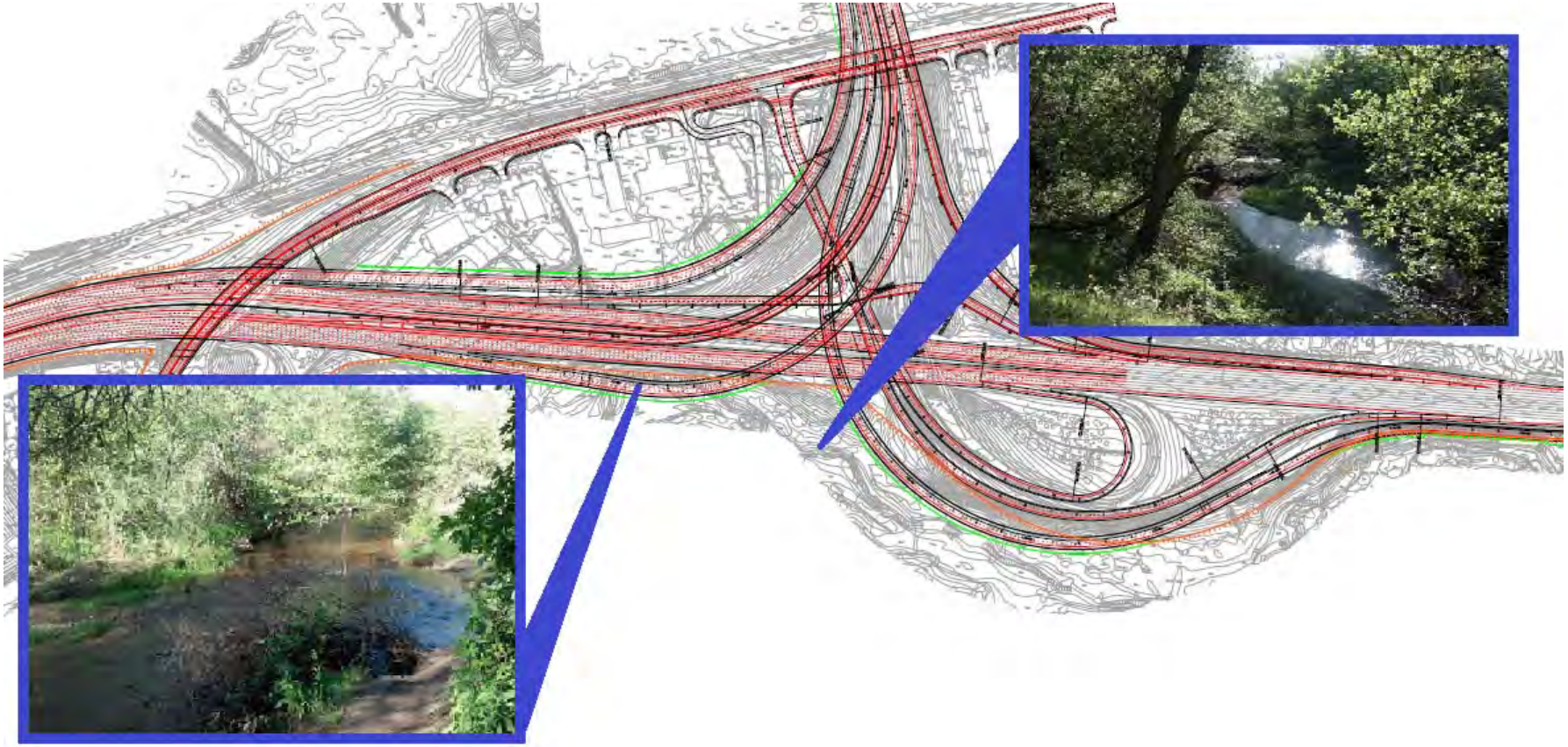


Proposed VA Alternatives

- **VA Alternative R-1 – Realign Secret Ravine**
- **VA Alternative R-2 – Replace Transfer Ramp with Loop**
- **VA Alternative S-1 – Narrow Viaduct**
- **VA Alternative S-2 – Transpose South SR 65/I-80 Ramps**

I-80 / SR 65 Interchange Improvements

R-1: Realign Secret Ravine, Eliminate CD4 Structure

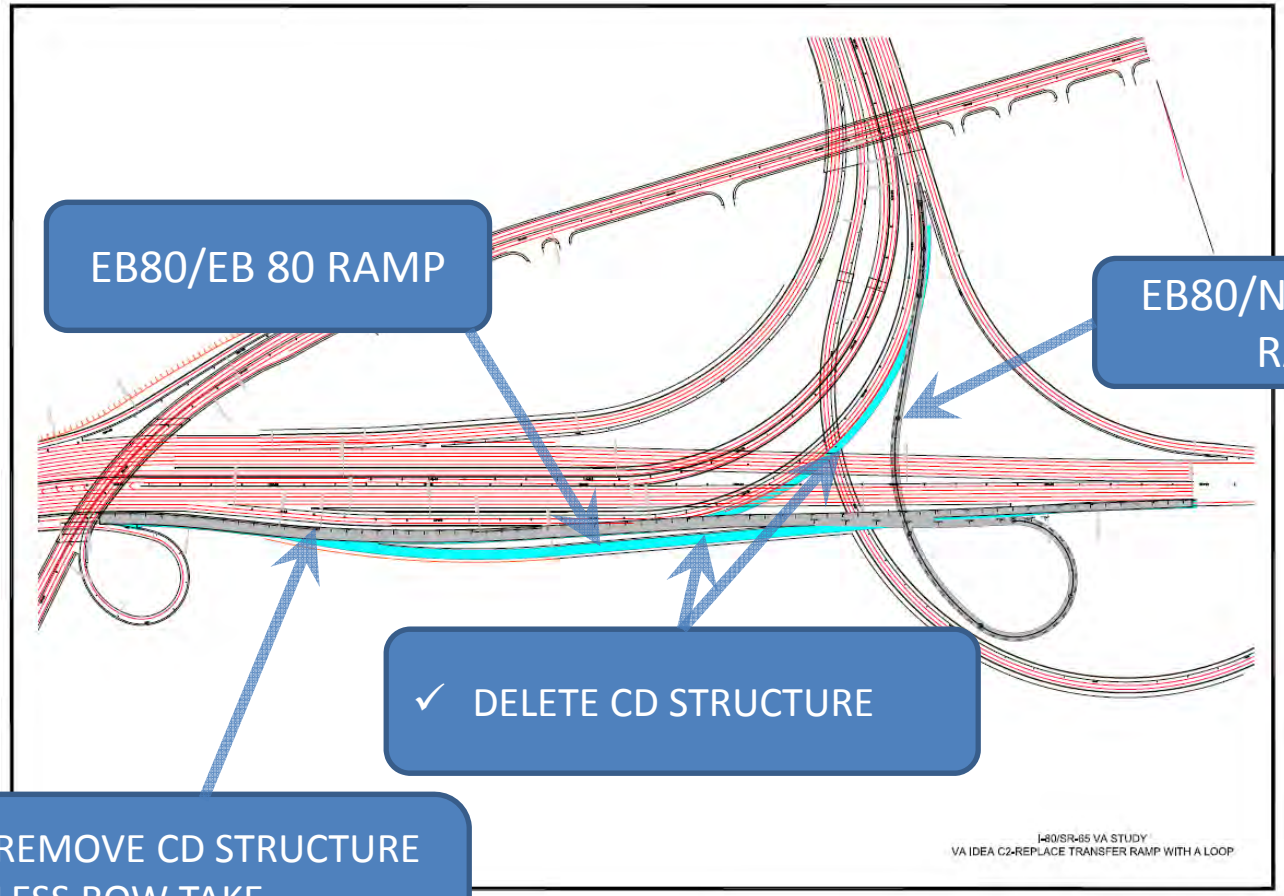


R-1: Realign Secret Ravine, Eliminate CD4 Structure

- Advantages:
  - Reduction in structure number and length
  - Reduction in construction costs
- Disadvantages:
  - Requires regulatory agency approval
  - Likely formal consultation with ACOE required
  - Permanent loss of habitat

I-80 / SR 65 Interchange Improvements

R-2: Replace Transfer Ramp with Loop



EB80/EB 80 RAMP

EB80/NB 65 LOOP RAMP

✓ DELETE CD STRUCTURE

✓ REMOVE CD STRUCTURE
✓ LESS ROW TAKE
✓ BUILT AT GRADE

R-2: Replace Transfer Ramp with Loop

Advantages:

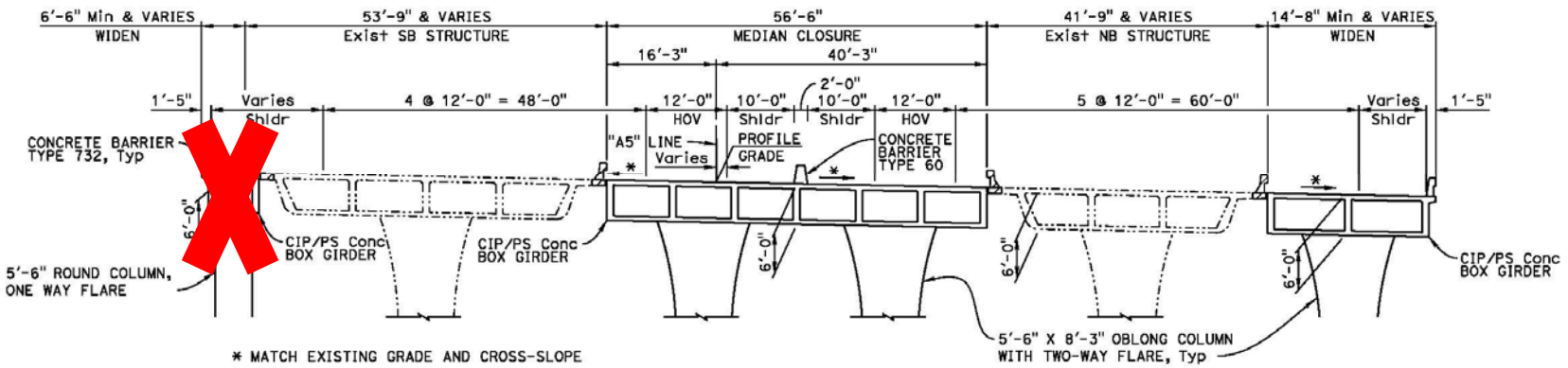
- Smaller footprint
- Eliminates structures
- Less environmental impacts
- Reduces construction schedule
- Cost effective, save $12.5 million

Disadvantages:

- Slower design speed
- Longer travel distance to northbound SR 65

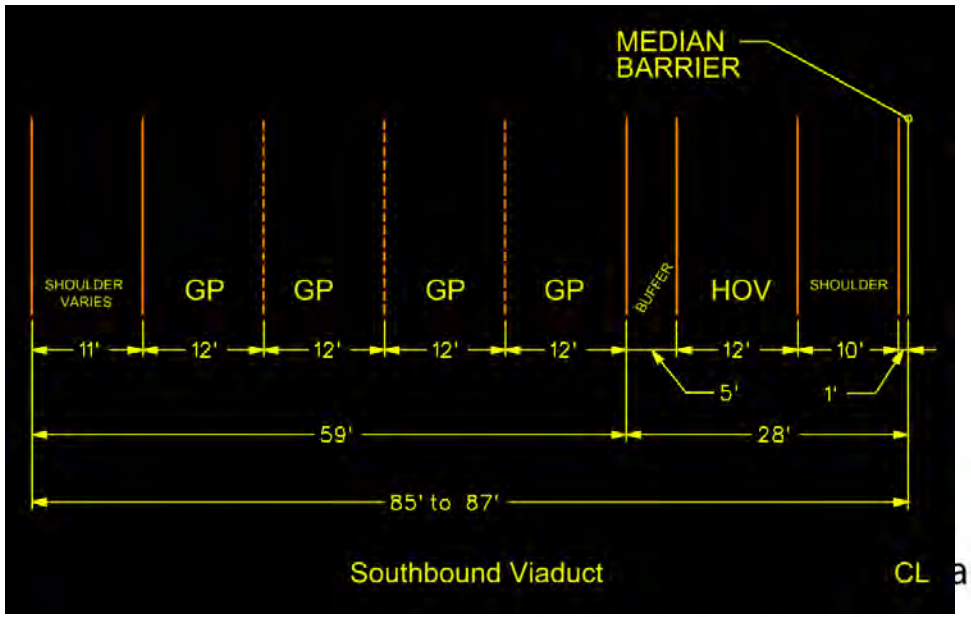
I-80 / SR 65 Interchange Improvements

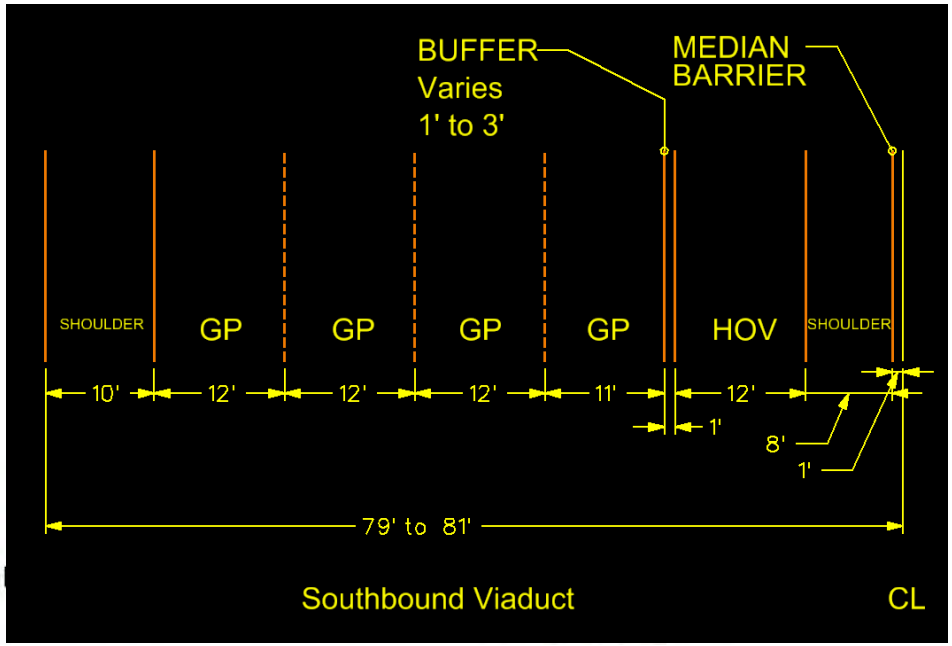
S-1: Narrow Viaduct



S-1: Narrow Viaduct

- Reduces one GP from 12’ to 11’
- Reduces HOV shoulder from 10’ to 8’
- Reduces HOV buffer from 5’ to between 1’ and 3’





S-1: Narrow Viaduct

Advantages:

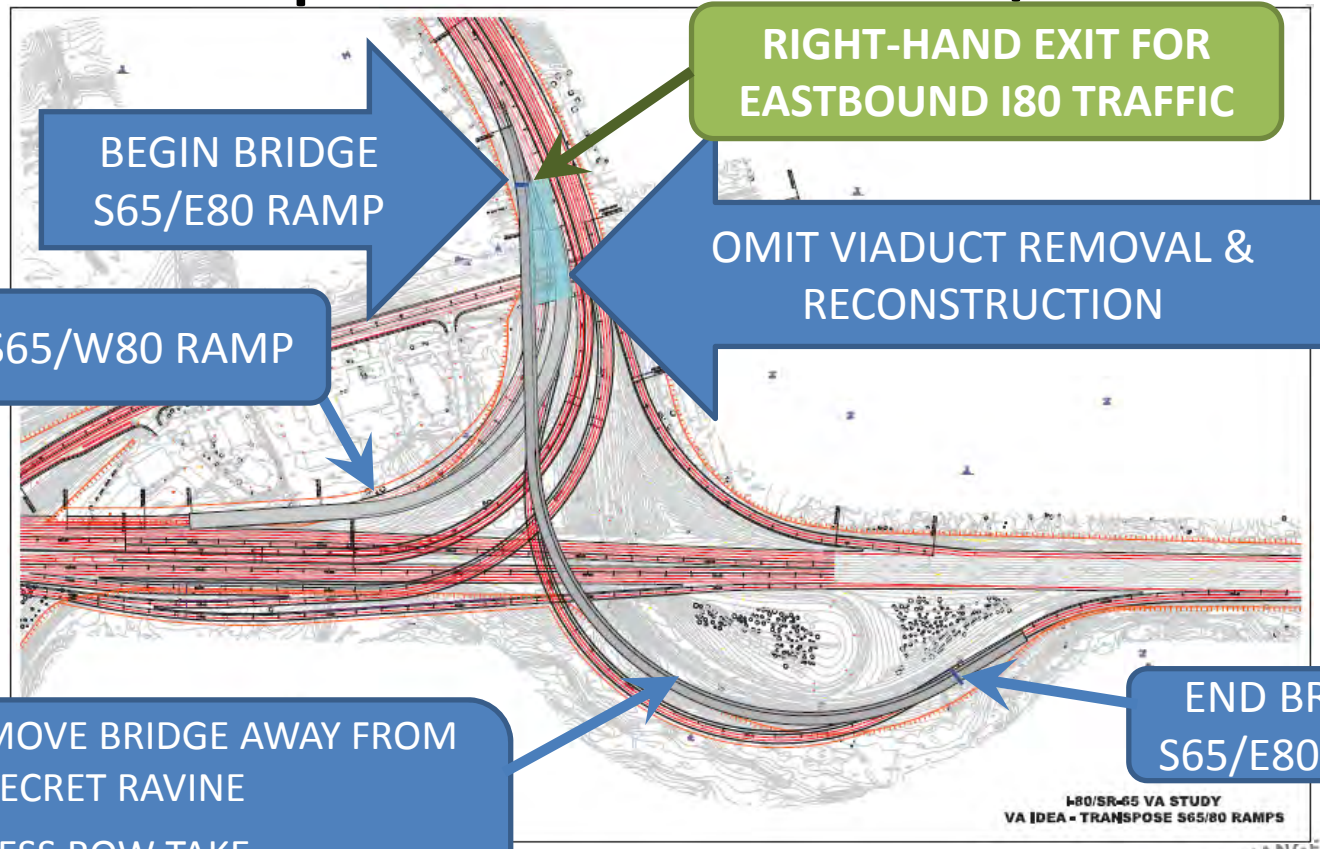
- Reduces project cost by $1.9M
- Eliminates the widening on the south side of the viaduct
- Does not require changing the mainline centerline
- Maintains the desired barrier separated northbound HOV lane between I-80 and the Galleria interchange

Disadvantages:

- Requires design exceptions

I-80 / SR 65 Interchange Improvements

S-2: Transpose South SR65/I-80 Ramps



- ✓ MOVE BRIDGE AWAY FROM SECRET RAVINE
- ✓ LESS ROW TAKE
- ✓ LOWER PROFILE GRADE

S-2: Transpose South SR65/I-80 Ramps

Advantages:

- Geometric benefits on eastbound I-80 ramp structure
- Reduces environmental footprint compared to proposed design
- Constructability advantages
- More modest climbing grades / lower overall profile grade.
- Greater phasing flexibility

Disadvantages:

- The transposed exits do not meet driver expectation (Left to go left and right to go right)
- Additional movements may be necessary for traffic traveling from Galleria Blvd. to WB I-80
- Additional right-of-way may be needed adjacent to the East Roseville Viaduct for the EB ramp take-off
- Longer connector structure necessary

Next Steps

- Preparation of Meeting/Action Items
- Documentation of any value changes (or reason for rejections)
- Preparation of Final Report
- Incorporation of Value Analysis Alternatives into design, where appropriate

I-80 / SR 65 Interchange Improvements

Questions/Additional Discussion

I-80/SR 65 Interchange Improvements: VA Implementation Meeting

ATTENDEES:

Luke McNeel-Caird/PCTPA
Sam Jordan/Caltrans D3
Kevin Espinoza/Caltrans Eng. Serv
Nick Deal/Caltrans Planning
David Kein/Caltrans Struct. Const.
Laurie Lammert/Caltrans Design
Jim Caulkins/Caltrans Traffic
Christine Zdunkiewicz/Caltrans Traffic
William Mack/Caltrans Design
Carl Berexa/Caltrans Const.
Scott Gandler/Roseville
Matt Randall/Placer County
Chris Benson/CH2M HILL
Don Ulrich/CH2M HILL
Leo Heuston/CH2M HILL
David Stanek/Fehr & Peers

COPY TO: File

PREPARED BY: Leo Heuston/CH2M HILL

DATE: Wednesday, October 15, 2014

The purpose of this meeting summary is to highlight the major items discussed on Wednesday, October 15, 2014 at the VA Study Implementation Meeting. For any comments or questions regarding information contained within this summary, please contact Chris Benson at chris.benson@ch2m.com or phone at (916) 286-0280.

Overview

Don and Chris summarized the purpose of the meeting; to review the comments received on the VA alternatives and strategies, provide additional information for the discussions and update the acceptance/rejection decisions of the reviewers based on the discussions.

Chris provided a short summary of the project goals, objectives, site constraints and alternatives to remind the reviewers of factors shaping the project alternatives and the alternatives under consideration. Don reiterated the VA process goals, objectives and methodologies pertinent to the decisions on the VA alternatives and strategies. The presentation is attached, including the additional information developed for discussions.

VA Alternatives Discussions

The VA alternatives are described in the Draft Value Analysis Study Report, August 2014. The VA reviewer's initial recommendations for implementation action and comments provided have been summarized for the meeting and is attached.

The question of deferring a VA Alternative was raised. Kevin clarified that alternatives can either be accepted, rejected, further study needed, or accepted with alterations. Alternatives that are accepted are assumed to become a part of the project scope. If later it is determined no longer feasible, the decision must be documented (valid reason for not pursuing the alternative). Any rejected alternative could always be resurrected and should be documented to give appropriate credit to the VA process and Team. The VA study is not considered complete until alternatives still under consideration "further study needed" have been properly evaluated.

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VA Alternative No. R-2, Replace Transfer Ramp with Loop

The alternative reduces the amount of structure required by using fill in Secret Ravine and removing a lane from the EN ramp structure. It also improves the ramp profile adjacent to I-80.

Initial recommendations: 3 agree, 2 further study and 4 disagree.

Additional information provided:

- Traffic information was provided showing the volumes between the EN ramp, Loop ramp and WN ramp (attached as part of the presentation).

Discussions:

- The loop configuration is a 25 mph low speed facility and will be a part of the system ramps. With the project working to eliminate the existing loop ramp from the interchange design, this configuration is undesirable. It was pointed out that this configuration exists in other areas of the valley, i.e. the Hwy 50/SR 99 IC.
- Less capacity on the EN ramp (3 lanes reduced to 2) is undesirable.
- Little or no ramp gore separation is available between the EN Ramp/Loop and the Loop/WN ramp in the new configuration.
- There are safety concerns regarding the higher accident potential of the loop configuration and the close proximity of the ramp gores to each other.
- Additional weaving is required for the EN Ramp (EB 80). It would require a minimum of one lane movement to reach Galleria when previously it did not. Also, the EN, Loop and WN ramps all need to use the same lane to reach SR 65 north and the Galleria off ramp. The proposal gives the loop ramp from the CD system preference to this optional exit lane.
- The alternative creates a longer CD system ramp but still maintains the Taylor Road access and improves the gore separation between the Taylor Road exit gore and the Transfer (slip) ramp gore to the EN ramp
- The environmental impacts of fill in Secret Ravine would be permanent verses a lesser impact from the combination of permanent and temporary of the structure overhead
- The ramp profile through the ravine would be improved (lowered) with the elimination of the “transfer” (slip) ramp to the EN ramp

Recommendation:

- Based upon the reviewer’s notes, the additional information and further discussions, Alternative R-2 is rejected due to operational and safety concerns.

VA Alternative No. S-1, Narrow Viaduct

The alternative reduces the amount of structure required by eliminating the outside widening of southbound SR 65 by narrowing lanes and shoulders in the southbound direction. It also reduced environmental impacts be eliminating one of the 3 structures being built.

Initial recommendations: 4 agree, 3 further study, 2 disagree and 1 no recommendation.

Additional information provided:

- Clarification on the widening width was provided. The structure widening in question varies from approximately 6.5 feet to 24.5 feet in width.

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- Based on the comments received, a shift of the alignment to the east was investigated, with standard lanes and shoulders, to eliminate the western structure. This approach will move the proposed project/structures to within 15 feet of the balconies of the Apartments located adjacent to the east right of way line; and to within 9 feet of existing right of way. It also created an elevation differences between the NB and SB directions at the centerline, reducing the availability of bridge deck for traffic management during construction.

Discussions:

- One comment requested additional information on a possible modification to the VA Alternate. The comment requested information on the ability to shift the widening to the east as part of the northbound structure widening. The additional information provided clarified the impact of making that shift to the residences in the area.
- Previous investigations requested by the Placer County Transportation Planning Agency Board were done to consider reducing the existing lanes and shoulders on the viaduct structure as an interim solution to the poor traffic operations. After considering the findings with input from Caltrans, the board was not willing to consider narrow lanes and shoulders due to safety concerns.
- The FHWA's position on constructing less than standard improvements as part of this project is to limit their use to constrained areas where there is no possibility of meeting standards without significant impacts; and on a new facility with no constraints, proposed reductions to standard lanes, shoulders and buffers are not desirable.

Recommendation:

- Based upon the reviewer's notes, the additional information and further discussions, Alternative S-1 is rejected due to design standard, operational and safety concerns.

VA Alternative No. S-2, Alternative Transpose South SR 65/I-80 Ramps

The alternative transposes the position of the I-80/SR 65 IC SW and SE connector ramps to improve the ramp alignment of the SE ramp through Secret Ravine and to lower the ramp profile, improving constructability and reducing environmental impacts.

Initial recommendations: 1 agree, 3 further study, 5 disagree and 1 no recommendation.

Additional information provided:

- Traffic information was provided showing the volumes between the SE ramp, SW ramp and the Galleria on ramp (attached as part of the presentation).
- The FHWA's and Caltrans' position on reversing the ramps is that the new facility will not meet driver expectations by requiring them to "turn right" to go left and vice versa; and is not desirable in a new facility.

Discussions:

- This VA alternative was considered in the concept development process. At that time, Caltrans and FHWA were both in agreement that reversing the movements was not recommended because of driver expectations and that it should not be considered in the proposed concepts.
- The Blue Oaks/SR 65 IC was pointed out as another location where the ramps are switched and there are operational issues. The City of Roseville receives ongoing input from residents that this configuration is confusing.

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- The vertical profile of the SE ramp is constrained between the end of the viaduct and the EN ramp, causing the profile to be elevated higher than otherwise required. Shifting the ramp would lower the ramp an estimated 20 to 25 feet and improve constructability.
- The shift in horizontal location of the SE ramp exit also improves the ramp location through Secret Ravine, reducing the environmental impacts.
- For this alternative, the SB 65 to WB 80 traffic (SW ramp) which is the heavier movement would be able to stay to the left, the desirable location when traveling on the highway.
- The proposed lane configuration would reduce the number of lanes involved in weaving from 2 to 1.
- There is a large difference in traffic volumes involved in the weaving movements between the current design and this alternative. The existing design requires approximately 200 vehicles to weave across two lanes, from Galleria to the SE ramp. The alternative would require between 1300 and 1500 vehicles to move across one lane, from Galleria to the SW ramp. It was noted that the Galleria on ramp is metered.
- As a follow up to the VA Implementation meeting, a weaving analysis of this segment was prepared and discussed on October 29th with PCTPA, Caltrans Design and Caltrans Traffic. The results of the weaving analysis showed the level of service in the weaving section as follows:
    - Alternative 2 CD system – LOS D/E (AM/PM)
    - VA alternative S-2 – LOS F/F

  The reason for the poor operations in the VA alternative is not due to the overall weaving distances provided, but to the added volume of weaving vehicles caused by transposing the ramps. The weaving analyses are attached.

  FHWA's position regarding driver expectations was also revisited. They are not opposed to considering the transposed ramps as long as there was a considerable benefit provided. With the poor results of the weaving section, this alternative would not be acceptable.

Recommendation:

- Based upon the reviewer's notes, the additional information and further discussions, Alternative S-2 is rejected due to poor level of service in the weaving section, violating driver expectations and safety concerns.

VA Alternative No. R-1, Realign Secret Ravine, Eliminate CD 4 Structure

The alternative realigns Secret Ravine away from the footprint of the EN ramp and the CD system between Taylor Road and the 80/65 IC. This is to reduce structure costs and improve constructability, recognizing that the environmental impacts will occur and a temporary stream relocation would be necessary.

Initial recommendations: 5 agree, 1 agree with modifications, 2 further study, 1 disagree and 1 no recommendation.

Additional information provided:

- The EN ramp structure is located adjacent to the edge of the stream and the CD system structure is directly over the stream.
- Potential environmental impacts to the Secret Ravine area (based on the current alternatives) has been discussed with the National Marine Fisheries Service and City of Roseville, and included in the technical studies (environmental).

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Discussions:

- The current alternatives make efforts to avoid and/or minimize temporary and permanent impacts on the stream, associated riverine habitat, and oak woodlands, through the use of outriggers and modified bent spacing.
- Access into the area is limited and it will be difficult to get heavy equipment to the bent and outrigger locations without affecting vegetation adjacent to the stream. Temporary bridges and falsework platforms are planned to minimize removal of vegetation, and to stay out of the channel ordinary high water level.
- There are alternate stream channels in the ravine that the creek could be redirected to; although the improvements necessary to establish an alternate channel would include stream, bank and vegetation impacts.
- The alternate channels may serve as a temporary stream relocation also. This would make impacts temporary for construction.
- The temporary and permanent impacts of a stream relocation would be greater than maintaining the existing location. This is due to adding the construction area for the relocation and rehabilitation of the new stream environment to the structure construction impacts.
- Caltrans Environmental expressed concerns on a complete relocation of the stream, due to the combined environmental impacts of the structure construction and the environmental impact to the new stream location. They have never undertaken a relocation and expressed potential resistance from the resource agencies, who would prefer avoidance of impacts instead. Relocation of the stream would also have a significant impact on schedule.
- The VA coordinator emphasized that a long delay to schedule on a project of this magnitude would have a cost impact and potentially cancel any cost savings that would be realized by the VA Alternative.
- A decision on the current alternatives impacts has not been made by the resource agencies yet. Their decisions will affect the consultation period and the degree of impacts being addressed in the Environmental document. These decisions will affect the viability of this VA Alternative.

Recommendation:

- Based upon the reviewer's notes, the additional information and further discussions, Alternative R-1 is rejected due to the large added impact to the environment and to schedule constraints.
- This VA Alternative is heavily driven by the resource agencies and the upcoming consultation process. Permanently relocating Secret Ravine Creek may not be acceptable in any form and avoidance is recommended. If avoidance during the consultation process is not possible, this VA alternative may be revisited.

VA Strategies

The strategies proposed in the VA Study were not discussed. Until the completion of the additional studies for the VA Alternatives, they cannot be assessed for applicability to the project alternatives.

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Action Items

The following action items were identified in the meeting:

- Prepare a preliminary weaving analysis (Leisch Method) of VA Alternate S-2 and the current design (Alternate 2) for comparative purposes – F&P (Complete)
- Contact FHWA Area Engineer regarding transposed ramps and driver expectation – Cesar Perez – CH2M HILL (Complete)
- Meeting Minutes – CH2M HILL

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Heuston, Leo/SAC

From: David Stanek <D.Stanek@fehrandpeers.com>
Sent: Monday, October 27, 2014 11:19 AM
To: Benson, Chris/SAC
Cc: Heuston, Leo/SAC; Proctor, Lauren/SAC; Ronald Milam
Subject: VA Alternative for SB 65
Attachments: VA Alternative - SB65 Galleria to I80.pdf

Hi Chris,

The Leisch Method analysis results for southbound SR 65 between Galleria Boulevard and I-80 are attached. Two alternatives were evaluated under Design Year AM & PM peak hour conditions: the CD Roadway Alternative and the alternative configuration from the VA Study (connector ramps switched). The results show that the original configuration would operate at LOS D/E, but the VA alternative would be at LOS F. (These results were confirmed using the HCM 2010 analysis method.)

The reason the VA study alternative performs poorly is not the weaving length. The difference between the two alternatives is only about 100 feet. Instead, the VA alternative would have higher weaving volumes. The issue is that the Galleria Blvd to eastbound I-80 volume is low. In the original configuration, this means the weaving volume is almost entirely the southbound SR-65 to westbound I-80 volume, and the majority of the Galleria Blvd on-ramp volume does not weave. In the VA configuration, the weaving volume has high volumes from both Galleria Blvd to westbound I-80 (on-ramp to mainline) and southbound SR 65 to eastbound I-80 (mainline to off-ramp) traffic. The total weaving volume is about 200 vph higher during the AM peak hour and about 1,000 vph higher during the PM peak hour, as shown in the attached reports.

If you have any questions, please let me know.

Thanks,
Dave

David Stanek, P.E.
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Roseville, CA 95661
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www.fehrandpeers.com

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Leisch Method for Weaving Analysis

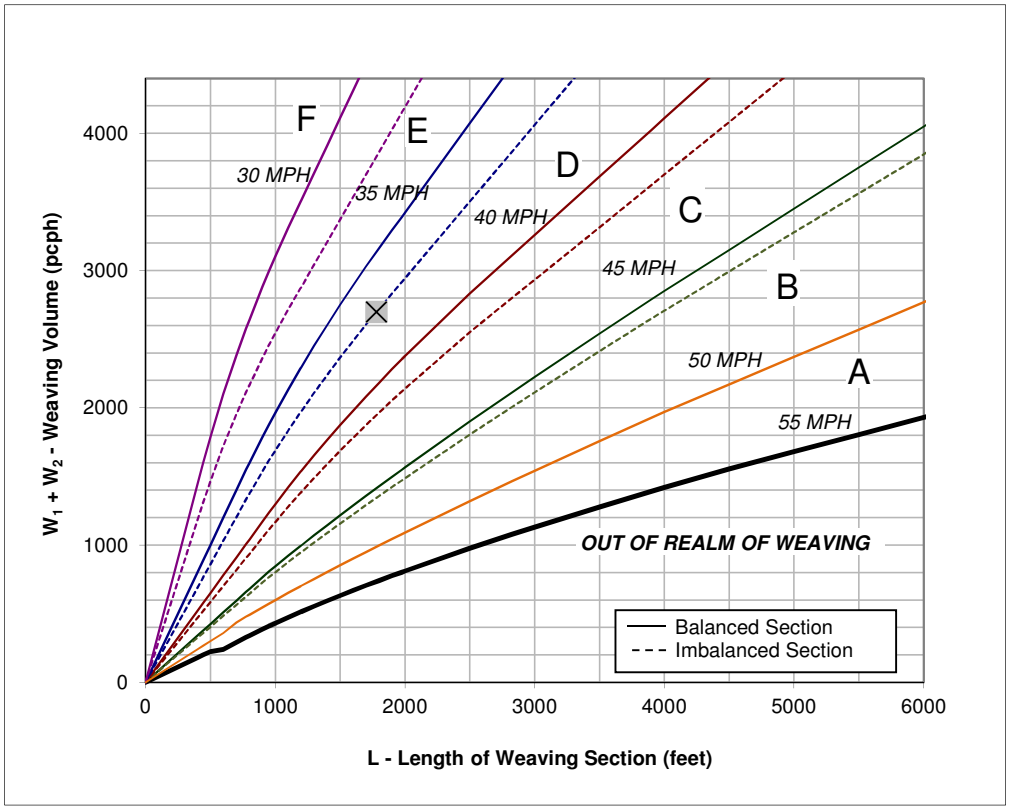
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,780

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	5,420	Volume (vph)*	137	Volume (vph)*	2,497
Truck Percentage	5.0%	Truck Percentage	3.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	5,556	Volume (pcph)	139	Volume (pcph)	2,559

Project Information

Project	I-80/SR 65 Interchange
Scenario	Alt 2 - Design Year AM
Freeway	SR 65 SB
On-ramp	Galleria Blvd
Off-ramp	I-80 WB



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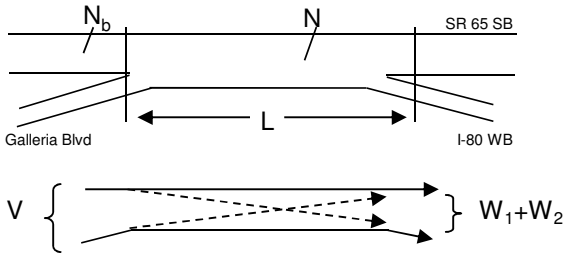


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **37.3**
4. Weaving Intensity Factor (k) **3.00**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,458**
6. Level of Service (LOS) **D**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

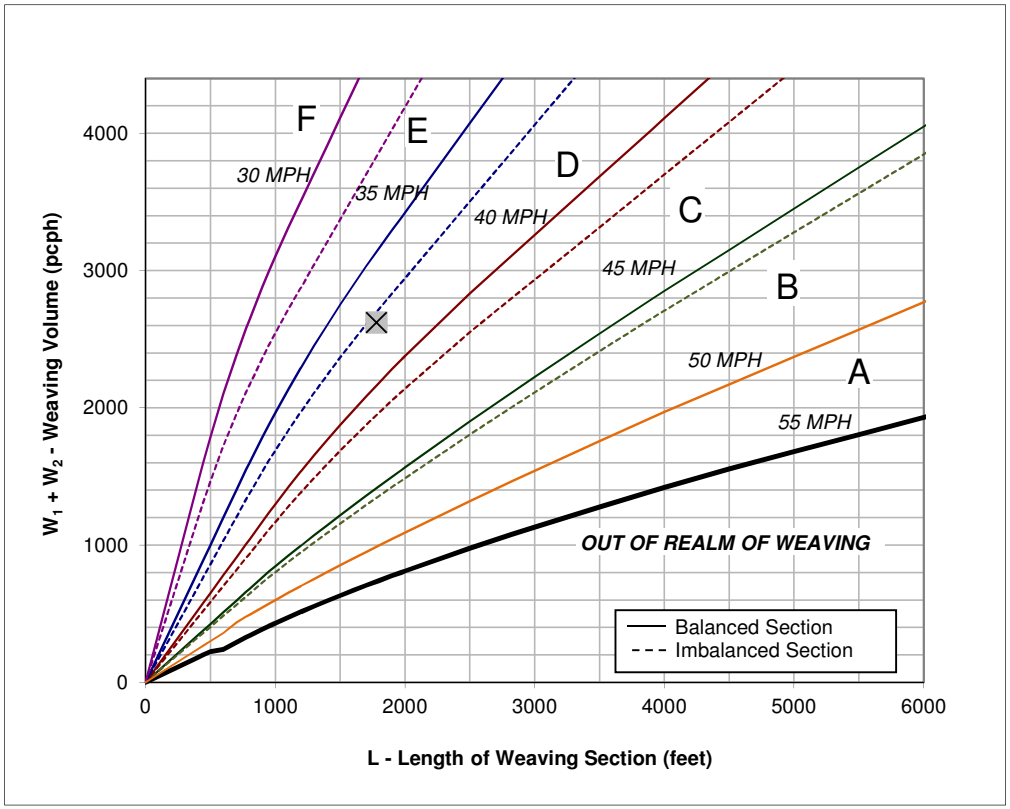
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,780

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,140	Volume (vph)*	432	Volume (vph)*	2,142
Truck Percentage	4.0%	Truck Percentage	2.0%	Truck Percentage	4.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,263	Volume (pcph)	436	Volume (pcph)	2,185

Project Information

Project	I-80/SR 65 Interchange
Scenario	Alt 2 - Design Year PM
Freeway	SR 65 SB
On-ramp	Galleria Blvd
Off-ramp	I-80 WB



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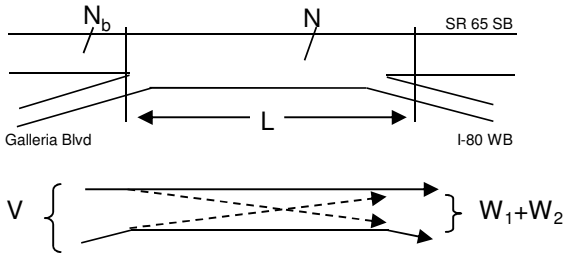


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **37.6**
4. Weaving Intensity Factor (k) **3.00**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,784**
6. Level of Service (LOS) **E**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

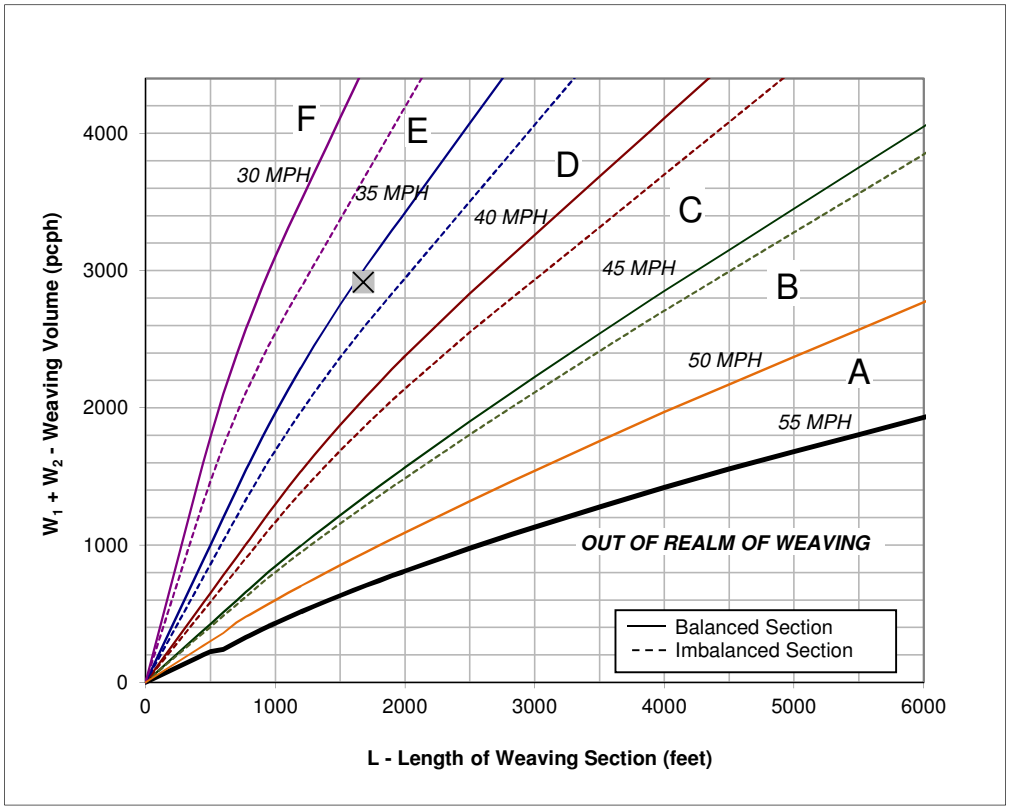
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,680

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	5,420	Volume (vph)*	1,193	Volume (vph)*	1,663
Truck Percentage	5.0%	Truck Percentage	3.0%	Truck Percentage	5.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	5,556	Volume (pcph)	1,211	Volume (pcph)	1,705

Project Information

Project	I-80/SR 65 Interchange
Scenario	VA Alt - Design Year AM
Freeway	SR 65 SB
On-ramp	Galleria Blvd
Off-ramp	I-80 EB



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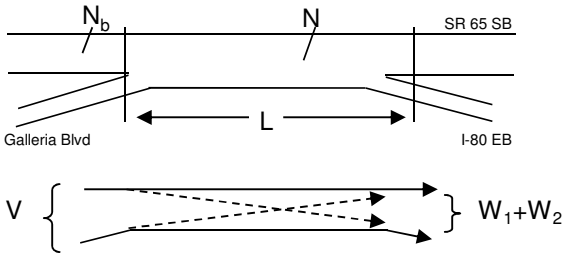


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **35.5**
4. Weaving Intensity Factor (k) **2.87**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,954**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Leisch Method for Weaving Analysis

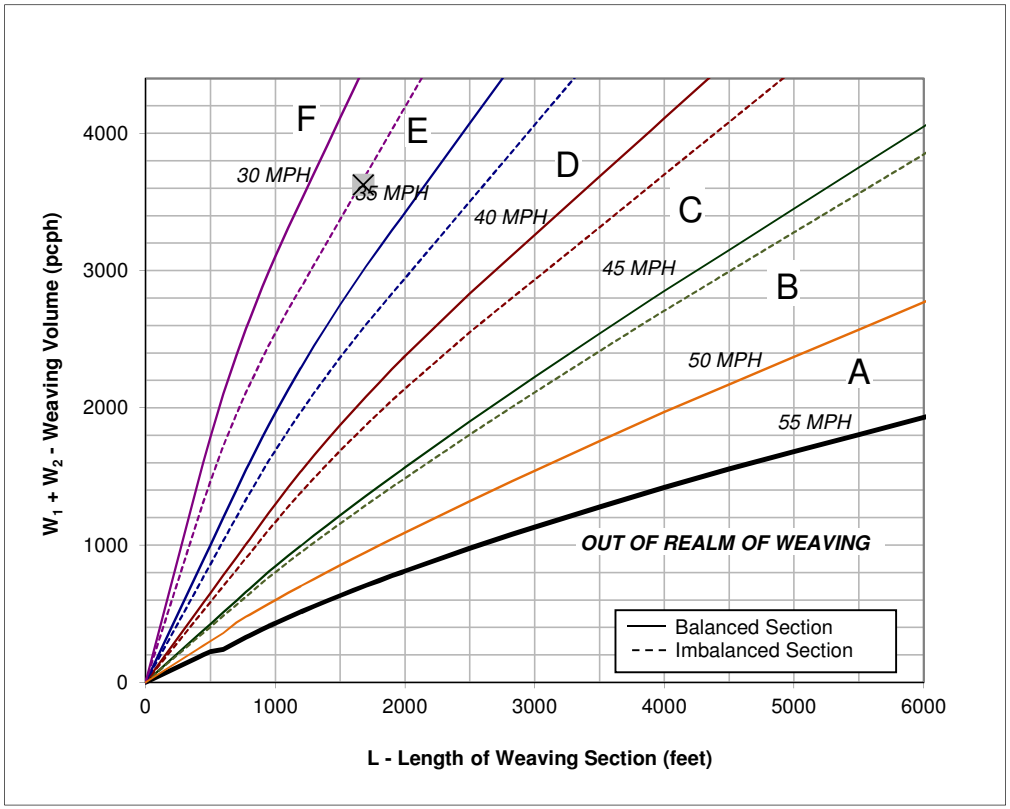
Data Input

Number of Entering Mainline Lanes	N_b	3
Number of Lanes in Weaving Section	N	4
Length of Weaving Section (feet)	L	1,680

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	6,140	Volume (vph)*	1,408	Volume (vph)*	2,158
Truck Percentage	4.0%	Truck Percentage	2.0%	Truck Percentage	4.0%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	6,263	Volume (pcph)	1,422	Volume (pcph)	2,201

Project Information

Project	I-80/SR 65 Interchange
Scenario	VA Alt - Design Year PM
Freeway	SR 65 SB
On-ramp	Galleria Blvd
Off-ramp	I-80 WB



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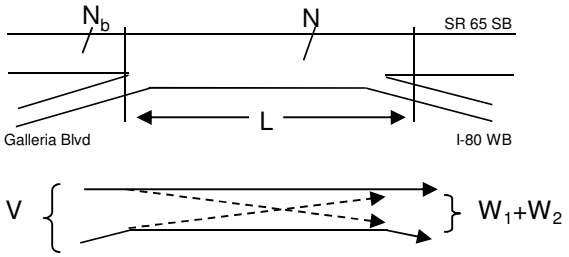


Capacity Analysis

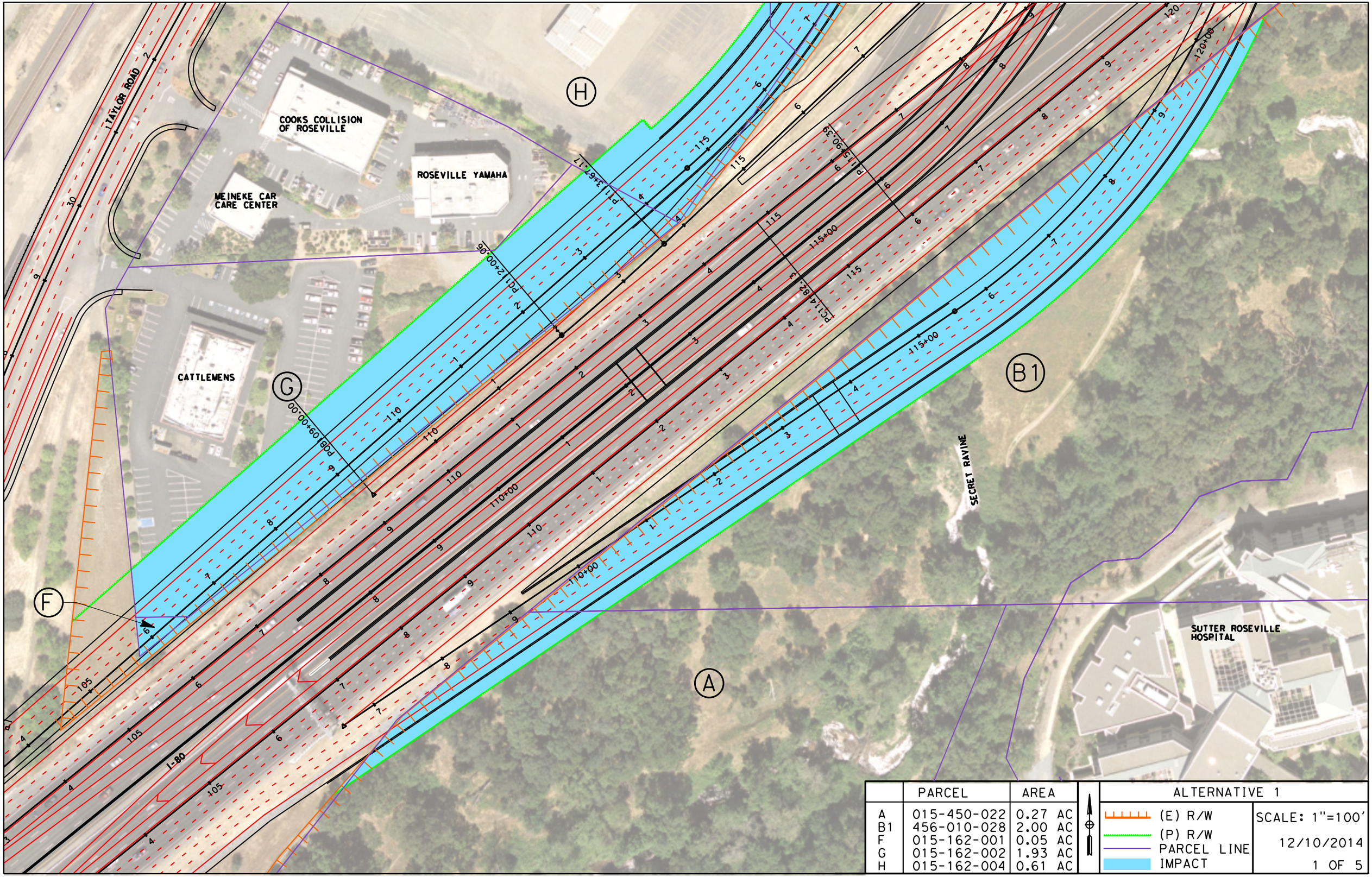
1. Is the weaving section balanced (Y / N)? **Y**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   30 MPH and **35 MPH**
   If below the 55 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **32.9**
4. Weaving Intensity Factor (k) **2.98**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,269**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Sources: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983 and *Highway Design Manual*, California Department of Transportation, July 24, 2009

Attachment K
Right of Way



	PARCEL	AREA
A	015-450-022	0.27 AC
B1	456-010-028	2.00 AC
F	015-162-001	0.05 AC
G	015-162-002	1.93 AC
H	015-162-004	0.61 AC

ALTERNATIVE 1

(E) R/W
(P) R/W
PARCEL LINE
IMPACT

SCALE: 1"=100'

12/10/2014

1 OF 5

STONE HOUSE COURT

STONE HOUSE

I

H

B1

B2

C

I-80

SECRET RAVINE

	PARCEL	AREA
B1	456-010-028	2.00 AC
B2	456-010-028	1.61 AC
C	455-010-032	0.99 AC
H	015-162-004	0.61 AC
I	015-162-007	2.90 AC

ALTERNATIVE 1

(E) R/W

(P) R/W

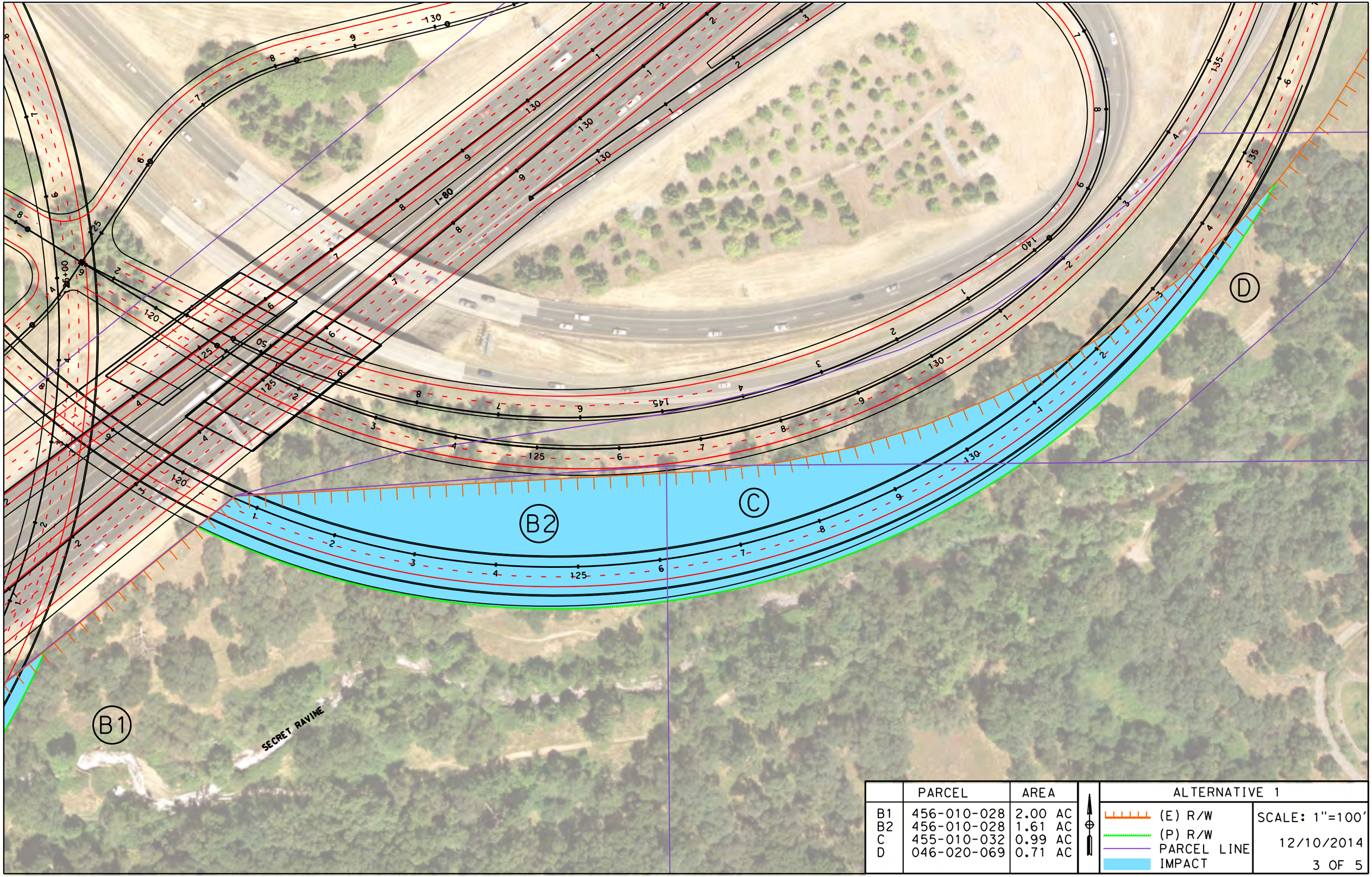
PARCEL LINE

IMPACT

SCALE: 1"=100'

12/10/2014

2 OF 5



	PARCEL	AREA
B1	456-010-028	2.00 AC
B2	456-010-028	1.61 AC
C	455-010-032	0.99 AC
D	046-020-069	0.71 AC

ALTERNATIVE 1

(E) R/W

(P) R/W

PARCEL LINE

IMPACT

SCALE: 1"=100'

12/10/2014

I-80

SECRET RAVINE

E

	PARCEL	AREA
E	046-020-070	0.43 AC

ALTERNATIVE 1

(E) R/W
(P) R/W
PARCEL LINE
IMPACT

SCALE: 1"=100'

12/10/2014

4 OF 5

STONEHOUSE COURT

STONE HOUSE

I

M

	PARCEL	AREA
I	015-162-007	2.90 AC
M	015-162-006	0.18 AC

ALTERNATIVE 1

(E) R/W

(P) R/W

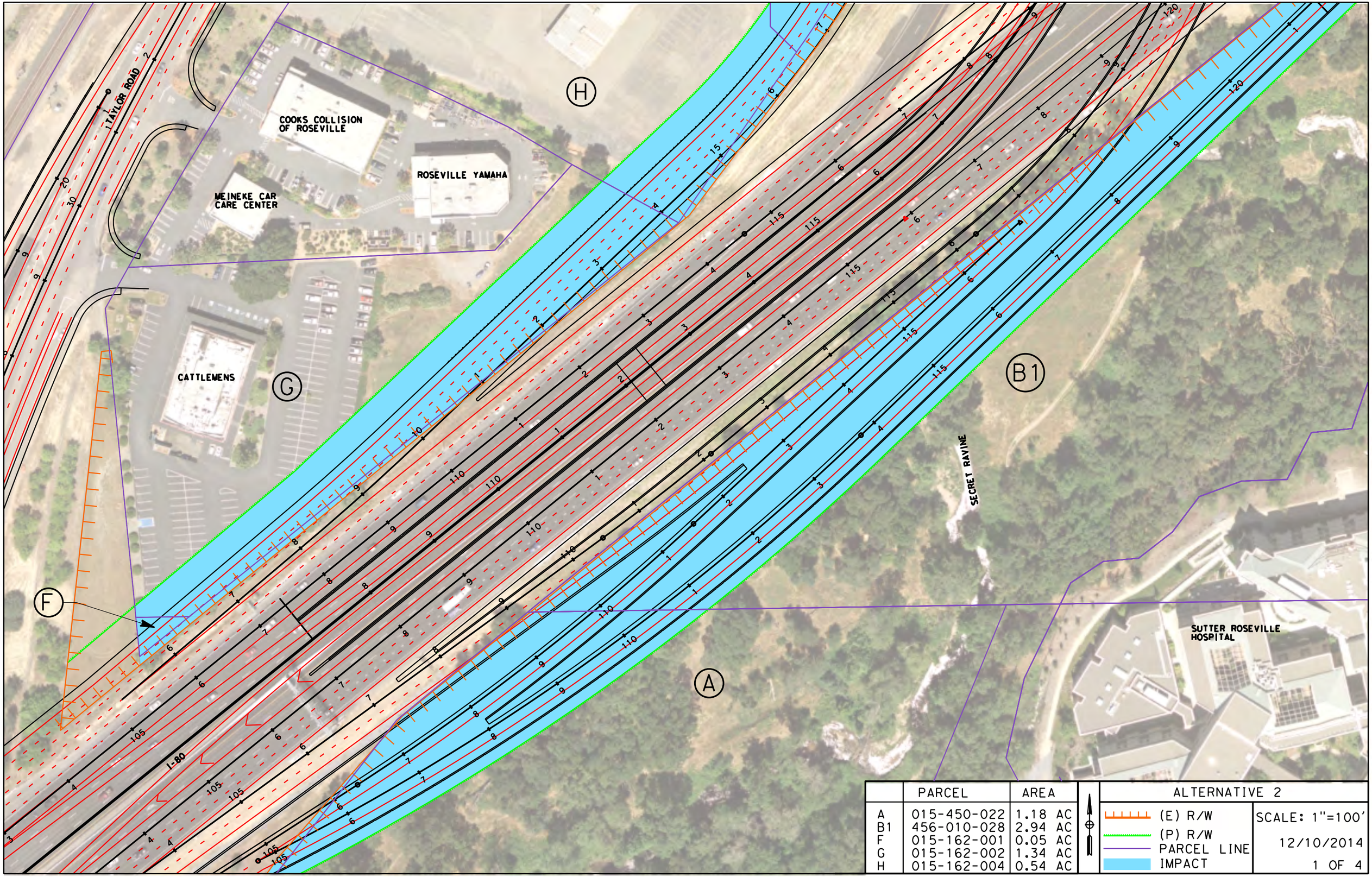
PARCEL LINE

IMPACT

SCALE: 1"=100'

12/10/2014

5 OF 5



	PARCEL	AREA
A	015-450-022	1.18 AC
B1	456-010-028	2.94 AC
F	015-162-001	0.05 AC
G	015-162-002	1.34 AC
H	015-162-004	0.54 AC

ALTERNATIVE 2

(E) R/W
(P) R/W
PARCEL LINE
IMPACT

SCALE: 1"=100'

12/10/2014

1 OF 4

STONEHOUSE COURT

I

STONE HOUSE

H

I-80

B1

B2

C

SECRET RAVINE

	PARCEL	AREA
B1	456-010-028	2.98 AC
B2	456-010-028	1.58 AC
C	455-010-032	0.92 AC
H	015-162-004	0.54 AC
I	015-162-007	2.90 AC

ALTERNATIVE 2

(E) R/W

(P) R/W

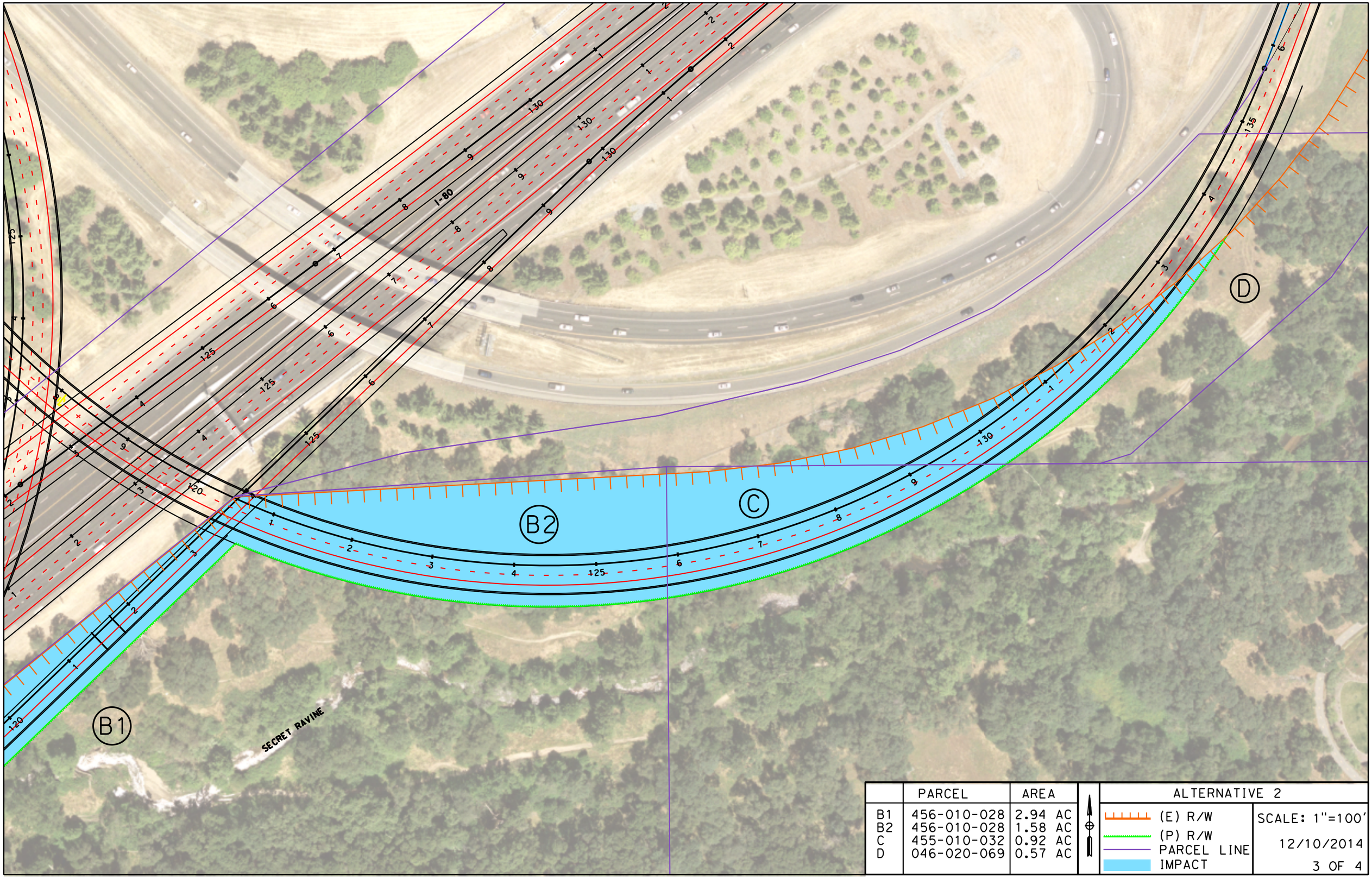
PARCEL LINE

IMPACT

SCALE: 1"=100'

12/10/2014

2 OF 4



	PARCEL	AREA
B1	456-010-028	2.94 AC
B2	456-010-028	1.58 AC
C	455-010-032	0.92 AC
D	046-020-069	0.57 AC

ALTERNATIVE 2

(E) R/W

(P) R/W

PARCEL LINE

IMPACT

SCALE: 1"=100'

12/10/2014

ADVERTIZING STRUCTURE

PARKING STRUCTURE

POWER TOWERS

GOLFLAND/ SUNSPLASH

I-80

LARKSPUR LANDING

HILTON GARDEN INN

EAST ROSEVILLE PARKWAY

TAYLOR ROAD

TAHOE JOE'S

	PARCEL	AREA
J	015-450-059	0.15 AC
K	015-450-058	0.13 AC
L	015-450-079	0.26 AC

ALTERNATIVE 2

(E) R/W

(P) R/W

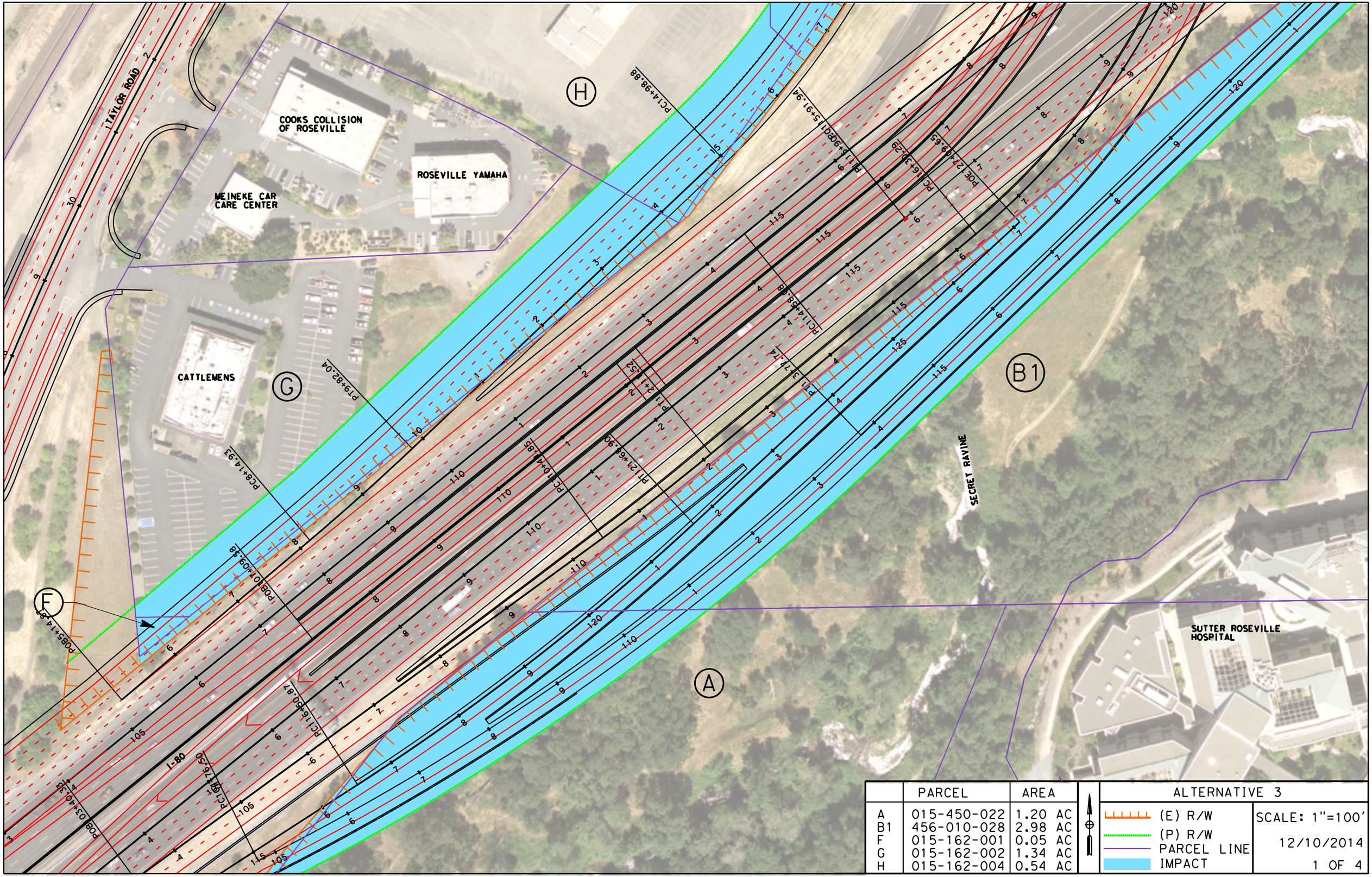
PARCEL LINE

IMPACT

SCALE: 1"=100'

12/03/2014

4 OF 4



	PARCEL	AREA
A	015-450-022	1.20 AC
B1	456-010-028	2.98 AC
F	015-162-001	0.05 AC
G	015-162-002	1.34 AC
H	015-162-004	0.54 AC

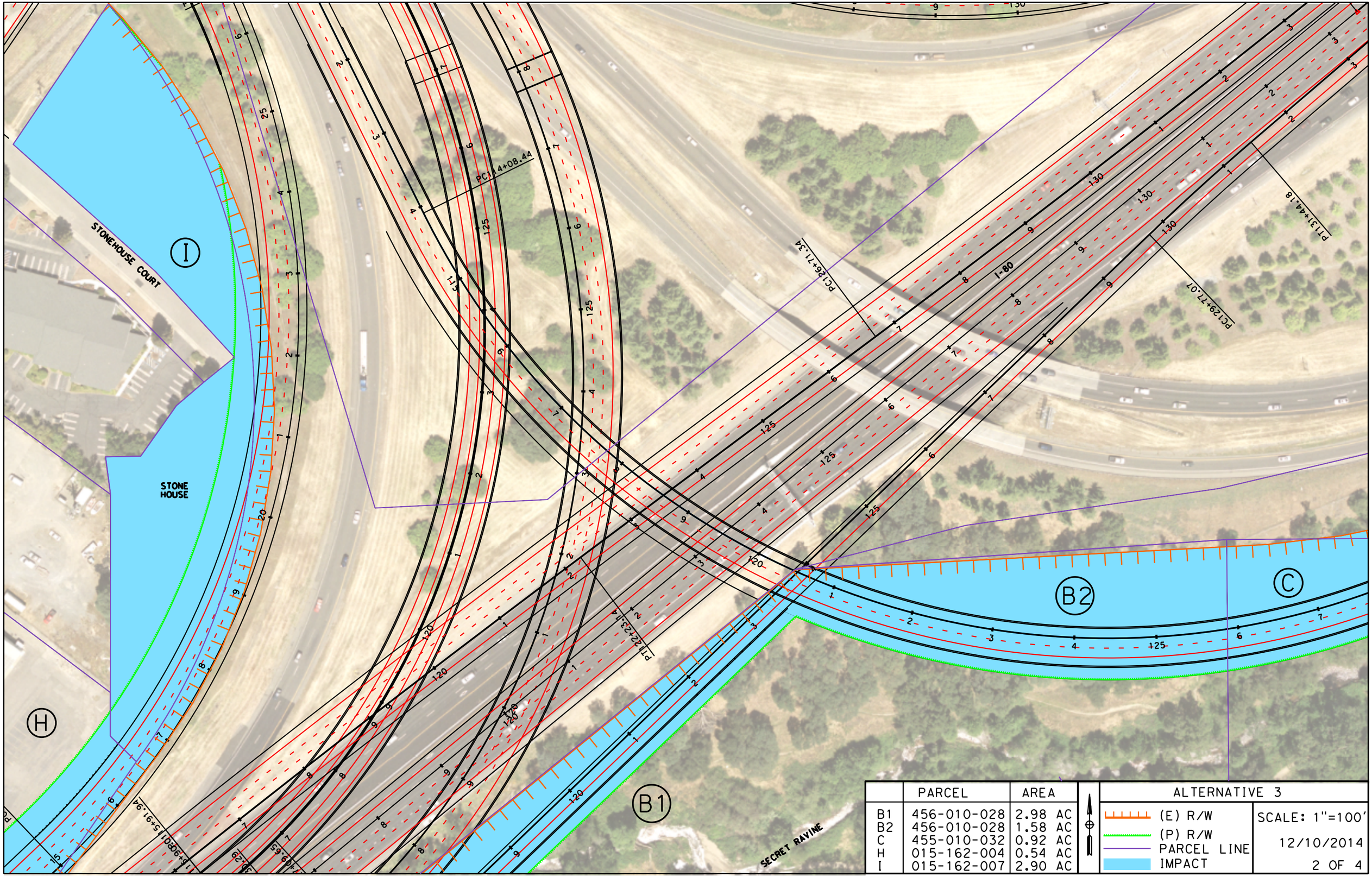
ALTERNATIVE 3

(E) R/W
(P) R/W
PARCEL LINE
IMPACT

SCALE: 1"=100'

12/10/2014

1 OF 4



	PARCEL	AREA
B1	456-010-028	2.98 AC
B2	456-010-028	1.58 AC
C	455-010-032	0.92 AC
H	015-162-004	0.54 AC
I	015-162-007	2.90 AC

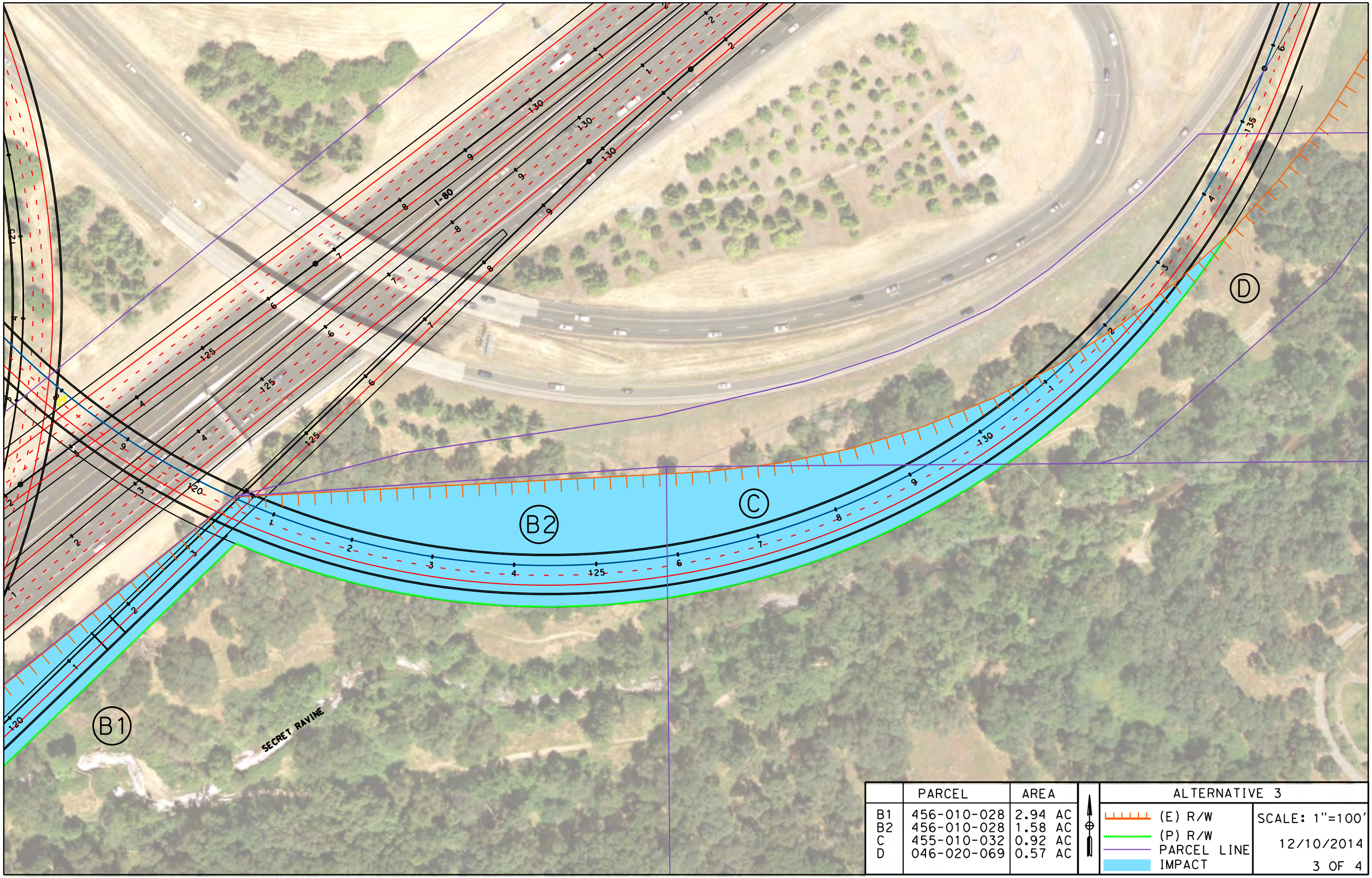
ALTERNATIVE 3

(E) R/W
(P) R/W
PARCEL LINE
IMPACT

SCALE: 1"=100'

12/10/2014

2 OF 4



	PARCEL	AREA
B1	456-010-028	2.94 AC
B2	456-010-028	1.58 AC
C	455-010-032	0.92 AC
D	046-020-069	0.57 AC

ALTERNATIVE 3

(E) R/W
(P) R/W
PARCEL LINE
IMPACT

SCALE: 1"=100'

12/10/2014

PC90+16.41

PT92+26.45

PT92+96.85

P185+25.10

P186+74.96

P187+41.52

P187+74.78

PC89+70.64

PT90+84.01

PC99+22.82

ADVERTIZING STRUCTURE

PARKING STRUCTURE

POWER TOWERS

GOLFLAND/ SUNSPLASH

I-80

LARKSPUR LANDING

HILTON GARDEN INN

TAYLOR ROAD

EAST ROSEVILLE PARKWAY

TAHOE JOE'S

	PARCEL	AREA
J	015-450-059	0.15 AC
K	015-450-058	0.13 AC
L	015-450-079	0.14 AC

ALTERNATIVE 3

(E) R/W
(P) R/W
PARCEL LINE
IMPACT

SCALE: 1"=100'

12/03/2014

4 OF 4

Location	Parcel Impact	Owner	Impact Type	Parcel Type	Approximate Area (AC)			Full/Partial
					Alt 1	Alt 2	Alt 3	
A	015-450-022	City of Roseville	Retained Fill, Structure	Undeveloped	**0.27**	**1.18**	**1.18**	Partial
B1	456-010-028	City of Roseville	Retained Fill, Structure	Undeveloped	2.00	2.94	2.94	
B2			Structure	Undeveloped	1.61	1.58	1.58	
				Total	**3.61**	**4.52**	**4.52**	Partial
C	455-010-032	City of Roseville	Structure	Undeveloped	**0.99**	**0.92**	**0.92**	Partial
D	046-020-069	David T and Diane S Petty	Structure	Undeveloped	**0.71**	**0.57**	**0.57**	Partial
E	046-020-070	David T and Diane S Petty	Retained Fill, Structure	Undeveloped	**0.43**	**0.00**	**0.00**	Partial
F	015-162-001	William E Geary ET AL Trust	Retained Fill	Parking Lot	**0.05**	**0.05**	**0.05**	Full
G	015-162-002	Therese H Geary ET AL Trust	Retained Fill	Parking Lot	**1.93**	**1.34**	**1.34**	Partial
H	015-162-004	Fitzgerald LLC	Retained Fill	Parking Lot	**0.61**	**0.54**	**0.54**	Partial
I	015-162-007	Wayne J Strauch ET AL	Retained Fill, Structure	Parking Lot	**2.90**	**2.90**	**2.90**	Full
J	015-450-059	Apple Six Hospitality Ownership Inc	Retained Fill	Landscaping	**N/A**	**0.15**	**0.15**	Partial
K	015-450-058	LL Roseville LP	Retained Fill	Landscaping	**N/A**	**0.13**	**0.13**	Partial
L	015-450-079[)]	Roseville Golfland LTD PTSP	Retained Fill	Power Towers, Parking Lot, Landscaping, Advertizing Sign	**N/A**	**0.26**	**0.14**	Partial
M	015-162-006	Northern California Conference of Seve	Retained Fill	Parking Lot	**0.18**	**N/A**	**N/A**	Partial

Total R/W Impacts	**11.69**	**12.55**	**12.43**
Full Takes	**2**	**2**	**2**
Partial Takes	**8**	**9**	**9**

Total R/W Cost

ALTERNATIVE 1

Location	Parcel Impact	Owner	Impact Type	Parcel Type	Approximate Area (AC)	$ per Acre	Take Area	Improvements	Relocation	Clearance and Demo	Title and Escrow Fees	Full/Partial
A	015-450-022	City of Roseville	Retained Fill	Undeveloped	**0.27**	**$24,750.00**	**$6,744.32**				**$ 1,500.00**	Partial
B1	456-010-028	City of Roseville	Retained Fill, Structure	Undeveloped	2.00							
B2			Structure	Undeveloped	1.61							
				Total	**3.61**	**$352,200.00**	**$1,271,442.00**				**$ 1,500.00**	Partial
C	455-010-032	City of Roseville	Structure	Undeveloped	**0.99**	**$3,157.00**	**$3,137.00**				**$ 1,500.00**	Partial
D	046-020-069	David T and Diane S Petty	Structure	Undeveloped	**0.71**	**$156,250.00**	**$110,856.43**				**$ 1,500.00**	Partial
E	046-020-070	David T and Diane S Petty	Retained Fill, Structure	Undeveloped	**0.43**	**$151,850.00**	**$65,278.77**				**$ 1,500.00**	Partial
F	015-162-001	William E Geary ET AL Trust	Retained Fill	Parking Lot	**0.05**	**$1,615,204.00**	**$82,873.76**	**$5,000.00**			**$ 1,500.00**	Full
G	015-162-002	Therese H Geary ET AL Trust	Retained Fill	Parking Lot	**1.93**	**$462,195.00**	**$892,622.05**	**$45,000.00**			**$ 1,500.00**	Partial
H	015-162-004	Fitzgerald LLC	Retained Fill	Parking Lot	**0.61**	**$533,333.00**	**$325,333.13**				**$ 1,500.00**	Partial
I	015-162-007	Wayne J Strauch ET AL	Retained Fill, Structure	Parking Lot	**2.90**	**$138,900.00**	**$402,280.67**	**$50,000.00**	**$20,000.00**	**$15,000.00**	**$ 1,500.00**	Full
J	015-450-059	Apple Six Hospitality Ownership Inc	Retained Fill	Landscaping	**0.00**	**$533,333.00**	**$0.00**					N/A
K	015-450-058	LL Roseville LP	Retained Fill	Landscaping	**0.00**	**$533,333.00**	**$0.00**					N/A
L	015-450-079	Roseville Golfland LTD PTSP	Retained Fill	Power Towers, Parking Lot, Landscaping, Advertizing Sign	**0.00**	**$166,500.00**	**$0.00**					N/A
M	015-162-006	Northern California Conference of Sevent	Retained Fill	Parking Lot	**0.18**	**$882,352.00**	**$162,615.29**	**$15,000.00**			**$ 1,500.00**	Partial
							$3,323,183.42	**$115,000.00**	**$20,000.00**	**$15,000.00**	**$ 15,000.00**	

Total R/W Impacts	**11.69**
Full Takes	**2**
Partial Takes	**8**
Billboards	**1**

Total ROW **$3,638,183.42**

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ALTERNATIVE 2

Location	Parcel Impact	Owner	Impact Type	Parcel Type	Approximate Area (AC)	$ per Acre	Take Area	Improvements	Utility Relocation	Relocation	Clearance and Demo	Title and Escrow Fees	Full/Partial
A	015-450-022	City of Roseville	Retained Fill, Structure	Undeveloped	**1.18**	**$24,750.00**	**$29,205.00**					**$ 1,500.00**	Partial
B1			Retained Fill, Structure	Undeveloped	2.94								
B2			Structure	Undeveloped	1.58								
	456-010-028	City of Roseville		**Total**	**4.52**	**$352,200.00**	**$1,591,944.00**					**$ 1,500.00**	Partial
C	455-010-032	City of Roseville	Structure	Undeveloped	**0.92**	**$3,157.00**	**$2,904.44**					**$ 1,500.00**	Partial
D	046-020-069	David T and Diane S Petty	Structure	Undeveloped	**0.57**	**$156,250.00**	**$89,062.50**					**$ 1,500.00**	Partial
E	046-020-070	David T and Diane S Petty	Retained Fill, Structure	Undeveloped	**0.00**	**$151,850.00**	**$0.00**						N/A
F	015-162-001	William E Geary ET AL Trust	Retained Fill	Parking Lot	**0.05**	**$1,615,204.00**	**$82,873.76**	**$5,000.00**				**$ 1,500.00**	Full
G	015-162-002	Therese H Geary ET AL Trust	Retained Fill	Parking Lot	**1.34**	**$462,195.00**	**$617,660.59**	**$40,000.00**				**$ 1,500.00**	Partial
H	015-162-004	Fitzgerald LLC	Retained Fill	Parking Lot	**0.54**	**$53,333.00**	**$28,602.21**					**$ 1,500.00**	Partial
I	015-162-007	Wayne J Strauch ET AL	Retained Fill, Structure	Parking Lot	**2.90**	**$138,900.00**	**$402,280.67**	**$50,000.00**		**$20,000.00**	**$15,000.00**	**$ 1,500.00**	Full
J	015-450-059	Apple Six Hospitality Ownership	Retained Fill	Landscaping	**0.15**	**$533,333.00**	**$79,999.95**					**$ 1,500.00**	Partial
K	015-450-058	LL Roseville LP	Retained Fill	Landscaping	**0.13**	**$533,333.00**	**$69,333.29**					**$ 1,500.00**	Partial
L	015-450-079	Roseville Golfland LTD PTSP	Retained Fill	Power Towers, Parking Lot, Landscaping, Advertizing Sign	**0.26**	**$166,500.00**	**$43,290.00**	**$5,000.00**	**$2,000,000.00**			**$ 1,500.00**	Partial
							$3,037,156.41	**$100,000.00**	**$2,000,000.00**	**$20,000.00**	**$15,000.00**	**$16,500.00**	

Total R/W Impacts	**12.55**	**Total ROW**	**$5,488,656.41**
Full Takes	**2**		
Partial Takes	**9**		
Billboards	**2**	$150,000 EA	

ALTERNATIVE 3

Location	Parcel Impact	Owner	Impact Type	Parcel Type	Approximate Area (AC)	$ per Acre	Take Area	Improvements	Utility Relocation	Relocation	Clearance and Demo	Title and Escrow Fees	Full/Partial
A	015-450-022	City of Roseville	Retained Fill, Structure	Undeveloped	**1.18**	**$24,750**	**$29,205**					**$ 1,500.00**	Partial
B1	456-010-028		Retained Fill, Structure	Undeveloped	**2.94**								
B2			Structure	Undeveloped	**1.58**								
		City of Roseville		**Total**	**4.52**	**$352,200**	**$1,591,944**					**$ 1,500.00**	Partial
C	455-010-032	City of Roseville	Structure	Undeveloped	**0.92**	**$3,157**	**$2,904**					**$ 1,500.00**	Partial
D	046-020-069	David T and Diane S Petty	Structure	Undeveloped	**0.57**	**$156,250**	**$89,063**					**$ 1,500.00**	Partial
E	046-020-070	David T and Diane S Petty	Retained Fill, Structure	Undeveloped	**0.00**	**$151,850**	**$0**						N/A
F	015-162-001	William E Geary ET AL Trust	Retained Fill	Parking Lot	**0.05**	**$1,615,204**	**$82,874**	**$5,000.00**				**$ 1,500.00**	Full
G	015-162-002	Therese H Geary ET AL Trust	Retained Fill	Parking Lot	**1.34**	**$462,195**	**$617,661**	**$45,000.00**				**$ 1,500.00**	Partial
H	015-162-004	Fitzgerald LLC	Retained Fill	Parking Lot	**0.54**	**$533,333**	**$286,024**					**$ 1,500.00**	Partial
I	015-162-007	Wayne J Strauch ET AL	Retained Fill, Structure	Parking Lot	**2.90**	**$138,900**	**$402,281**	**$50,000.00**		**$20,000.00**	**$15,000.00**	**$ 1,500.00**	Full
J	015-450-059	Apple Six Hospitality Ownership Inc	Retained Fill	Landscaping	**0.15**	**$533,333**	**$80,000**					**$ 1,500.00**	Partial
K	015-450-058	LL Roseville LP	Retained Fill	Landscaping	**0.13**	**$533,333**	**$69,333**					**$ 1,500.00**	Partial
L	015-450-079	Roseville Golfland LTD PTSP	Retained Fill	Power Towers, Parking Lot, Landscaping, Advertizing Sign	**0.14**	**$166,500**	**$23,310**	**$5,000.00**	**$2,000,000.00**			**$ 1,500.00**	Partial
							$3,274,598	**$105,000.00**	**$2,000,000.00**	**$20,000.00**	**$15,000.00**	**$16,500.00**	

Total R/W Impacts	**12.43**
Full Takes	**1**
Partial Takes	**9**
Billboards	

Total ROW **$5,731,097.90**

To: Caltrans District 3

Attention: Deputy District Director

Subject: Right of Way Data

Date 12/15/2014
Dist 3 Co PLA Rte 80, 65 PM 1.9 to 6.1 and R4.8 to R7.3

Project Description: I-80/SR 65 Interchange Improvements Project

Alternative No. 1 - Full Access Taylor Interchange

This Alternate meets the criteria for a Design/Build project: Yes No X

1. Right of Way Cost Estimate: To be entered into PMCS COST RW1-5 Screens.

		Current Value Future Use	Escalation Rate	Escalated Value
A.	**Total Acquisition Cost**			$
	Acquisition, including Excess Lands, Damages, and Goodwill.	$ 3,323,200	%	$
	Project Permit Fees.			$
B.	**Utility Relocation** (State Share)	$ 0	%	$
C.	**Relocation Assistance**	$ 20,000	%	$
D.	**Clearance/Demolition**	$ 15,000	%	$
E.	**Title and Escrow**	$ 15,000	%	$
F.	**25% Contingency**	$ 843,300		$
G.	**Total Rounded Estimated Cost**	$ 4,216,500		
H.	**Construction Contract Work**	$	*(These are construction costs that are to be included in the projects PS&E.)*	

2. Current Date of Right of Way Certification _____

3. Parcel Data: To be entered into PMCS EVNT RW Screen.

Type		Dual/Appr	Utilities	RR Involvements	
			U4-1	None	
A			-2	C&M Agrmt	X
B	8		-3	Svc Contract	
C			-4	Design	
D	2		U5-7	Const.	
E	XXXX		-8	Lic/RE/Clauses	X
F	XXXX		-9		
				Misc. R/W Work	
Total	10			RAP Displ	X
				Clear/Demo	X
				Const Permits	X
				Condemnation	

Areas: R/W 11.69 Acres No. Excess Parcels _____
Entered PMCS Screens ___/___/___ by _____
Entered AGRE Screen (Railroad data only) ___/___/___ by _____

4. Are there any major items of construction contract work? Yes ☐ No X (If "Yes," explain.)

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.). No right of way required. ☐

Acquisition are required to accommodate mainline widening and interchange reconfiguration. Impacts primarily consist of undeveloped land, parking lots, and landscaping. Impact types include structures and retained fill

6. Is there an effect on assessed valuation? Yes ☐ Not Significant ☐ No ☒ (If "Yes," explain.)

7. Are utility facilities or rights of way affected?
Yes ☐ No X (If "Yes," attach Utility Information Sheet, Exhibit 4-EX-5.)
The following checked items may seriously impact lead time for utility relocation:
☐ Longitudinal policy conflict(s)
☐ Environmental concerns impacting acquisition of potential easements
☐ Power lines operating in excess of 50 KV and substations
(See attached Exhibit 4-EX-5 for explanation.)

8. Are Railroad facilities or rights of way affected?
Yes X No ☐ (If "Yes," attach Railroad Information Sheet, Exhibit 4-EX-6.)

9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes X None Evident ☐ (If "Yes," attach memorandum per R/W Manual, Chapter 4, Section 4.01.10.00.)

Parcel 015-162-007 may include asbestos containing materials, lead based paints, leach fields, septic tanks, and heating oil tanks. Acquisition should include a site inspection, owner interview, and county file review. Parcel 015-450-079 has a 1,000 gallon above-ground fuel storage tank (AST) that should be further assessed if the project limits change and additional acquisition is required.

10. Are RAP displacements required? Yes X No ☐ (If "Yes," provide the following information.)

No. of single family 1 No. of business/nonprofit _____

No. of multi-family _____ No. of farms _____

Based on Draft/Final Relocation Impact Statement/Study dated _____, it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

11. Are there Material Borrow and/or Disposal Sites required? Yes ☐ No X (If "Yes," explain.)

12. Are there potential relinquishments and/or abandonments? Yes ☐ No X (If "Yes," explain.)

13. Are there any existing and/or potential airspace sites? Yes ☐ No X (If "Yes," explain.)

14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if district proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)

R/W acquisition schedule will be depended upon funding and phasing of the project.

Based on the R/W requirements on Page 1 of this Data Sheet, R/W will require a lead time of_____months from the date regular appraisals can begin to project certification.

In any event, RW Maps will require_____months from Final Maps to project certification.

15. Is it anticipated that Caltrans staff will perform all Right of Way work? Yes X No ☐ (If "No," discuss.)

Evaluation Prepared By:

Right of Way:	Name	Universal Field Services, Inc.	Date	7/14/2014
Railroad:	Name	CH2M HILL	Date	11/2014
Utilities:	Name	CH2M HILL	Date	9/2012

Recommended for Approval:

_____

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.

_____
District Division Chief/Regional Manager
Right of Way

_____
Date

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

UTILITY INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-5 (REV 3/2004)

1. Name of utility companies involved in project:

2. Types of facilities and agreements required:

3. Is any facility a longitudinal encroachment in existing or proposed access controlled right of way? Explain.

Yes. Overhead lines cross I-80 access controlled right-of-way.

Disposition of longitudinal encroachment(s):

☐ Relocation required.
☐ Exception to policy needed.
☐ Other. Explain.

4. Additional information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons (no transmission tower relocations in summer).

Customer service season (no transmission tower relocations in summer)

5. PMCS Input Information
Total estimated cost of State's obligation for utility relocation on this project:

Note: Total estimated cost to include any Department obligation to relocate longitudinal encroachments in access controlled right of way and acquire any necessary utility easements.

Utility Involvements

U4-1	_____	U5-7	_____
-2	_____	-8	_____
-3	_____	-9	_____
-4	_____		

Prepared By:

_____ _____

Right of Way Utility Estimator Date

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

RAILROAD INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-6

1. Describe railroad facilities or right of way affected.

   A temporary construction easement and flaggers will be required for the widening of the East Roseville Viaduct over the Union Pacific Railroad Tracks. Improvements to Taylor Road will be restricted to the existing easement Placer County has with UPRR.

2. When branch lines or spurs are affected, would acquisition and/or payment of damages to businesses and/or industries served by the railroad facility be more cost effective than construction of a facility to perpetuate the rail service? Yes _____ No _____
   (If yes, explain)

   N/A

3. Discuss types of agreements and right required from the railroads. Are grade crossings requiring service contracts or grade separations requiring construct and maintenance agreements involved?

   An encroachment permit will need to be obtained from UPRR for work performed within their right-of-way.
   A C&M agreement will be required for the East Roseville Viaduct work

4. Remarks (non-operating railroad right of way involved?):

   N/A

5. PMCS Input Information

RR Involvements	
None	
C&M Agreement	X
Service Contract	
Design	
Const.	
Lic/RE/Clauses	X

Prepared By:

_____ _____

Right of Way Railroad Coordinator Date

To: Caltrans District 3

Attention: Deputy District Director

Subject: Right of Way Data

Date 12/15/2014
Dist 3 Co PLA Rte 80, 65 PM 1.9 to 6.1 and R4.8 to R7.3

Project Description: I-80/SR 65 Interchange Improvements Project

Alternative No. 2 - Collector-Distributor System Ramps

This Alternate meets the criteria for a Design/Build project: Yes No X

1. Right of Way Cost Estimate: To be entered into PMCS COST RW1-5 Screens.

		Current Value Future Use	Escalation Rate	Escalated Value
A.	**Total Acquisition Cost**			$
	Acquisition, including Excess Lands, Damages, and Goodwill.	$ 3,037,200	%	$
	Project Permit Fees.			$
B.	**Utility Relocation** (State Share)	$ 2,000,000	%	$
C.	**Relocation Assistance**	$ 20,000	%	$
D.	**Clearance/Demolition**	$ 15,000	%	$
E.	**Title and Escrow**	$ 16,500	%	$
F.	**25% Contingency**	$ 1,272,200		$
G.	**Total Rounded Estimated Cost**	$ 6,360,900		
H.	**Construction Contract Work**	$	*(These are construction costs that are to be included in the projects PS&E.)*	

2. Current Date of Right of Way Certification _____

3. Parcel Data: To be entered into PMCS EVNT RW Screen.

Type		Dual/Appr	Utilities		RR Involvements	
			U4-1		None	
A			-2		C&M Agrmt	X
B	9		-3		Svc Contract	
C	2		-4	2	Design	
D			U5-7		Const.	
E	XXXX		-8		Lic/RE/Clauses	X
F	XXXX		-9	2		
					Misc. R/W Work	
Total	11				RAP Displ	X
					Clear/Demo	X
					Const Permits	X
					Condemnation	

Areas: R/W 12.55 Acres No. Excess Parcels _____
Entered PMCS Screens ___/___/___ by _____
Entered AGRE Screen (Railroad data only) ___/___/___ by _____

4. Are there any major items of construction contract work? Yes ☐ No X (If "Yes," explain.)

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.). No right of way required. ☐

Acquisitions are required to accommodate mainline widening and interchange reconfiguration. Impacts primarily consist of undeveloped land, parking lots, and landscaping. Impact types include structures and retained fill.

6. Is there an effect on assessed valuation? Yes ☐ Not Significant ☐ No ☒ (If "Yes," explain.)

7. Are utility facilities or rights of way affected?
Yes X No ☐ (If "Yes," attach Utility Information Sheet, Exhibit 4-EX-5.)
The following checked items may seriously impact lead time for utility relocation:
☐ Longitudinal policy conflict(s)
☐ Environmental concerns impacting acquisition of potential easements
☒ Power lines operating in excess of 50 KV and substations
(See attached Exhibit 4-EX-5 for explanation.)

2-230 Kv transmission towers owned by PG&E and SMUD will require relocation

8. Are Railroad facilities or rights of way affected?
Yes X No ☐ (If "Yes," attach Railroad Information Sheet, Exhibit 4-EX-6.)

9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes X None Evident ☐ (If "Yes," attach memorandum per R/W Manual, Chapter 4, Section 4.01.10.00.)

Parcel 015-162-007 may include asbestos containing materials, lead based paints, leach fields, septic tanks, and heating oil tanks. Acquisition should include a site inspection, owner interview, and county file review. Parcel 015-450-079 has a 1,000 gallon above-ground fuel storage tank (AST) that should be further assessed if the project limits change and additional acquisition is required.

10. Are RAP displacements required? Yes X No ☐ (If "Yes," provide the following information.)

No. of single family 1 No. of business/nonprofit _____

No. of multi-family _____ No. of farms _____

Based on Draft/Final Relocation Impact Statement/Study dated _____, it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

11. Are there Material Borrow and/or Disposal Sites required? Yes ☐ No X (If "Yes," explain.)

12. Are there potential relinquishments and/or abandonments? Yes ☐ No X (If "Yes," explain.)

13. Are there any existing and/or potential airspace sites? Yes ☐ No X (If "Yes," explain.)

14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if district proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)
R/W acquisition schedule will be depended upon funding and phasing of the project

Based on the R/W requirements on Page 1 of this Data Sheet, R/W will require a lead time of_____months from the date regular appraisals can begin to project certification.

In any event, RW Maps will require_____months from Final Maps to project certification.

15. Is it anticipated that Caltrans staff will perform all Right of Way work? Yes X No ☐ (If "No," discuss.)

Evaluation Prepared By:

Right of Way:	Name	Universal Field Services, Inc.	Date	7/14/2014
Railroad:	Name	CH2M HILL	Date	11/2014
Utilities:	Name	CH2M HILL	Date	9/2012

Recommended for Approval:

_____

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.

_____
District Division Chief/Regional Manager
Right of Way

_____
Date

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

UTILITY INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-5 (REV 3/2004)

1. Name of utility companies involved in project:

   SMUD and PG&E own the 230 kV transmission towers that will require relocation

2. Types of facilities and agreements required:

   Relocation agreements will be required with PG&E and SMUD.

3. Is any facility a longitudinal encroachment in existing or proposed access controlled right of way? Explain.

   Yes. Overhead lines cross I-80 access controlled right-of-way.

   Disposition of longitudinal encroachment(s):
   - [X] Relocation required.
   - [ ] Exception to policy needed.
   - [ ] Other. Explain.

4. Additional information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons (no transmission tower relocations in summer).

   Customer service season (no transmission tower relocations in summer)

5. PMCS Input Information
   Total estimated cost of State's obligation for utility relocation on this project:
   $ 2,000,000 ($1M per tower)

   Note: Total estimated cost to include any Department obligation to relocate longitudinal encroachments in access controlled right of way and acquire any necessary utility easements.

Utility Involvements			
U4-1		U5-7	
-2		-8	
-3		-9	2
-4	2		

Prepared By:

Right of Way Utility Estimator

Date

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

RAILROAD INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-6

1. Describe railroad facilities or right of way affected.

   A temporary construction easement and flaggers will be required for the widening of the East Roseville Viaduct over the Union Pacific Railroad Tracks. Improvements to Taylor Road will be restricted to the existing easement Placer County has with UPRR.

2. When branch lines or spurs are affected, would acquisition and/or payment of damages to businesses and/or industries served by the railroad facility be more cost effective than construction of a facility to perpetuate the rail service? Yes _____ No _____
   (If yes, explain)

   N/A

3. Discuss types of agreements and right required from the railroads. Are grade crossings requiring service contracts or grade separations requiring construct and maintenance agreements involved?

   An encroachment permit will need to be obtained from UPRR for work performed within their right-of-way.
   A C&M agreement will be required for the East Roseville Viaduct work

4. Remarks (non-operating railroad right of way involved?):

   N/A

5. PMCS Input Information

RR Involvements	
None	
C&M Agreement	X
Service Contract	
Design	
Const.	
Lic/RE/Clauses	X

Prepared By:

_____ _____

Right of Way Railroad Coordinator Date

To: Caltrans District 3

Attention: Deputy District Director

Date 12/15/2014
Dist 3 Co PLA Rte 80, 65 PM 1.9 to 6.1 and R4.8 to R7.3

Project Description: I-80/SR 65 Interchange Improvements Project

Subject: Right of Way Data

Alternative No. 3 - Taylor Road Interchange Eliminated

This Alternate meets the criteria for a Design/Build project: Yes No X

1. Right of Way Cost Estimate: To be entered into PMCS COST RW1-5 Screens.

		Current Value Future Use	Escalation Rate	Escalated Value
A.	**Total Acquisition Cost**			$
	Acquisition, including Excess Lands, Damages, and Goodwill.	$ 3,274,600	%	$
	Project Permit Fees.			$
B.	**Utility Relocation** (State Share)	$ 2,000,000	%	$
C.	**Relocation Assistance**	$ 20,000	%	$
D.	**Clearance/Demolition**	$ 15,000	%	$
E.	**Title and Escrow**	$ 16,500	%	$
F.	**25% Contingency**	$ 1,331,600		$
G.	**Total Rounded Estimated Cost**	$ 6,657,700		
H.	**Construction Contract Work**	$	*(These are construction costs that are to be included in the projects PS&E.)*	

2. Current Date of Right of Way Certification _____

3. Parcel Data: To be entered into PMCS EVNT RW Screen.

Type		Dual/Appr	Utilities	RR Involvements	
			U4-1	None	
A			-2	C&M Agrmt	X
B	9		-3	Svc Contract	
C	2		-4 2	Design	
D		U5-7		Const.	E
	XXXX		-8	Lic/RE/Clauses	X
F	XXXX		-9 2		
				Misc. R/W Work	
Total	11			RAP Displ	X
				Clear/Demo	X
				Const Permits	X
				Condemnation	

Areas: R/W 12.43 Acres No. Excess Parcels _____
Entered PMCS Screens ___/___/___ by _____
Entered AGRE Screen (Railroad data only) ___/___/___ by _____

4. Are there any major items of construction contract work? Yes ☐ No X (If "Yes," explain.)

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.). No right of way required. ☐

Acquisitions are required to accommodate mainline widening and interchange reconfiguration. Impacts primarily consist of undeveloped land, parking lots, and landscaping. Impact types include structures and retained fill.

6. Is there an effect on assessed valuation? Yes ☐ Not Significant ☐ No ☒ (If "Yes," explain.)

7. Are utility facilities or rights of way affected?
Yes X No ☐ (If "Yes," attach Utility Information Sheet, Exhibit 4-EX-5.)
The following checked items may seriously impact lead time for utility relocation:
☐ Longitudinal policy conflict(s)
☐ Environmental concerns impacting acquisition of potential easements
☒ Power lines operating in excess of 50 KV and substations
(See attached Exhibit 4-EX-5 for explanation.)

2-230 Kv transmission towers owned by PG&E and SMUD will require relocation

8. Are Railroad facilities or rights of way affected?
Yes X No ☐ (If "Yes," attach Railroad Information Sheet, Exhibit 4-EX-6.)

9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes X None Evident ☐ (If "Yes," attach memorandum per R/W Manual, Chapter 4, Section 4.01.10.00.)

Parcel 015-162-007 may include asbestos containing materials, lead based paints, leach fields, septic tanks, and heating oil tanks. Acquisition should include a site inspection, owner interview, and county file review. Parcel 015-450-079 has a 1,000 gallon above-ground fuel storage tank (AST) that should be further assessed if the project limits change and additional acquisition is required.

10. Are RAP displacements required? Yes X No ☐ (If "Yes," provide the following information.)

No. of single family 1 No. of business/nonprofit _____

No. of multi-family _____ No. of farms _____

Based on Draft/Final Relocation Impact Statement/Study dated _____, it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

11. Are there Material Borrow and/or Disposal Sites required? Yes ☐ No X (If "Yes," explain.)

12. Are there potential relinquishments and/or abandonments? Yes ☐ No X (If "Yes," explain.)

13. Are there any existing and/or potential airspace sites? Yes ☐ No X (If "Yes," explain.)

14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if district proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)
R/W acquisition schedule will be depended upon funding and phasing of the project

Based on the R/W requirements on Page 1 of this Data Sheet, R/W will require a lead time of_____months from the date regular appraisals can begin to project certification.

In any event, RW Maps will require_____months from Final Maps to project certification.

15. Is it anticipated that Caltrans staff will perform all Right of Way work? Yes X No ☐ (If "No," discuss.)

Evaluation Prepared By:

Right of Way:	Name	Universal Field Services, Inc.	Date	7/14/2014
Railroad:	Name	CH2M HILL	Date	11/2014
Utilities:	Name	CH2M HILL	Date	9/2012

Recommended for Approval:

_____

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.

_____
District Division Chief/Regional Manager
Right of Way

_____
Date

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

UTILITY INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-5 (REV 3/2004)

1. Name of utility companies involved in project:

   SMUD and PG&E own the 230 kV transmission towers that will require relocation

2. Types of facilities and agreements required:

   Relocation agreements will be required with PG&E and SMUD

3. Is any facility a longitudinal encroachment in existing or proposed access controlled right of way? Explain.

   Yes. Overhead lines cross I-80 access controlled right-of-way.

   Disposition of longitudinal encroachment(s):
   - [X] Relocation required.
   - [ ] Exception to policy needed.
   - [ ] Other. Explain.

4. Additional information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons (no transmission tower relocations in summer).

   Customer service season (no transmission tower relocations in summer)

5. PMCS Input Information
   Total estimated cost of State's obligation for utility relocation on this project:
   $ 2,000,000 ($1M per tower)

   Note: Total estimated cost to include any Department obligation to relocate longitudinal encroachments in access controlled right of way and acquire any necessary utility easements.

Utility Involvements			
U4-1		U5-7	
-2		-8	
-3		-9	2
-4	2		

Prepared By:

Right of Way Utility Estimator

Date

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

RAILROAD INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-6

1. Describe railroad facilities or right of way affected.

   A temporary construction easement and flaggers will be required for the widening of the East Roseville Viaduct over the Union Pacific Railroad Tracks. Improvements to Taylor Road will be restricted to the existing easement Placer County has with UPRR.

2. When branch lines or spurs are affected, would acquisition and/or payment of damages to businesses and/or industries served by the railroad facility be more cost effective than construction of a facility to perpetuate the rail service? Yes _____ No _____
   (If yes, explain)

   N/A

3. Discuss types of agreements and right required from the railroads. Are grade crossings requiring service contracts or grade separations requiring construct and maintenance agreements involved?

   An encroachment permit will need to be obtained from UPRR for work performed within their right-of-way.
   A C&M agreement will be required for the East Roseville Viaduct work

4. Remarks (non-operating railroad right of way involved?):

   N/A

5. PMCS Input Information

RR Involvements	
None	
C&M Agreement	X
Service Contract	
Design	
Const.	
Lic/RE/Clauses	X

Prepared By:

_____ _____

Right of Way Railroad Coordinator Date

Attachment M
Transportation Management Plan

M e m o r a n d u m

Serious drought.
Help Save Water!

To: Mr. Wayne Lewis
Project Management
Department of Transportation, District 3

Date: March 3, 2015

File: **EA 03-4E3200**
03-PLA-80 1.9-6.1
03-PLA-65 R4.8-R7.3

Subject: **I-80/SR 65 Interchange Improvements (PA&ED): Transportation Management Plan**

This memo serves as an update to the transportation management plan and data sheet included in the PSR approved in 2009.

1. Project Information

Location: I-80 from the Eureka Road/Atlantic Street Interchange to the Rocklin Road Interchange and SR 65 from I-80 to the Pleasant Grove Blvd Interchange.

Proposed Improvements: The project proposes to improve the I-80/SR 65 interchange by providing high-speed connector ramps, adding one additional lane to each connector ramp, and constructing a bi-directional HOV direct connector between I-80 and SR 65. Mainline widening, local interchange ramp improvements, and street widening will also be constructed to accommodate the interchange improvements. The proposed improvements consist of:

- Construction of a 2-lane bi-directional High Occupancy Vehicle (HOV) direct connector on eastbound I-80 to northbound SR 65 and southbound SR 65 to westbound I-80.
- Replacement of the EB I-80 to NB SR 65 loop connector
- Widening and realignment of the WB I-80 to NB SR 65 Connector ramp.
- Reconstruction and widening of the SB SR 65 to EB I-80 Connector ramp.
- Widening the East Roseville Viaduct
- Replacement and widening of the Taylor Road Overcrossing to accommodate I-80 widening
- Construction of HOV lane on SR 65 from I-80 to Galleria Blvd
- Improvements to the Eureka Road/Atlantic Street, Taylor Road, Galleria Blvd/Stanford Ranch Road, and Pleasant Grove Blvd interchanges

Traffic: Updated traffic data can be found in the Transportation Analysis Report approved in September 2014.

Cost: The estimated construction cost (including right-of-way) for the proposed alternatives varies from $341.8M to $351.1M

Schedule: Phase 1A of the project is scheduled to begin in 2017. Subsequent phases will be constructed as funding becomes available.

Caltrans Contact for TMP Issues: TBD

2. TMP Strategies

- The I-80/SR 65 interchange is a vital link between two highly traveled corridors. I-80 provides all-weather access across the Sierra Nevada for major goods movement while SR 65 serves the growing communities of the Cities of Roseville, Rocklin and Lincoln. Many TMP strategies can be implemented on this project in an effort to minimize traffic delays that may result from lane restrictions or closures in the work zone including:

    - Public Information – Alerting the public of upcoming construction activities via brochures/mailers, press releases/media alerts, project website etc. can keep travelers informed of the construction status and allow them enough notice to plan alternate routes or modes of transportation. A public information center near the project site and a public information officer should be made available to inform the public and minimize impacts during construction

    - Motorist Information – Changeable message signs (portable and fixed) and radio announcements are effective ways to keep motorists informed of limits of construction, timeframes, and potential impacts to the corridors.

    - Dedicated Law Enforcement – The construction cost estimate assumes CHP will provide enhanced enforcement services through the Construction Zone Enhanced Enforcement Program (COZEEP). Priority should be given for these services during nighttime work and/or when workers are on foot within the work zone.

    - Construction – Lane requirement charts, staging, traffic handling and other construction strategies can be implemented to reduce congestion and create safe work zones for both workers and the traveling public.

3. Recommendations

- Delay damage clauses will be used with this project
- Use A+B bidding and Incentive/Disincentive provisions to expedite the project
- Construct the improvements in four major phases as described below:
  Phase 1:
  -Eliminate the merge between the EN and WN connectors
  -Add a third northbound lane along the outside of SR 65 from the WN connector to the existing partial auxiliary lane just south of the northbound Pleasant Grove off-ramp
  -Construct entire northbound outside viaduct widening to provide third lane and over-wide outside shoulder
  -Temporary reconfiguration of the northbound Galleria Blvd/Stanford Ranch Road ramps to accommodate the widening
  -Construct a third lane on southbound SR 65 from the Pleasant Grove Boulevard loop on-ramp, connecting to the existing third lane near the Galleria Blvd/Stanford Ranch Road Overcrossing.

-Temporary reconfiguration of southbound Pleasant Grove Blvd slip on-ramp to accommodate the widening.

Phase 2:
-Construct the SE connector ramps and remove the existing SE structure
-Construct the EN connector ramp structure with temporary conforms to eastbound I-80.
-Shift traffic onto the new flyover to allow removal of the loop connector.
-Close the existing loop connector and shift traffic onto the new ramp and remove existing EN structure

Phase 3:
-Construct the first half of the Taylor Road Overcrossing with temporary conforms along Taylor Road to maintain live traffic
-Shift traffic onto the new portion of the bridge and remove the existing overcrossing
-Construct the remaining portion of the structure and open the new bridge to traffic
-Perform I-80 mainline widening and associated retaining walls.
-Realign and widen the SW connector ramp
-Construct collector-distributor ramps if applicable
-Construct and/or modify the local interchanges including Eureka Road/Atlantic Street and Taylor Road interchange ramps

Phase 4:
-Construct HOV direct connector ramp
-conform to SR 65 Capacity and Operational Improvements project

- Traffic handling plans and lane closure charts will be prepared for each construction phase during the PS&E phase.
- Prior to construction of each phase, the anticipated construction schedule for the given year should be reviewed to determine if other projects will need to be included in the special provisions to require the contractor to consider and cooperate with adjacent construction projects along the corridor. Care should be taken to ensure that all projects are coordinated during construction to minimize any interference among the various projects.
- Ramps will be constructed as part of this project and extended ramp closures will be anticipated
- Closing ramps for longer than 10 hours will require District Lane Closure Review Committee (DLCRC) approval
- Due to high traffic volumes within the project limits, lane closures during weekday daytime hours and peak commute hours will require approval of the DLCRC
- No lane closures, shoulder closures, or other traffic restrictions will be allowed on Special Days, designated legal holidays and the day preceding designated legal holidays; and when construction operations are not actively in progress
- Closing a connector longer than 6 hours will require the approval of DLCRC
- Ramps adjacent to closed freeway lanes may be closed
- During ramp and connector closures, traffic will be detoured in accordance with detour traffic handling plans prepared by the Project Engineer in coordination with Traffic Operations
- Due to high traffic volumes, any work from above the deck will be limited to nighttime hours

- Changeable message signs will be used to alert travelers of upcoming lane closures and detours. Portable changeable message signs (PCMS) will be required in the direction of traffic during construction for each lane, shoulder and connector closure, and at cross streets, if necessary
- Lane closure will be performed in accordance with Standard Plan Sheet T10, "Traffic Control System for Lane Closure on Freeways and Expressways."
- Ramp closures will be performed in accordance with Standard Plan Sheet T14, "Traffic Control System for Ramp Closure."
- The maximum length of any lane closure shall be limited to one mile
- A least 7 days notice to be provided prior to commencement of any detours for lane or ramp closures
- Any detour route should be checked to ensure that it meets all HDM requirements, including truck turning radii and vertical/horizontal clearances. If a detour is not usable by truck traffic, the office or Truck Permits shall be notified.
- Construction vehicles with 3+ axles will be restricted from merging onto the mainline from the shoulders from 6 a.m. to 9 a.m. and 3 p.m. and 7 p.m.
- To construct additional lanes, shoulder closures at various ramps are anticipated
- Only one ramp may be closed at a time within the same interchange
- No consecutive ramps shall be closed
- A detour should be in place whenever a ramp is closed
- An early coordination with the City of Rocklin and City of Roseville will need to be established to discuss any closures or traffic handling options on the city streets
- Access to driveways and cross streets must be maintained during construction, in accordance with the traffic control standard plans or traffic handling plans
- Signs will be required on city streets to direct pedestrians when sidewalks are closed for contract work.
- Coordination with UPRR will be required during construction of the portion of the viaduct located over the UPRR Right-of-Way
- Cost estimate should include improvements to roads damaged as a result of detours
- COZEEP will be required in work zones requiring reduced speeds or meeting the conditions identified in the dedicated law enforcement strategy. COZEEP services were estimated to be needed for a total of 780 days throughout construction of the project at $4,000 per day. A per phase breakdown will be included in the cost estimate during PS&E.
- The assistance of Freeway Service Patrol (FSP) is recommended during construction. Coordination with Placer County Transportation Planning Agency will be needed during PS&E to ensure the arrangements for additional FSP during construction.
- Temporary railing (Type K) will be used to separate construction zones from traffic. Glare screens should be considered to reduce the potential for collisions near the work zone. When K-rail is used as a separation barrier between work zone and traveled way, there is no closure time restriction
- In an area where the work zone is less than 6 feet away from the traveled way and the work is expected to continue for an extended period of time, K-rail should be considered
- K-rail shall be secured in place prior to allowing traffic on the bridge when bridge rail is being replaced

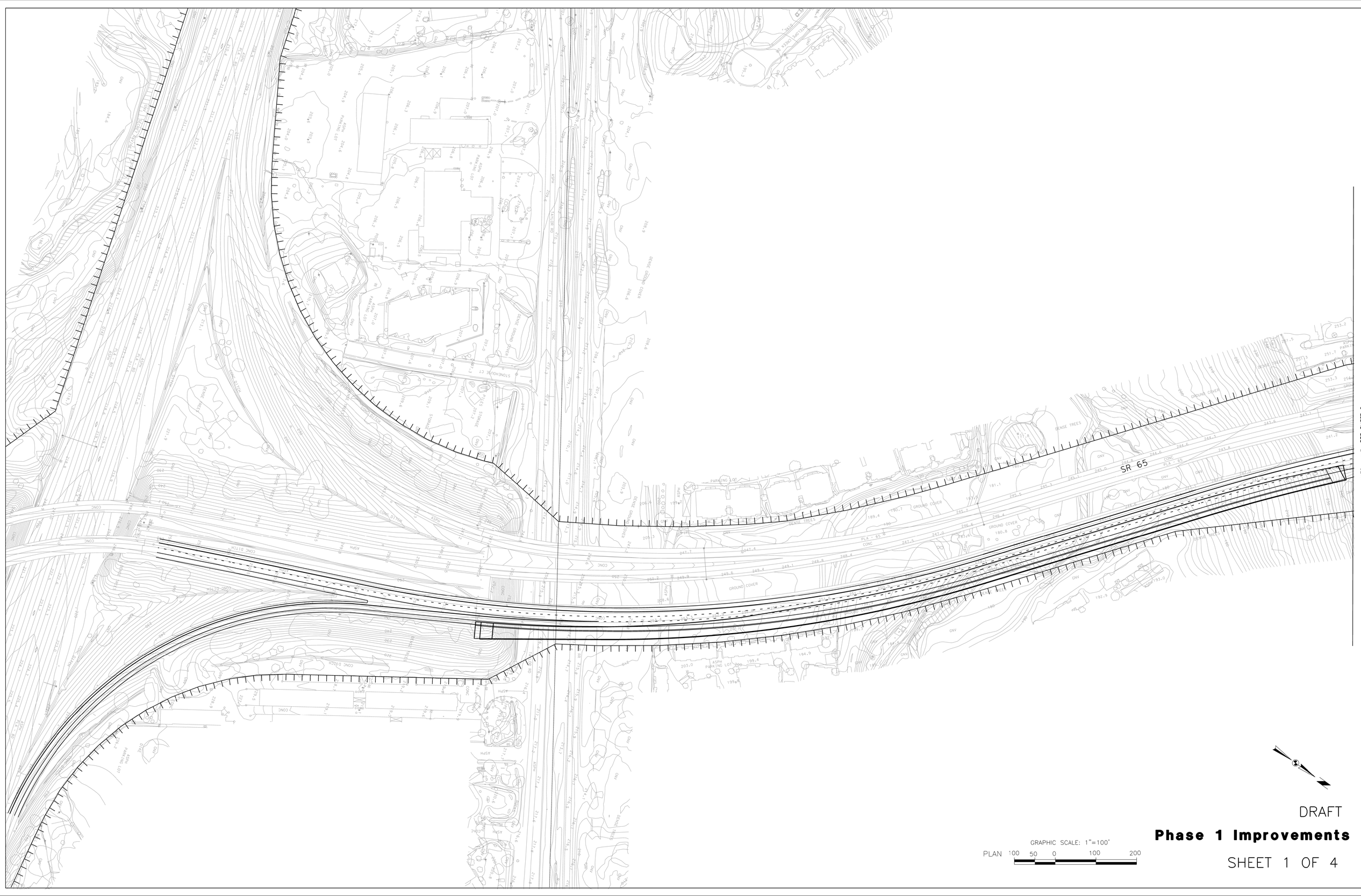
4. Cost

Anticipated TMP items include:

- COZEEP/FSP - $3.9M
- Traffic Control - $2.34M
- Public Information - $100K
- Portable Changeable Message Signs (PCMS) - $312K
- Maintain Traffic - $500K

Note: Costs are associated with overall project and do not consider phasing.

Lauren Proctor, PE
Project Engineer
CH2M HILL



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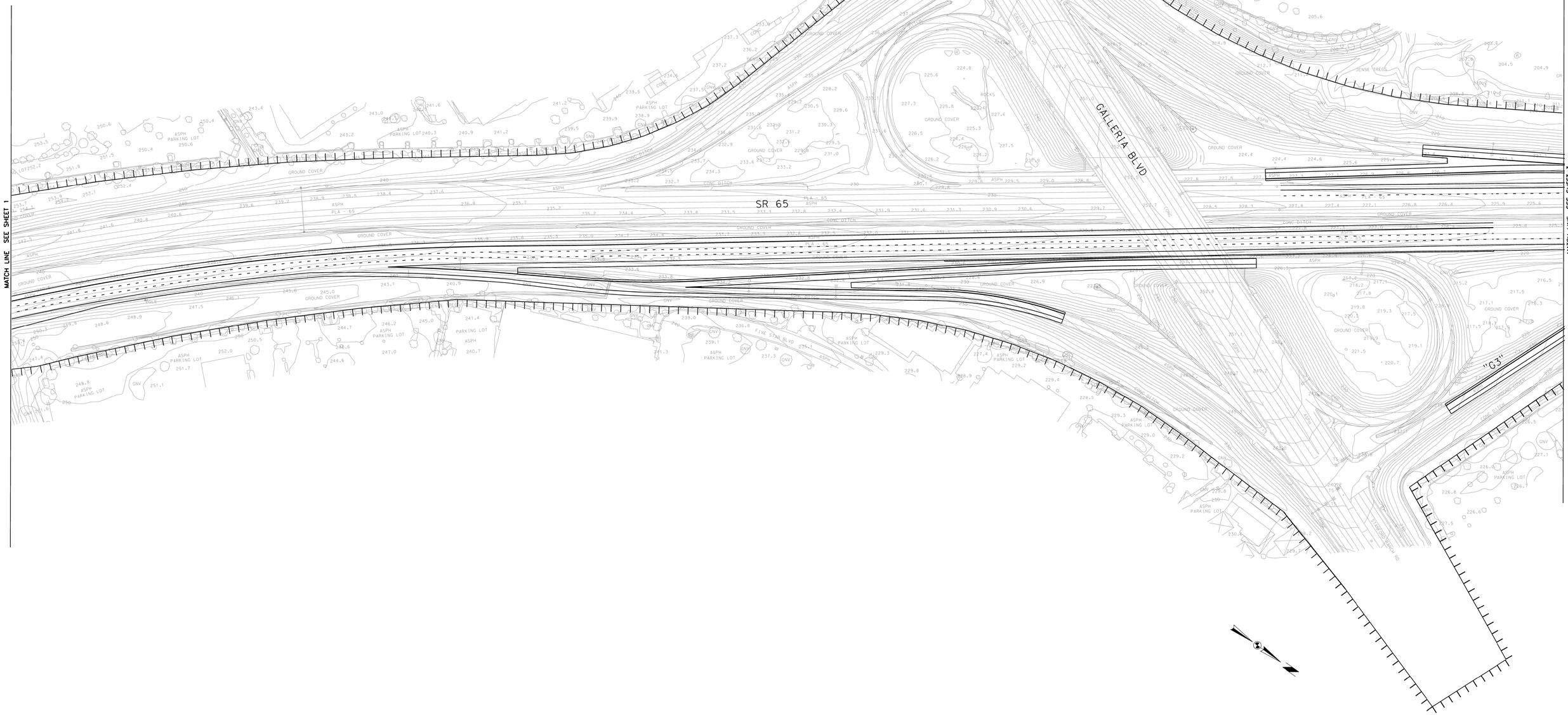
Phase 1 Improvements

SHEET 1 OF 4



GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

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Phase 1 Improvements

SHEET 2 OF 4

MATCH LINE SEE SHEET 2

MATCH LINE SEE SHEET 4

SR 65

GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

DRAFT

Phase 1 Improvements

SHEET 3 OF 4

MATCH LINE SEE SHEET 3

SR 65

PLEASANT GROVE BLVD

GRAPHIC SCALE: 1"=100'

PLAN 100 50 0 100 200

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Phase 1 Improvements

SHEET 4 OF 4

FEHR PEERS

MEMORANDUM

Date: December 4, 2014

To: Chris Benson & Leo Heuston, CH2M Hill

From: Dave Stanek & Ron Milam, Fehr & Peers

Subject: I-80/SR 65 Interchange Improvements – Phase 1 Analysis

RS11-2872

This memorandum presents the traffic operations analysis results for Phase 1 of the I-80/SR 65 Interchange Improvements project. The findings, which are presented below, show that the Phase 1 Alternative will improve network-wide traffic operations and reduce freeway congestion compared to No Build conditions. Without the Phase 1 Alternative, existing vehicle hours of delay (VHD) will increase by over 300 percent during the AM peak period and almost 600 percent during the PM peak period by 2020. The Phase 1 Alternative will reduce these delays while also increasing the total number of persons able to travel through the study area during these periods. While this information demonstrates the effectiveness of the Phase 1 Alternative, some bottlenecks remain in the study area that will adversely affect peak period traffic operations since this alternative only includes a portion of the larger capacity expansion project.

In addition, westbound I-80 would have worse congestion than the No Build Alternative since the volume constraint for southbound SR 65 would be removed. Despite this, the Phase 1 Alternative would provide improved operational performance in the study area.

Background

The *I-80/SR 65 Interchange Improvements Transportation Analysis Report* (August 2014) describes the traffic forecasts, and operational analysis results for the project alternatives under construction and design year conditions. The Phase 1 of this project would include the following elements (shown schematically in Figure 1).

- Adding a lane on northbound SR 65 from the connector ramp from westbound I-80, continuing through the Galleria Boulevard/Stanford Ranch Road interchange and connecting to the existing deceleration lane at the Pleasant Grove Boulevard off-ramp.

- Adding a lane on southbound SR 65 from the loop on-ramp from eastbound Pleasant Grove Boulevard, continuing through slip on-ramp from westbound Pleasant Grove Boulevard and the off-ramp to Galleria Boulevard/Stanford Ranch Road, and connecting to the existing lane addition near the Galleria Boulevard/Stanford Ranch Road overcrossing.

The Phase 1 project was analyzed under construction year (2020) conditions. Traffic volume forecasts were developed for this scenario using the process described in the August 2014 traffic analysis report (TAR). Using the meso-scale trip matrix for construction year conditions, the AM and PM peak period hourly volumes were assigned to the roadway network that included the SR 65 lane additions described above. The construction year AM and PM peak hour volumes for the SR 65 and I-80 corridors are shown in Figure 1. The construction year AM and PM peak hour volumes for the study intersections are provided in Attachment A. (The Phase 1 Alternative scenario is identical to the No Build Alternative scenario for the SR 65 Capacity and Operational Improvements project.)

For comparison, analysis results for Existing Conditions and the No Build Alternative are presented below. The No Build Alternative presented here uses the same forecasts as the Phase 1 Alternative to isolate network operations changes. The lane configurations for the freeway and arterial locations are the same as the Phase 1 Alternative except for the SR 65 improvements described above. (Although the TAR presented construction year results for the No Build Alternative, the TAR's version of the No Build Alternative had different lane configuration assumptions than the build alternatives as described in Chapter 5 of the TAR.)

Traffic operations were analyzed for construction year (2020) conditions under AM and PM peak period and peak hour conditions. This analysis relied on the AM and PM four-hour, peak period Vissim models from which peak hour results were extracted. Traffic operations were analyzed for the entire four-hour (6-10) AM and (3-7) PM peak periods. Some statistics are reported for the peak hours, which are 7:30 to 8:30 AM and 4:30 to 5:30 PM.

Network Performance

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 1 and 2 below, respectively. Additional performance measures for the design year analysis are provided in Attachment B.

The results in Tables 1 and 2 are summarized below.

- The Phase 1 Alternative provides better overall network performance compared to the No Build Alternative.

- The Phase 1 Alternative serves nearly all of the peak period demand volume, but the No Build Alternative does not. The performance metrics do not fully account for vehicles that could not enter the network during the peak periods.

TABLE 1: COMPARISON OF OVERALL NETWORK PERFORMANCE – CONSTRUCTION YEAR AM PEAK PERIOD

Performance Measure	Existing Conditions	Construction Year Conditions	
		No Build	Phase 1
Volume Served (% of total demand)	143,450 (100%)	162,950 (96%)	168,970 (99%)
Vehicle Miles of Travel	645,270	744,640	791,610
Person Miles of Travel	786,260	912,960	968,970
Vehicle Hours of Travel	13,760	24,490	18,560
Vehicle Hours of Delay (% of Vehicle Hours of Travel)	2,670 (19%)	11,680 (48%)	4,970 (27%)
Average Delay per Vehicle (min)	1.12	4.30	1.76
Person Hours of Delay	3,240	14,110	5,890
Average Speed	46.9	30.4	42.7
Travel Time for SOVs: Blue Oaks Blvd to Antelope Rd	9:44	14:11	12:48

Note: SOV = single occupant vehicles (that is, not HOVs nor trucks)
Source: Fehr & Peers, 2014

- The Phase 1 Alternative would reduce overall delay by more than half and increase average speed by more than 10 mph during both peak periods. This improvement comes from the reduction and elimination of bottlenecks on SR 65.
- The peak direction travel time between SR 65 at Blue Oaks Boulevard and I-80 at Auburn Boulevard/Riverside Avenue would improve with the Phase 1 Alternative compared to the No Build Alternative. However, the travel time will still be longer than the existing travel time due to bottlenecks on I-80 that are not addressed by the Phase 1 Alternative.

Specific information about construction year freeway and intersection operations is discussed in more detail in the following sections.

TABLE 2: COMPARISON OF OVERALL NETWORK PERFORMANCE – CONSTRUCTION YEAR PM PEAK PERIOD

Performance Measure	Existing Conditions	Construction Year Conditions	
		No Build	Phase 1
Volume Served (% of total demand)	198,170 (101%)	215,020 (91%)	232,100 (99%)
Vehicle Miles of Travel	730,100	804,170	904,430
Person Miles of Travel	880,180	1,001,580	1,116,650
Vehicle Hours of Travel	16,850	41,740	26,940
Vehicle Hours of Delay (% of Vehicle Hours of Travel)	3,950 (23%)	27,510 (66%)	11,010 (41%)
Average Delay per Vehicle (min)	1.20	7.68	2.85
Person Hours of Delay	4,670	32,400	12,940
Average Speed	43.3	19.3	33.6
Travel Time for SOVs: Auburn Blvd to Blue Oaks Blvd	9:16	38:33	17:15

Note: SOV = single occupant vehicles (that is, not HOVs nor trucks)
Source: Fehr & Peers, 2014

Freeway Operations

The speed contour maps of the freeway corridors produced from the Vissim models of the No Build and Phase 1 Alternatives are shown in Figures 2 through 9. LOS and density for each freeway segment in the study area for are provided in Attachment B.

On eastbound I-80, the bottleneck at the SR 65 off-ramp shows up in both the AM and PM peak periods for the No Build Alternative, but only during the PM peak period for the Phase 1 Alternative. The Phase 1 improvements on northbound SR 65 reduce the backup that extends onto eastbound I-80 such that the average freeway speed is higher and the PM peak period congestion only extends to about Auburn Boulevard.

On westbound I-80, the No Build Alternative has less congestion than the Phase 1 Alternative during the AM peak period. The bottleneck on southbound SR 65 constrains traffic demand such that the downstream westbound I-80 operates better under the No Build Alternative. During the PM peak period, the bottleneck on northbound SR 65 causes queuing that extends onto the SR-65 off-ramp from

westbound I-80 and affects all lanes back to Rocklin Road. The Phase 1 improvements would eliminate the SR 65 off-ramp bottleneck. Downstream, minor congestion would occur at Douglas Boulevard.

Northbound SR 65 would have three bottleneck locations under the No Build Alternative: the loop connector ramp, the westbound I-80 on-ramp, and the Stanford Ranch Road on-ramp. These bottlenecks show up in both the AM and PM peak period contour maps. Under the Phase 1 Alternative, the second two bottlenecks are eliminated leaving only the loop connector ramp constraint.

Southbound SR 65 shows severe AM and PM peak period congestion due to the bottleneck between Pleasant Grove Boulevard and Galleria Boulevard. The congestion would last more than three hours and extend back to Ferrari Ranch Road. In contrast, operations under the Phase 1 Alternative would have less than an hour of congestion at Pleasant Grove Boulevard during the AM peak period and no congestion during the PM peak period.

Intersection Operations

LOS and delay for selected study intersections under the Phase 1 Alternative are provided in Table 3. The full set of intersection analysis results are provided in Attachment B.

Under the No Build Alternative, the intersections at the I-80/Douglas Boulevard interchange would operate poorly during the PM peak hour due to congestion on eastbound I-80 from the bottleneck at SR 65 that would extend onto the on-ramps at Douglas Boulevard. The Phase 1 Alternative would reduce the freeway congestion such that the Douglas Boulevard intersection operations would improve. However, the increase in served volume on northbound SR 65 and the Stanford Ranch Road off-ramp would result is higher delays downstream at the Stanford Ranch Road/Five Star Boulevard intersection.

TABLE 3: SELECTED INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR CONDITIONS				
Intersection	**No Build Alternative**		**Phase 1 Alternative**	
	AM	**PM**	**AM**	**PM**
10. Stanford Ranch Rd / Five Star Blvd	C / 29	**D / 46**	C / 29	**E / 57**
11. Stanford Ranch Rd / SR 65 NB Ramps	B / 20	B / 12	B / 17	B / 19
12. Galleria Blvd / SR 65 SB Ramps	C / 21	B / 17	C / 21	B / 19
19. Atlantic St / I-80 WB Ramps	B / 11	B / 12	B / 17	B / 12
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	C / 22	D / 42	C / 22	D / 40
23. Douglas Blvd / Harding Blvd	E / 77	E / 64	B / 20	E / 66
24. Douglas Blvd / I-80 WB Ramps	**D / 45**	C / 22	**D / 51**	**D / 37**
25. Douglas Blvd / I-80 EB Ramps	B / 16	**E / 64**	B / 20	**D / 50**
26. Douglas Blvd / Sunrise Ave	C / 29	**F / 160**	C / 29	D / 39
30. Rocklin Rd / I-80 WB Ramps	D / 36	D / 38	C / 32	D / 40
31. Rocklin Rd / I-80 EB Ramps	D / 42	C / 33	D / 37	D / 40
Note: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported.				
Source: Fehr & Peers, 2014				

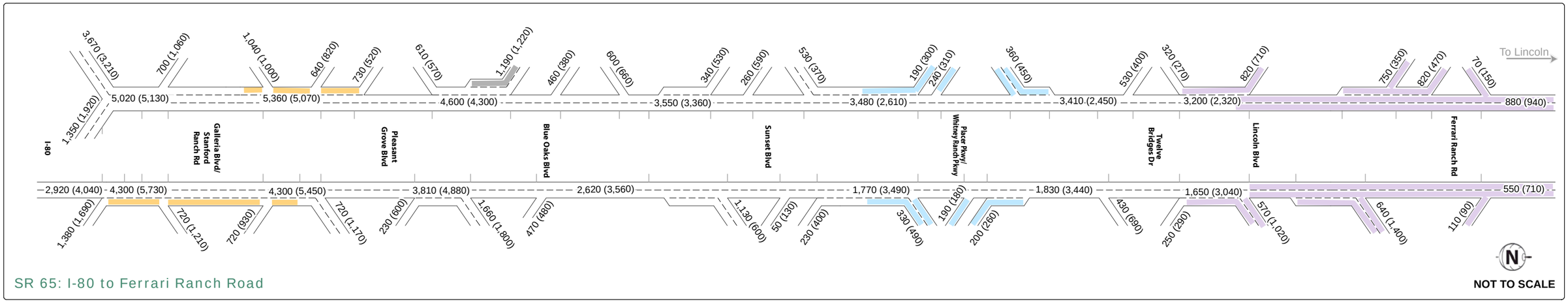
Table 4 shows the average maximum queue length at selected off-ramps under construction year conditions during the AM and PM peak hours. The full set of intersection analysis results are provided in Attachment B. The off-ramp queues at the study intersections are all less than the ramp storage for the Phase 1 Alternative under construction year conditions. However, the highest queue of 1,100 feet for the eastbound off-ramp at Eureka Road during the PM peak hour is less than the ramp length of 1,700 feet.

TABLE 4: SELECTED MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR CONDITIONS

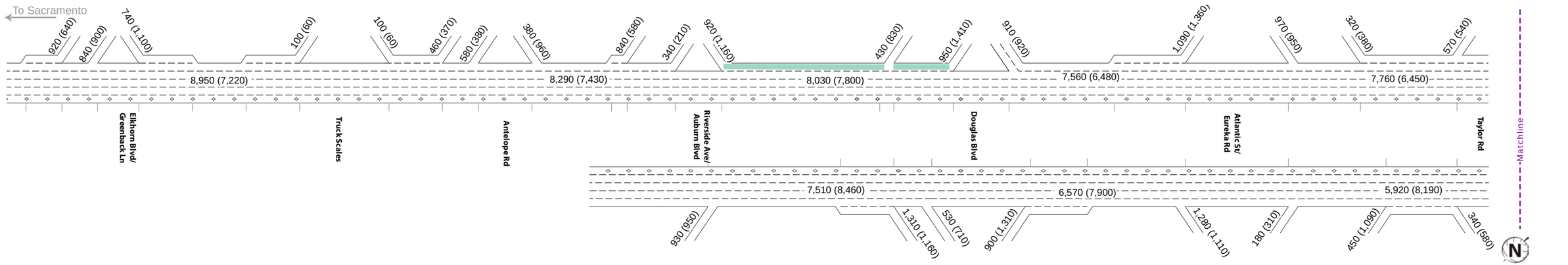
Off-ramp	Storage	Phase 1 Alternative	
		AM	PM
Eastbound I-80 at Eureka Rd	1,700	250	1,100
Eastbound I-80 at Rocklin Rd	1,080	250	575
Westbound I-80 at Rocklin Rd	1,230	150	425
Westbound I-80 at Douglas Blvd	1,530	300	325
Northbound SR 65 at NB Stanford Ranch Rd	1,170	25	100
Northbound SR 65 at SB Stanford Ranch Rd	1,800	150	250
Northbound SR 65 at Pleasant Grove Blvd	1,420	125	150
Northbound SR 65 at Blue Oaks Blvd	1,100	450	875
Southbound SR 65 at Pleasant Grove Blvd	1,130	125	125
Southbound SR 65 at SB Galleria Blvd	1,130	300	250
Southbound SR 65 at NB Galleria Blvd	1,780	150	275

Note: Bold and underline font indicate queues that exceed the ramp length. The reported value is the average maximum peak-hour queue length in feet.

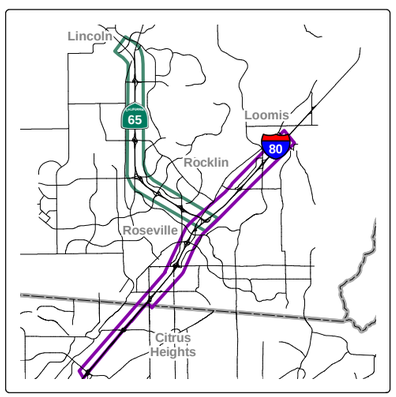
Source: Fehr & Peers, 2014



SR 65: I-80 to Ferrari Ranch Road



I-80: Elkhorn Blvd to Taylor Rd



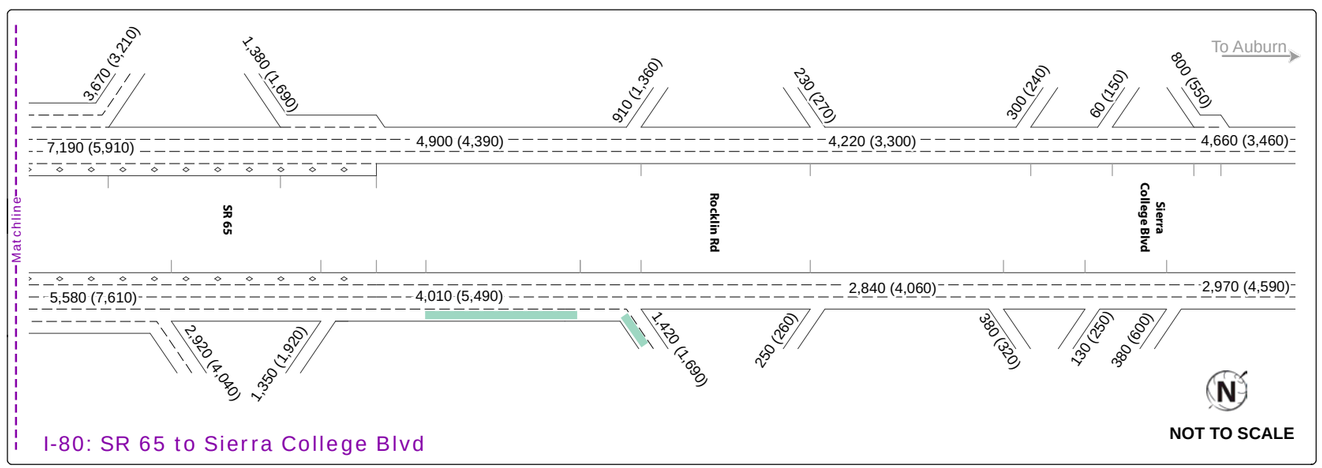
LEGEND

AM (PM) Peak Hour Traffic Volume for 2020 Conditions

10.1 Postmile

Projects

- Phase 1 Alternative
- Placer Parkway/Whitney Ranch Parkway Interchange
- Lincoln Bypass
- I-80 Auxiliary Lanes
- Blue Oaks Boulevard Widening



I-80: SR 65 to Sierra College Blvd

FEHR PEERS

CONSTRUCTION YEAR PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - PHASE 1 ALTERNATIVE

FIGURE 1

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FIGURE 2 – EASTBOUND I-80 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

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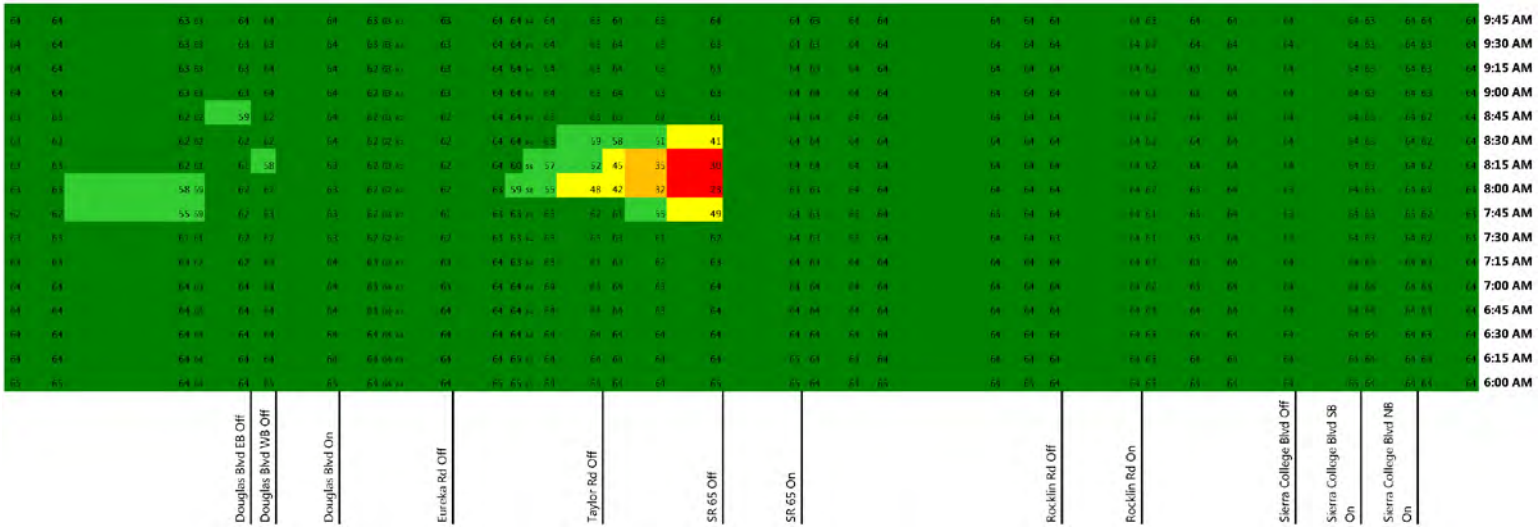

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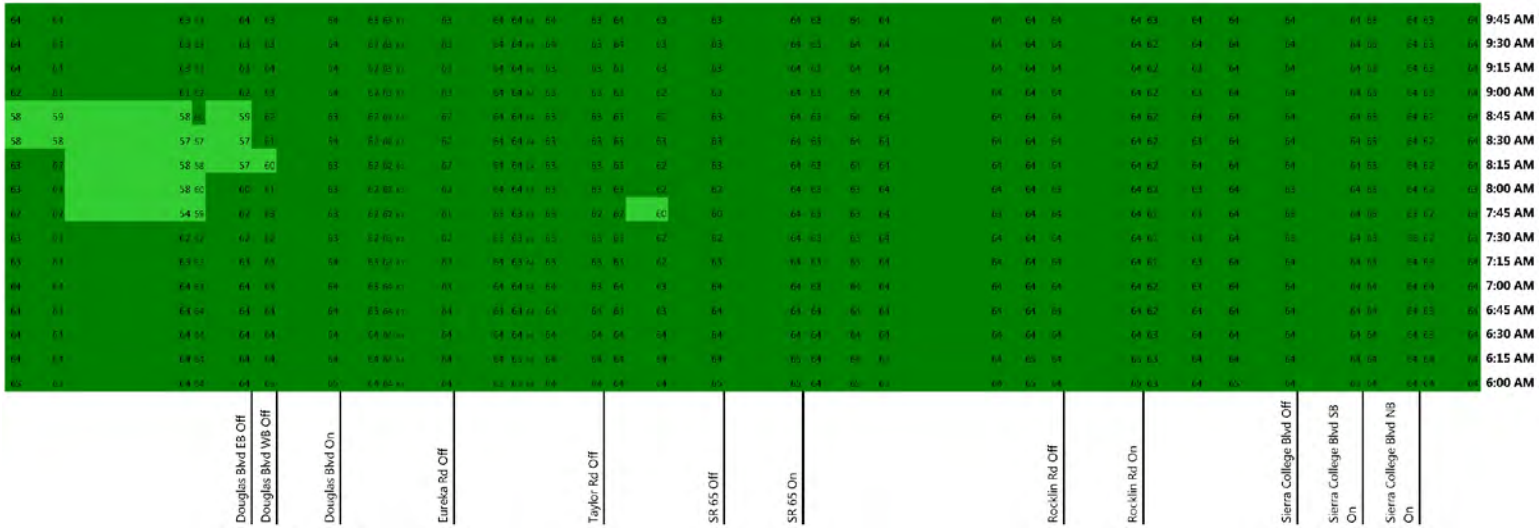

FIGURE 3 – EASTBOUND I-80 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

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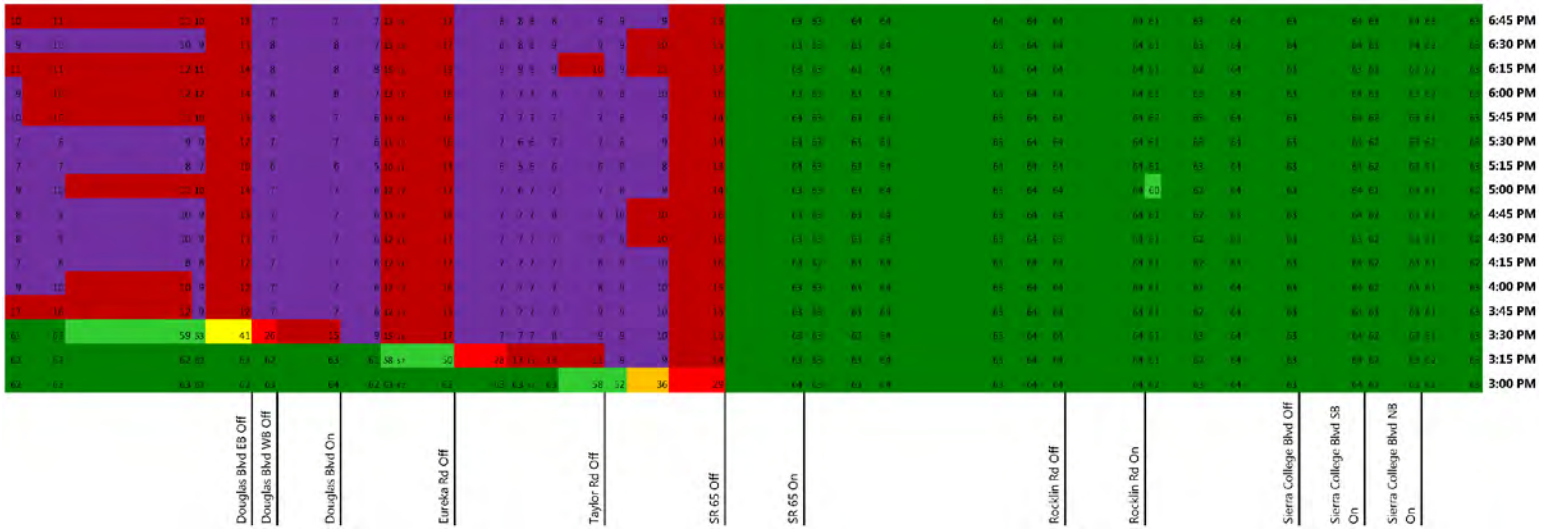

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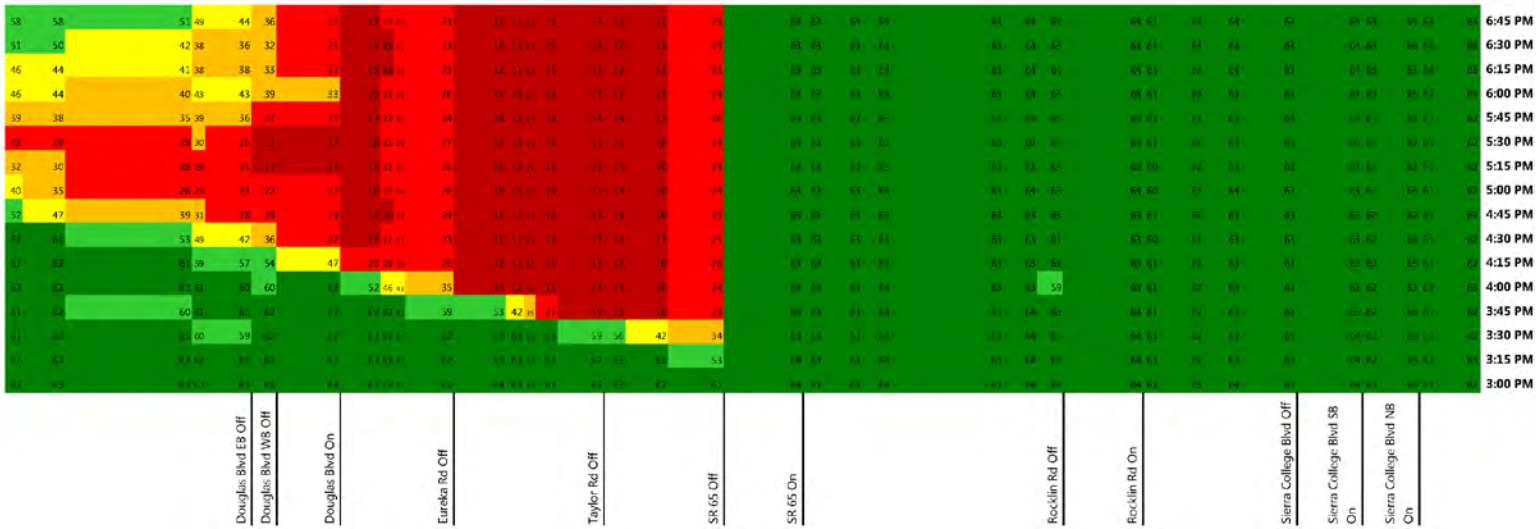

FIGURE 4 – WESTBOUND I-80 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

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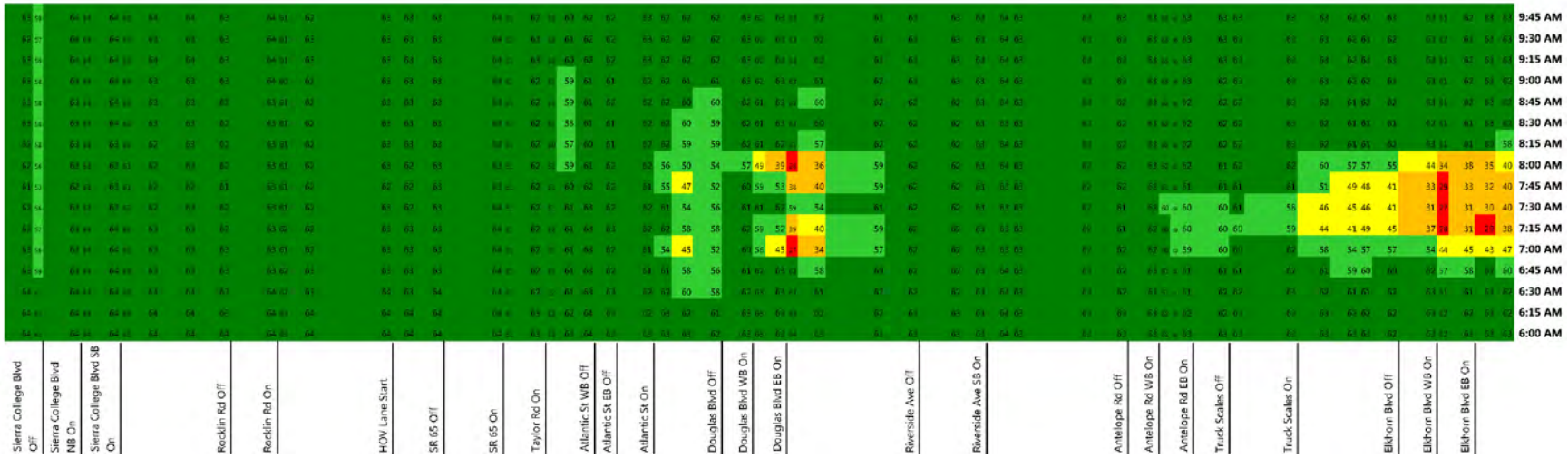

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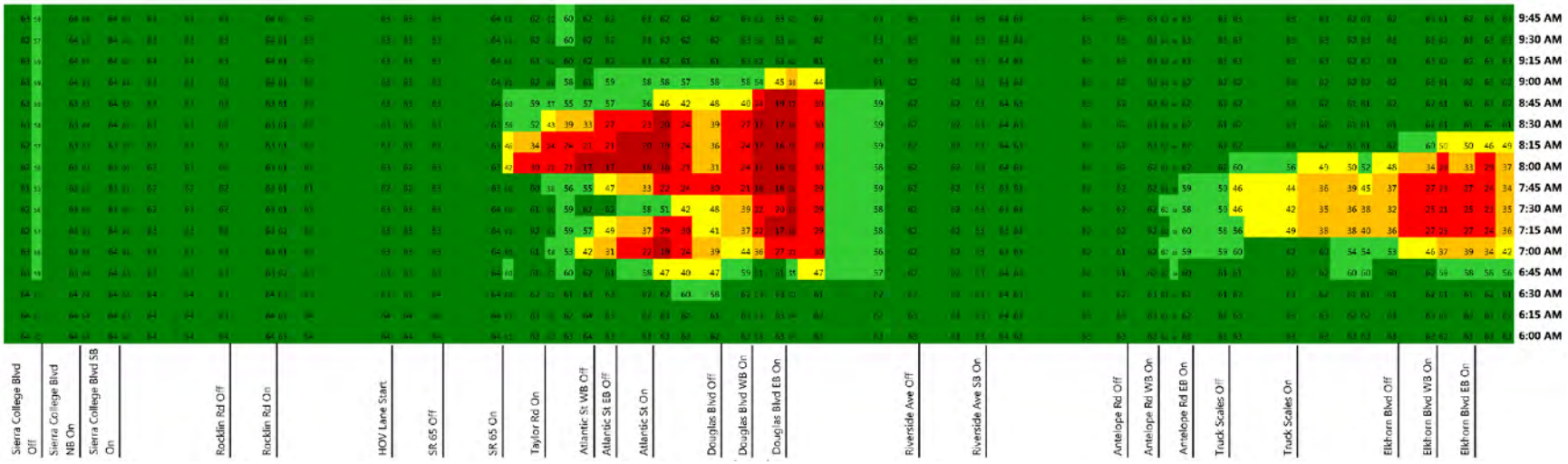

FIGURE 5 – WESTBOUND I-80 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

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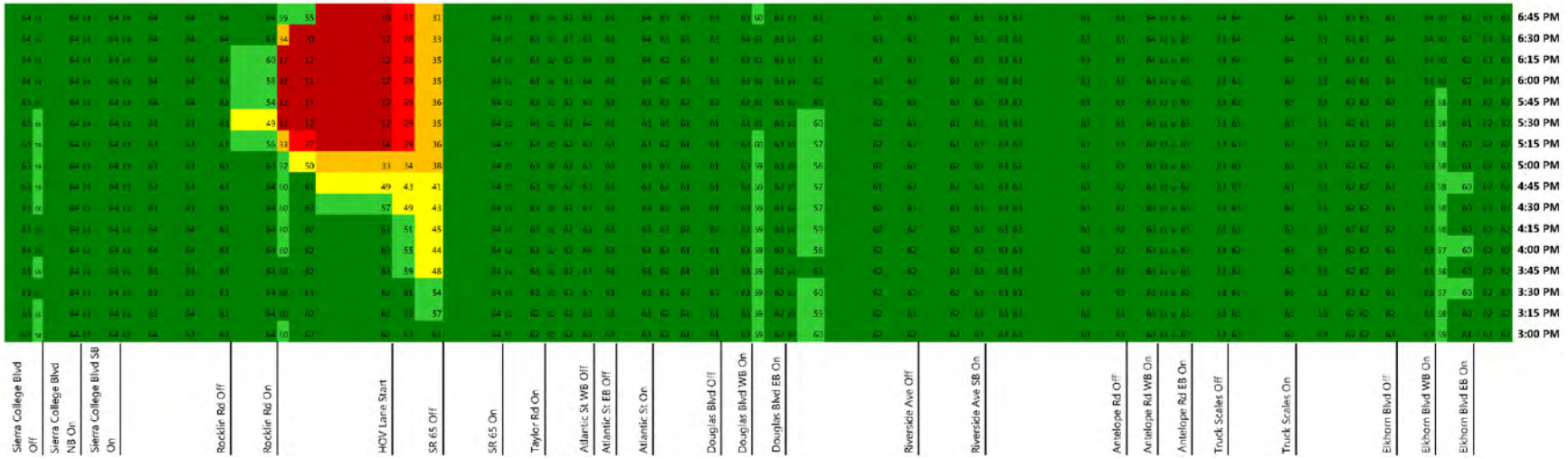

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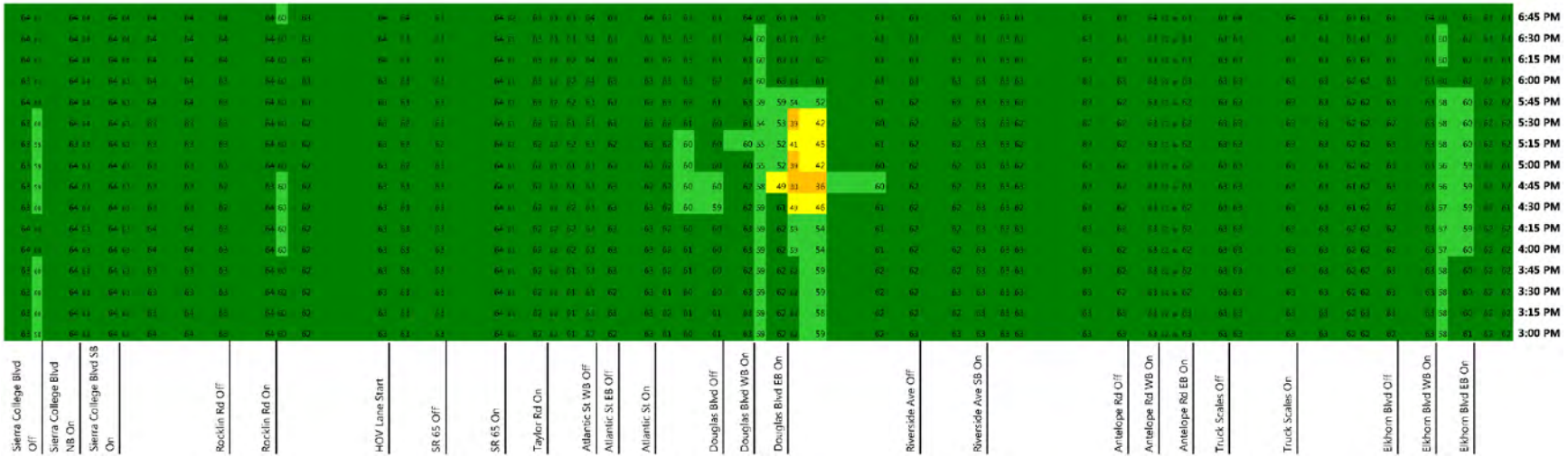

FIGURE 6 - NORTHBOUND SR 65 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

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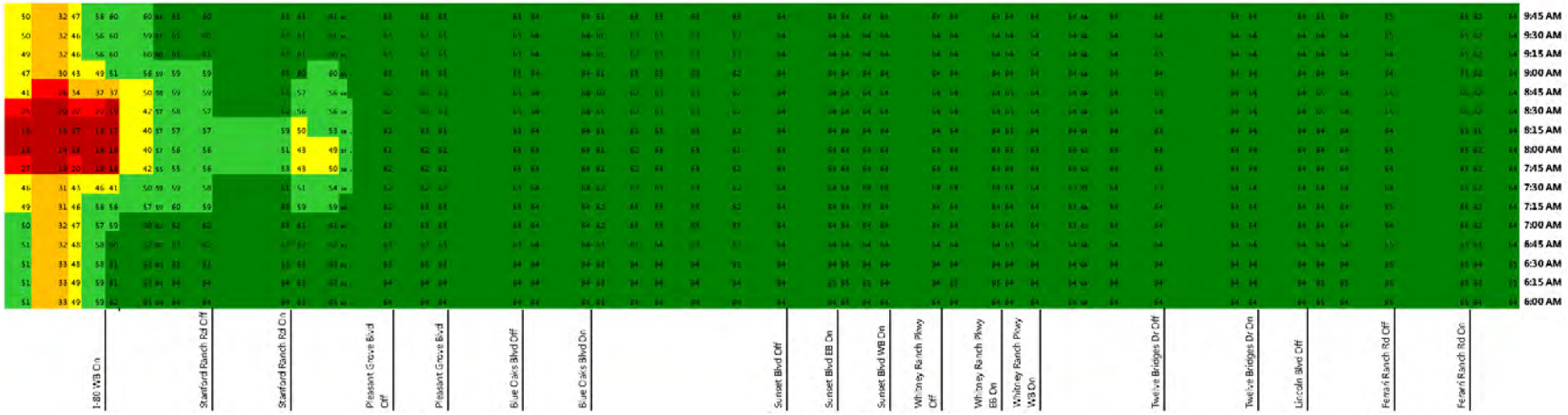

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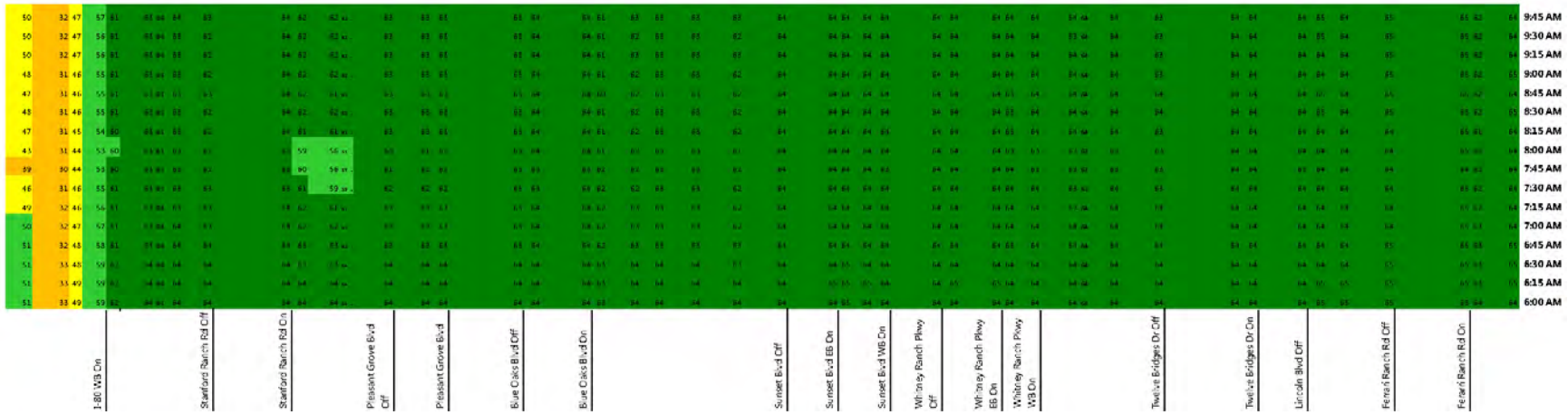

FIGURE 7 - NORTHBOUND SR 65 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

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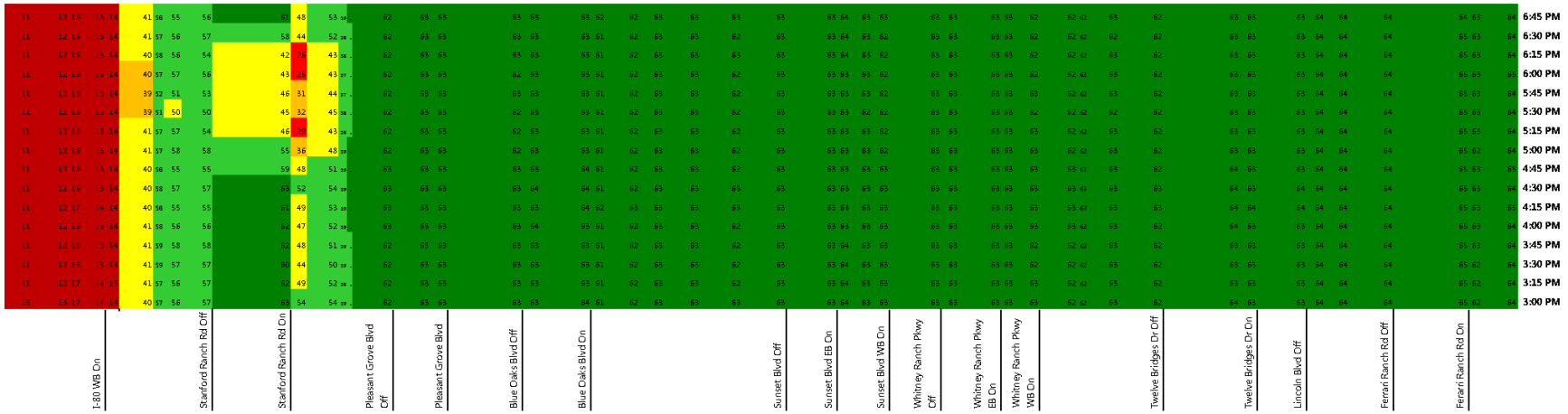

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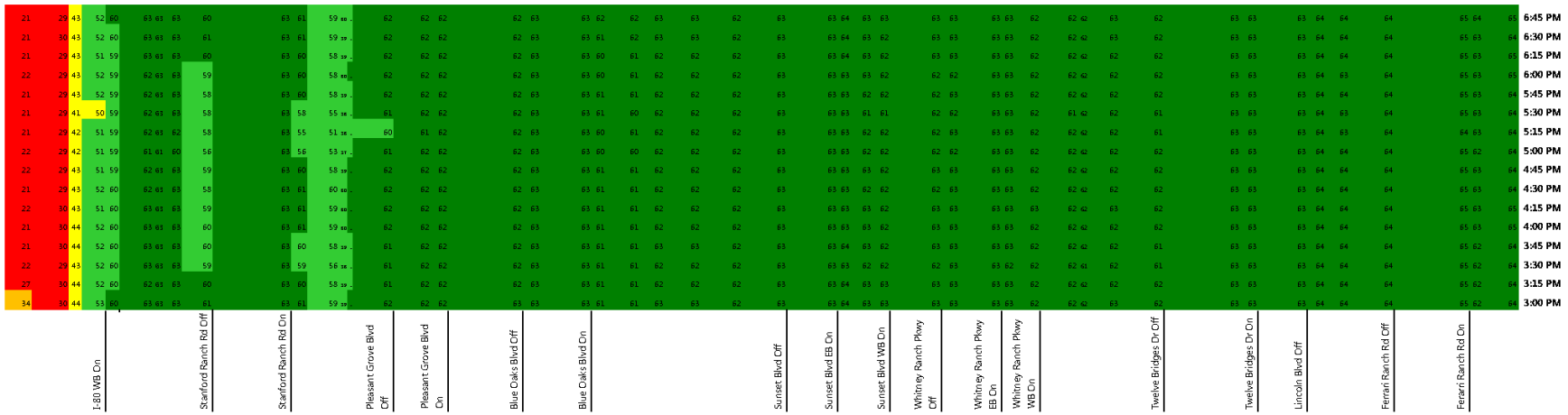

FIGURE 8 - SOUTHBOUND SR 65 CONSTRUCTION YEAR AM PEAK PERIOD SPEED CONTOUR MAP

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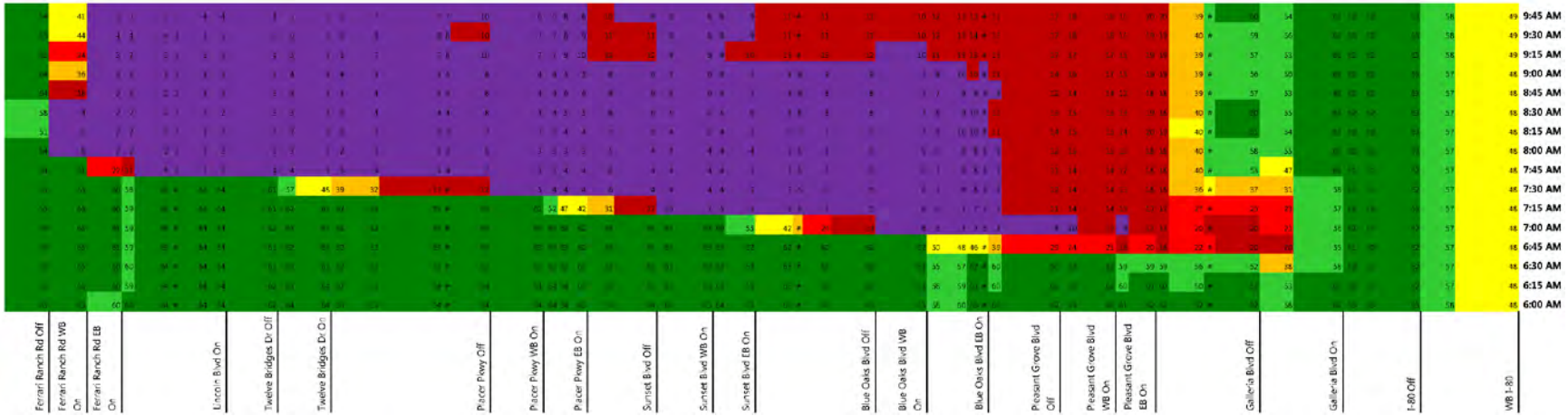

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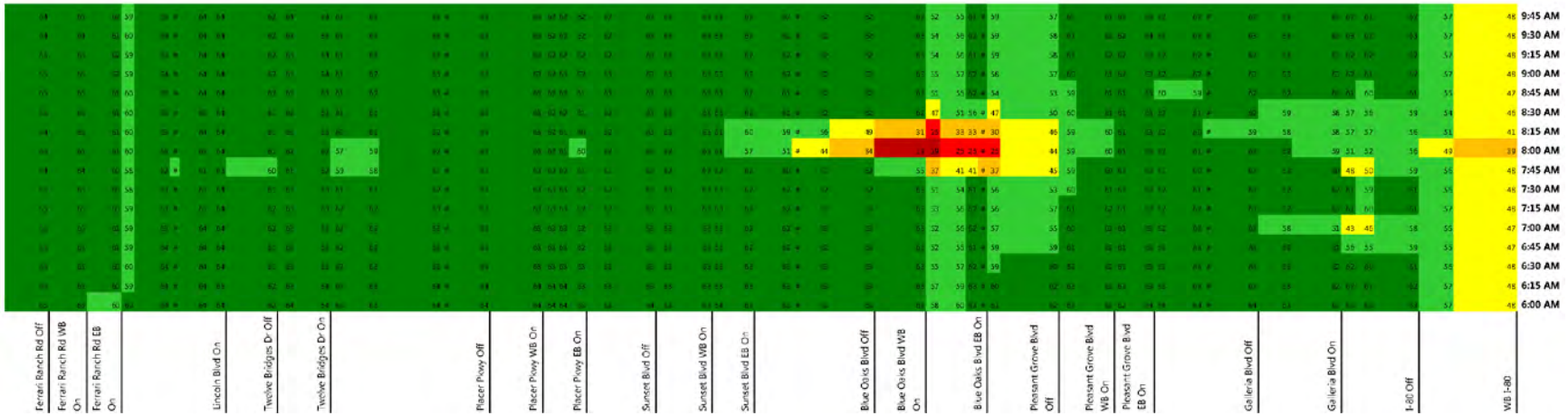

FIGURE 9 - SOUTHBOUND SR 65 CONSTRUCTION YEAR PM PEAK PERIOD SPEED CONTOUR MAP

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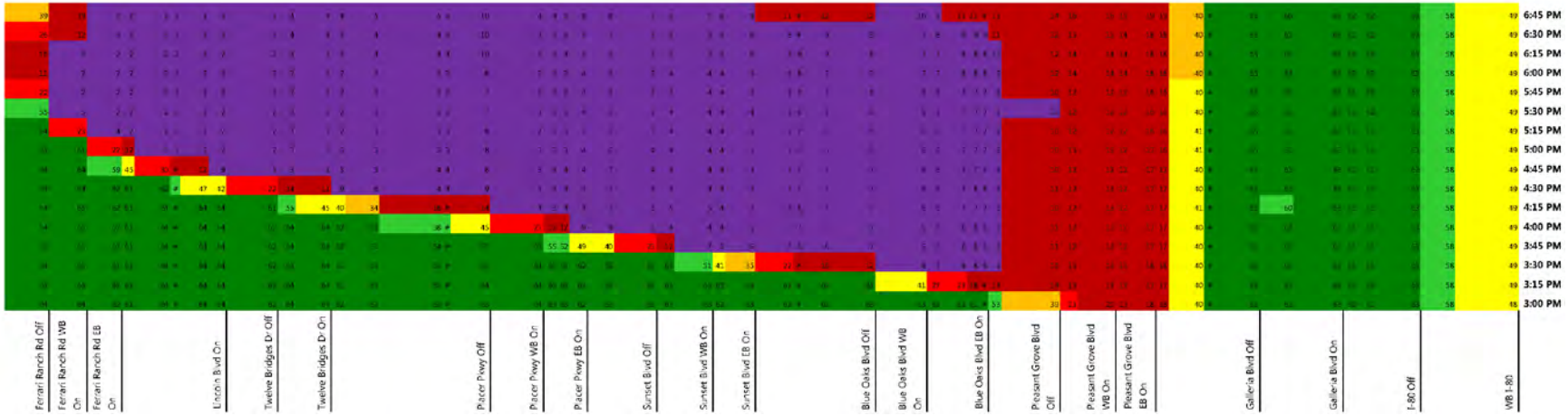

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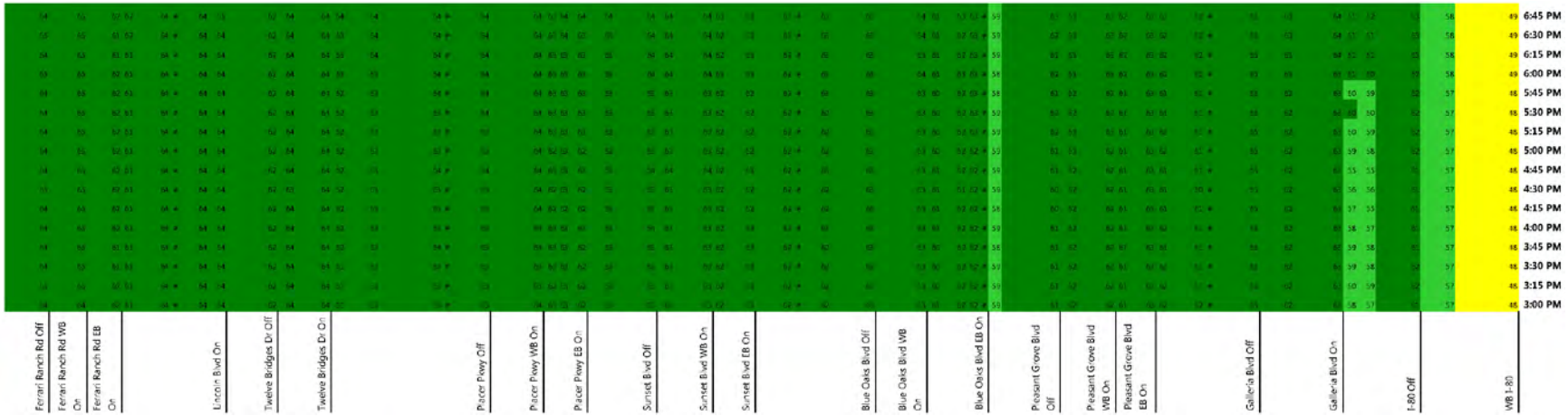

Attachment A

I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

Attachment A

I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

Attachment A

I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

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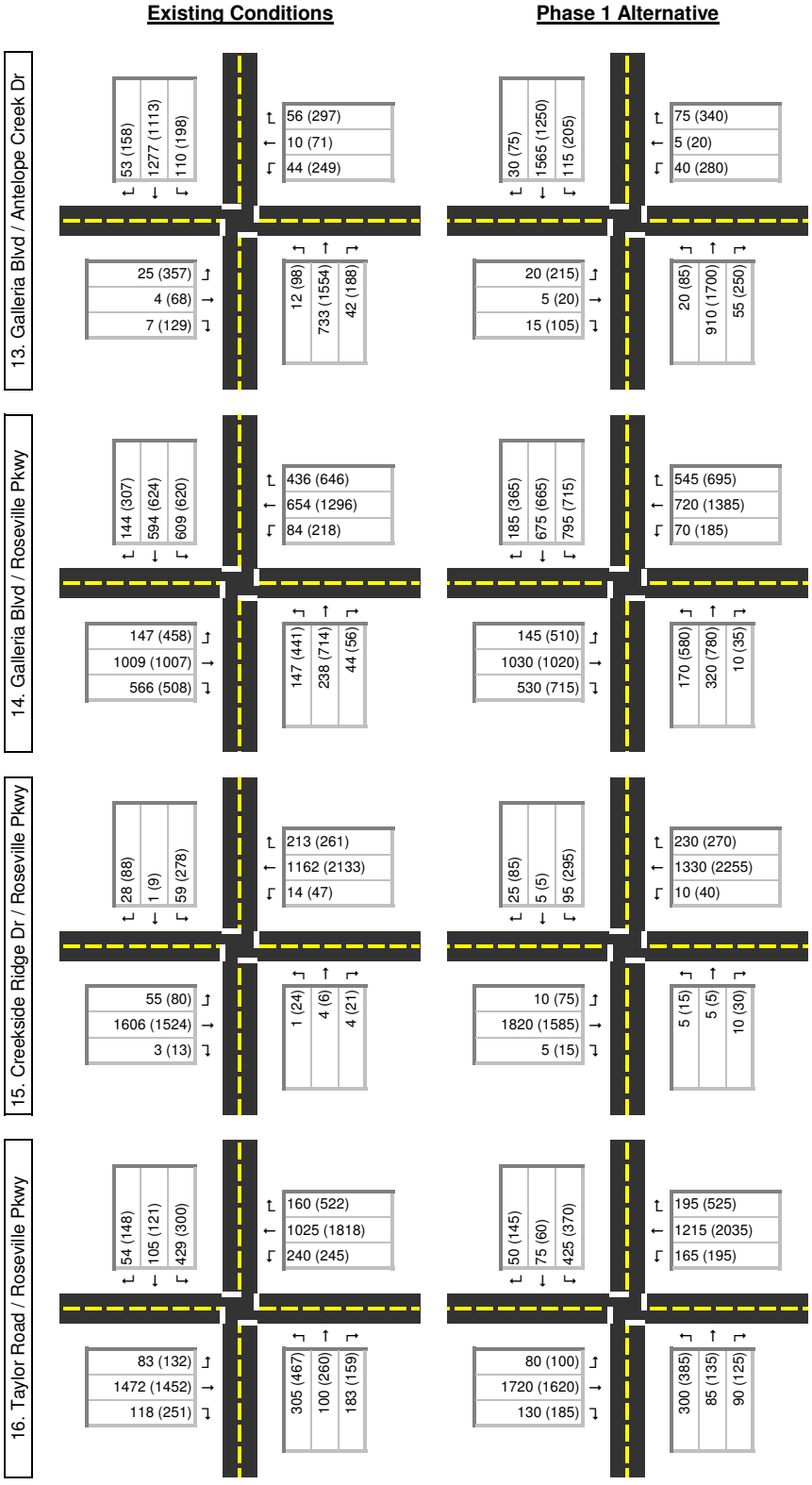
I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

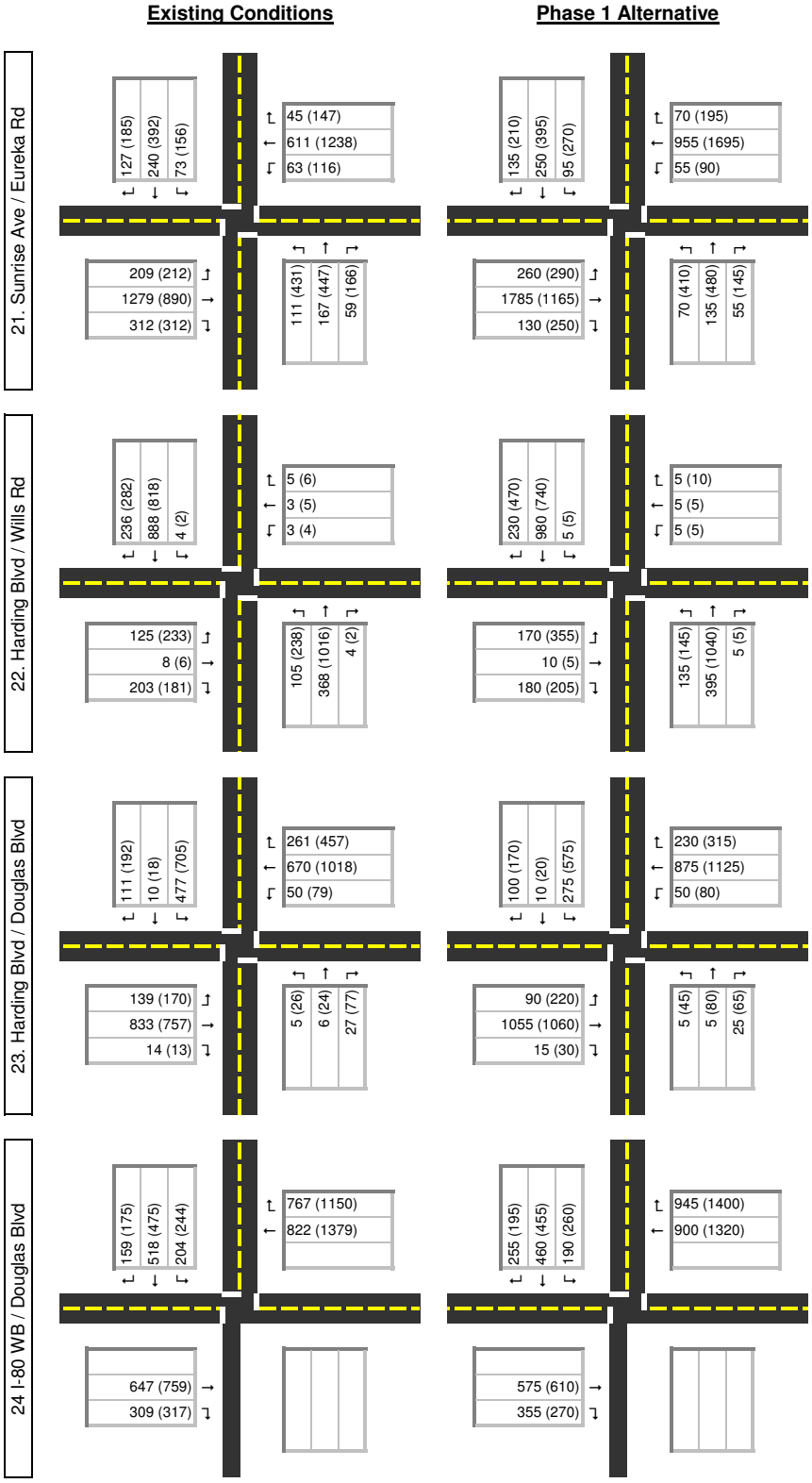


Attachment A

I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

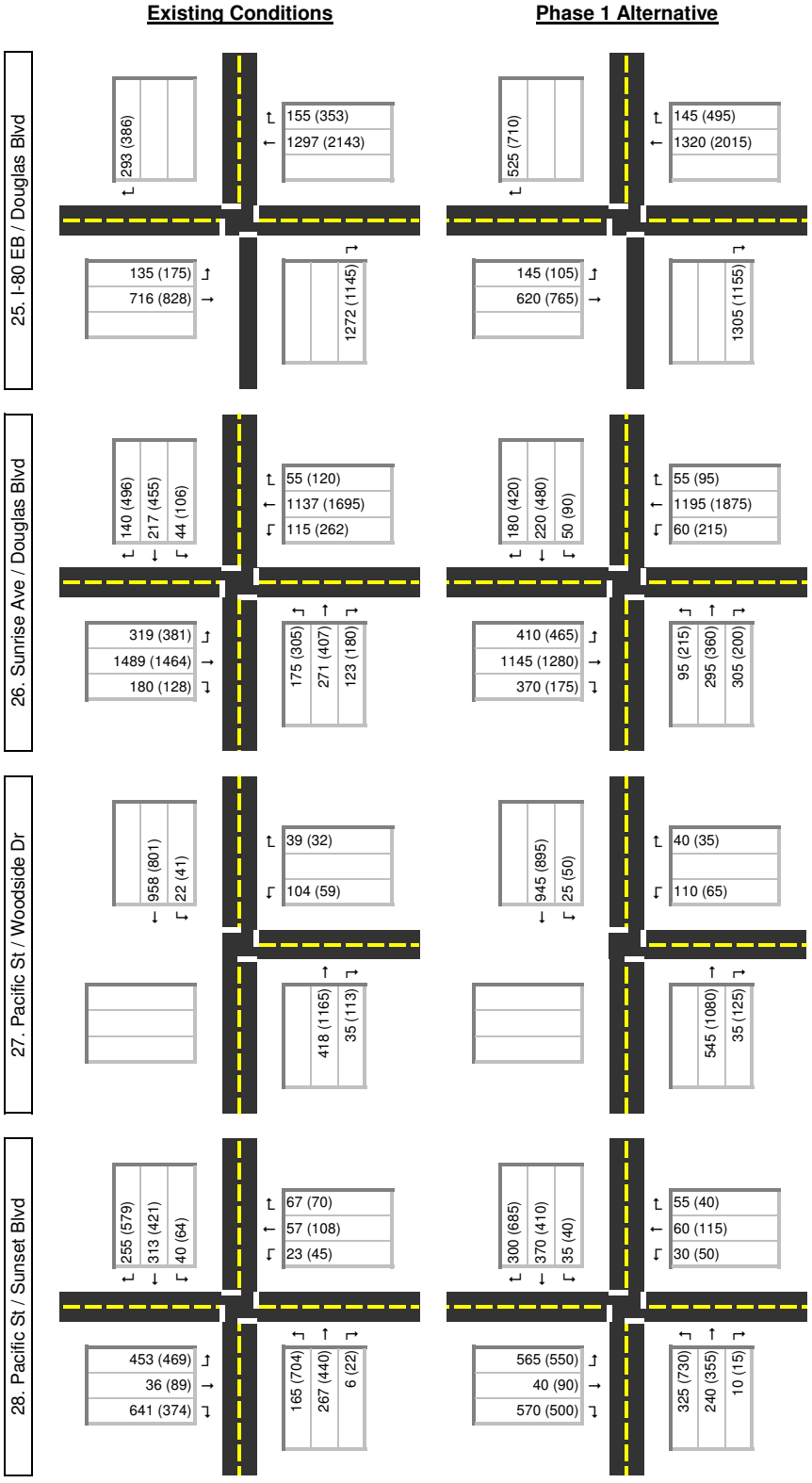
Attachment A

I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes



Attachment A

I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

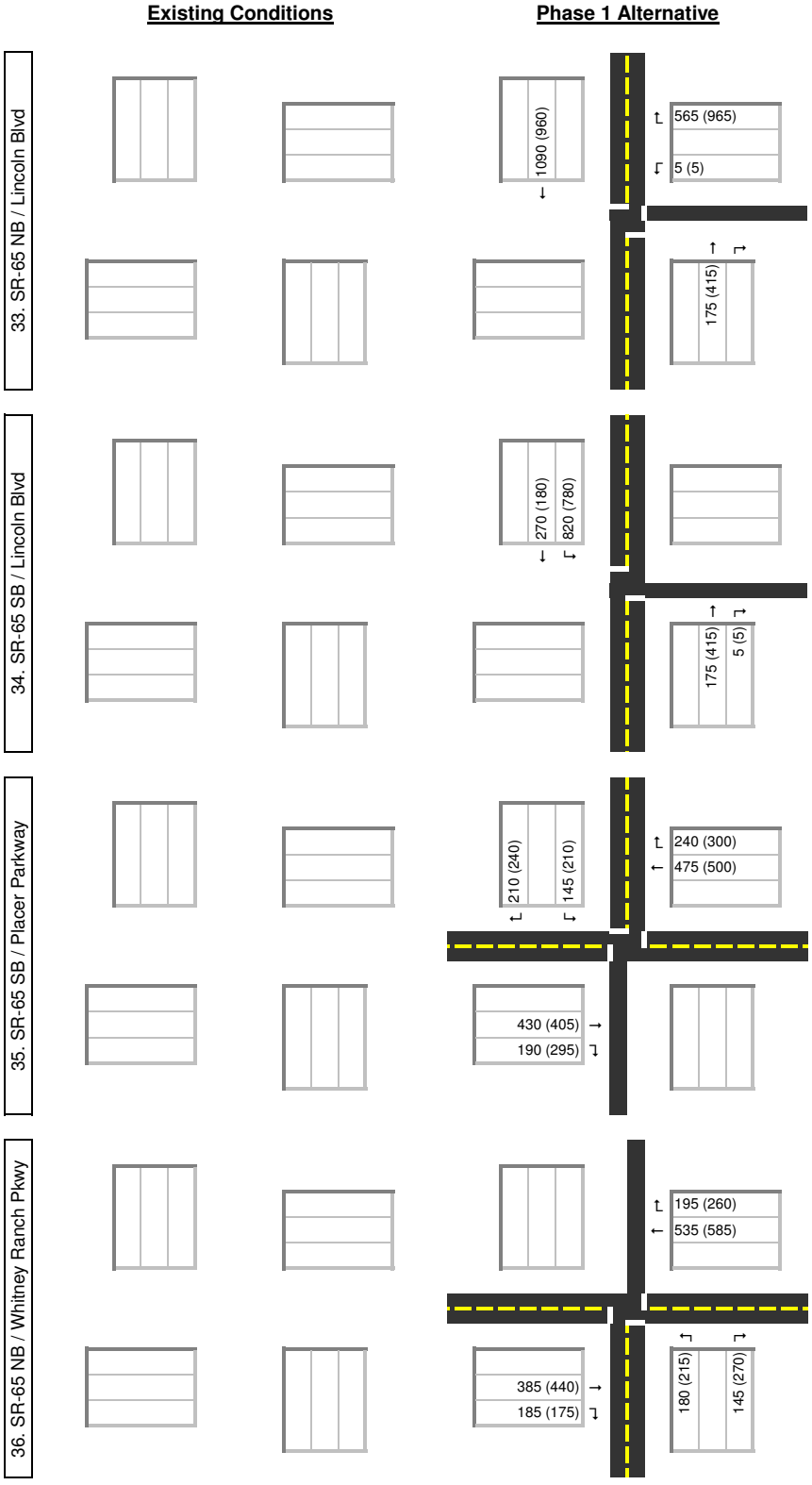


Attachment A

I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes

Attachment A

I-80/SR 65 Interchange
Construction Year Forecasts
AM (PM) Peak Hour Volumes



Attachment B

TABLE 3A: INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR (2020) CONDITIONS					
		No Build		Phase 1	
Intersection	Threshold	AM	PM	AM	PM
1. SR 65 / Sterling Pkwy	C	**F / 108**	C / 24	A / 10	A / 9
2. Twelve Bridges Dr / SR 65 SB Ramps	C	**F / 438**	**F / 225**	A / 9	A / 7
3. Twelve Bridges Dr / SR 65 NB Ramps	C	**F / 166**	C / 26	A / 9	A / 8
4. Sunset Blvd / SR 65 SB Ramps	C	**F / 81**	**F / 155**	**D / 37**	**E / 67**
5. Sunset Blvd / SR 65 NB Ramps	C	C / 29	**F / 481**	B / 16	**D / 47**
6. Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	**F / 81**	**E / 78**	**D / 48**	**F / 92**
7. Blue Oaks Blvd / SR 65 NB Ramps	C	**F / 84**	B / 15	B / 12	B / 18
8. Pleasant Grove Blvd / SR 65 NB Ramps	C	A / 8	A / 8	A / 6	A / 7
9. Pleasant Grove Blvd / SR 65 SB Ramps	C	C / 21	B / 11	B / 20	B / 11
10. Stanford Ranch Rd / Five Star Blvd	C	C / 29	**D / 46**	C / 29	**E / 57**
11. Stanford Ranch Rd / SR 65 NB Ramps	D	B / 20	B / 12	B / 17	B / 19
12. Galleria Blvd / SR 65 SB Ramps	D	C / 21	B / 17	C / 21	B / 19
13. Galleria Blvd / Antelope Creek Dr	C	B / 13	C / 25	B / 13	C / 25
14. Galleria Blvd / Roseville Pkwy	E	D / 36	**F / 233**	D / 37	E / 57
15. Roseville Pkwy / Creekside Ridge Dr	C	A / 8	C / 35	A / 9	C / 24
16. Roseville Pkwy / Taylor Rd	D	**F / 116**	D / 40	**F / 136**	D / 42
17. Roseville Pkwy / Sunrise Ave	E	C / 22	C / 31	C / 24	C / 30
18. Atlantic St / Wills Rd	C	B / 18	C / 21	B / 18	C / 22
19. Atlantic St / I-80 WB Ramps	C	B / 11	B / 12	B / 17	B / 12
20. Eureka Rd / Taylor Rd / I-80 EB Ramps	E	C / 22	D / 42	C / 22	D / 40
21. Eureka Rd / Sunrise Ave	C	C / 25	**E / 63**	C / 25	**E / 58**
22. Harding Blvd / Wills Rd	C	B / 13	B / 17	B / 14	B / 18
23. Douglas Blvd / Harding Blvd	E	E / 77	E / 64	B / 20	E / 66
24. Douglas Blvd / I-80 WB Ramps	C	**D / 45**	C / 22	**D / 51**	**D / 37**
25. Douglas Blvd / I-80 EB Ramps	C	B / 16	**E / 64**	B / 20	**D / 50**
26. Douglas Blvd / Sunrise Ave	D	C / 29	**F / 160**	C / 29	D / 39
27. Pacific St / Woodside Dr	C	A / 9	A / 8	A / 9	A / 8
28. Pacific St / Sunset Blvd	C	C / 27	**F / 84**	C / 27	**F / 86**
29. Rocklin Rd / Granite Dr	D	C / 25	**F / 128**	C / 27	**F / 130**
30. Rocklin Rd / I-80 WB Ramps	D	D / 36	D / 38	C / 32	D / 40
31. Rocklin Rd / I-80 EB Ramps	D	D / 42	C / 33	D / 37	D / 40

TABLE 3A: INTERSECTION OPERATIONS RESULTS – CONSTRUCTION YEAR (2020) CONDITIONS					
		No Build		Phase 1	
Intersection	Threshold	AM	PM	AM	PM
32. Rocklin Rd / Aguilar Rd	D	C / 31	D / 35	C / 22	C / 31
33. Lincoln Blvd / SR 65 NB Off-ramp	C	**F / 261**	**F / 122**	A / 6	A / 8
34. Lincoln Blvd / SR 65 SB On-ramp	C	**F / 523**	**F / 339**	C / 21	C / 22
35. Placer Pkwy / SR 65 SB Ramps	C	A / 6	**D / 50**	A / 9	A / 9
36. Whitney Ranch Pkwy / SR 65 NB Ramps	C	A / 10	C / 28	B / 11	C / 22

Notes: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported. The outlined area is shown in the main body of the report.

Source: Fehr & Peers, 2014

TABLE 4A: MAXIMUM QUEUE LENGTH RESULTS – CONSTRUCTION YEAR CONDITIONS			
		Phase 1	
Off-ramp	Storage	AM	PM
Eastbound I-80 at Eastbound Douglas Blvd	1,400	25	25
Eastbound I-80 at Westbound Douglas Blvd	1,250	575	**1,275**
Eastbound I-80 at Eureka Rd	1,700	250	1,100
Eastbound I-80 at Rocklin Rd	1,080	250	575
Westbound I-80 at Rocklin Rd	1,230	150	425
Westbound I-80 at Westbound Atlantic St	1,430	25	25
Westbound I-80 at Eastbound Atlantic St	1,150	25	25
Westbound I-80 at Douglas Blvd	1,530	300	425
Northbound SR 65 at Northbound Stanford Ranch Rd	1,170	25	100
Northbound SR 65 at Southbound Stanford Ranch Rd	1,800	150	250
Northbound SR 65 at Pleasant Grove Blvd	1,420	125	150
Northbound SR 65 at Blue Oaks Blvd	1,100	450	875
Northbound SR 65 at Sunset Blvd	1,400	275	175
Northbound SR 65 at Whitney Ranch Pkwy	1,620	125	175
Northbound SR 65 at Twelve Bridges Dr	1,500	75	100
Northbound SR 65 at Lincoln Blvd	1,940	25	25
Southbound SR 65 at Twelve Bridges Dr	1,500	125	100
Southbound SR 65 at Placer Pkwy	1,650	225	150
Southbound SR 65 at Sunset Blvd	1,330	200	150
Southbound SR 65 at Blue Oaks Blvd	2,260	250	325
Southbound SR 65 at Pleasant Grove Blvd	1,130	125	125
Southbound SR 65 at Southbound Galleria Blvd	1,130	300	250
Southbound SR 65 at Northbound Galleria Blvd	1,780	150	275

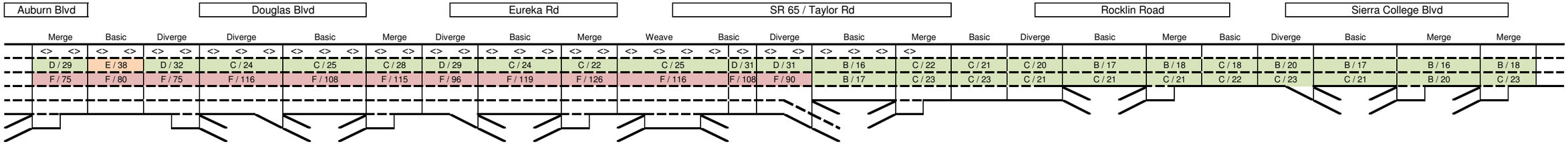
Note: Bold and underline font indicate queues that exceed the ramp length. The reported value is the average maximum peak-hour queue length in feet.

Source: Fehr & Peers, 2014

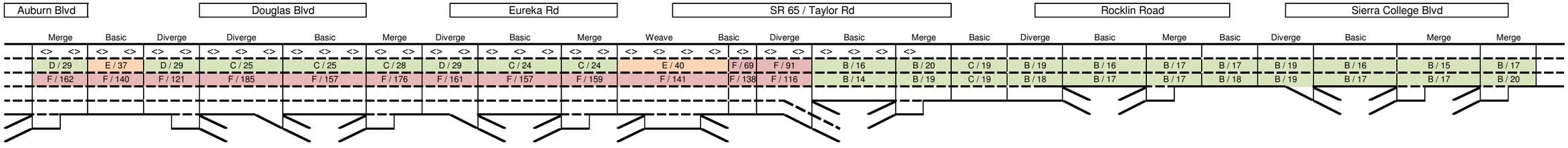
I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

Eastbound I-80

Phase 1 Alternative



No Build Alternative

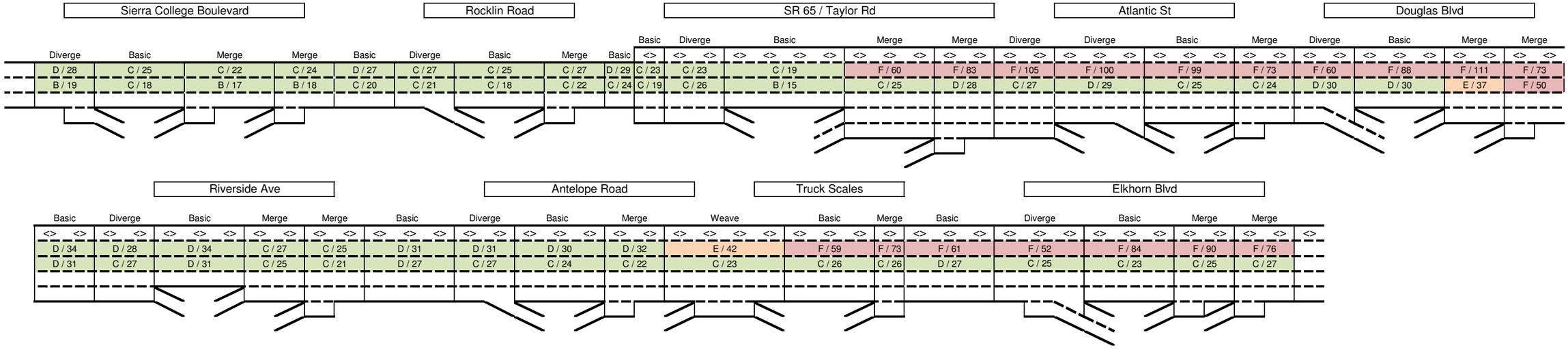


Legend:
LOS A - D
LOS E
LOS F
Interchange
<> HOV Lane
Facility Type (Basic, Merge, Diverge, or Weave)
AM Peak Hour LOS / Density
PM Peak Hour LOS / Density

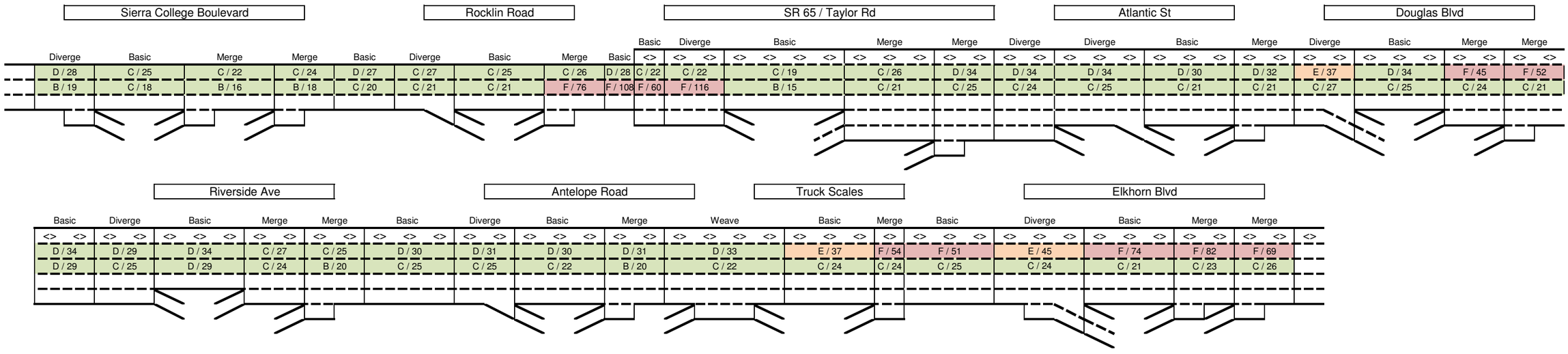
I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

Westbound I-80

Phase 1 Alternative



No Build Alternative

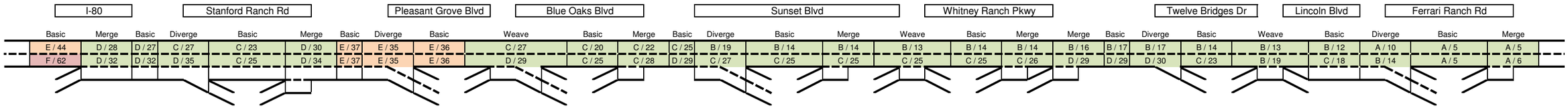


Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

Northbound SR 65

Phase 1 Alternative



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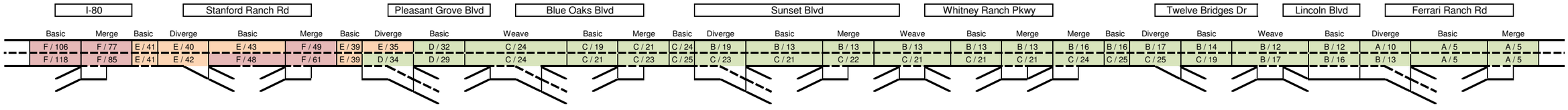
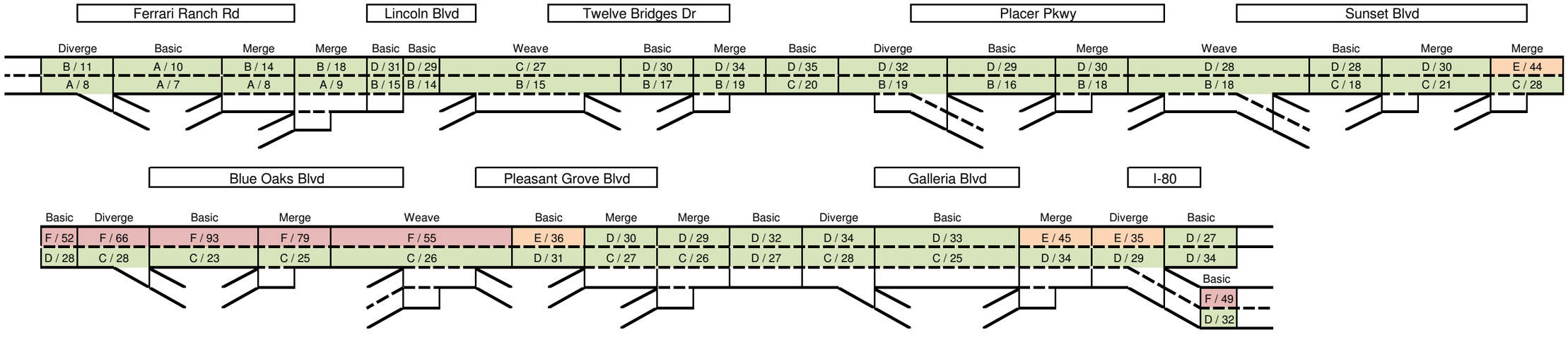


Legend:
LOS A - D
LOS E
LOS F
Interchange
<> HOV Lane
Facility Type (Basic, Merge, Diverge, or Weave)
AM Peak Hour LOS / Density
PM Peak Hour LOS / Density

I-80/SR 65 Interchange
Construction Year
Freeway Operations Results

Southbound SR 65

Phase 1 Alternative



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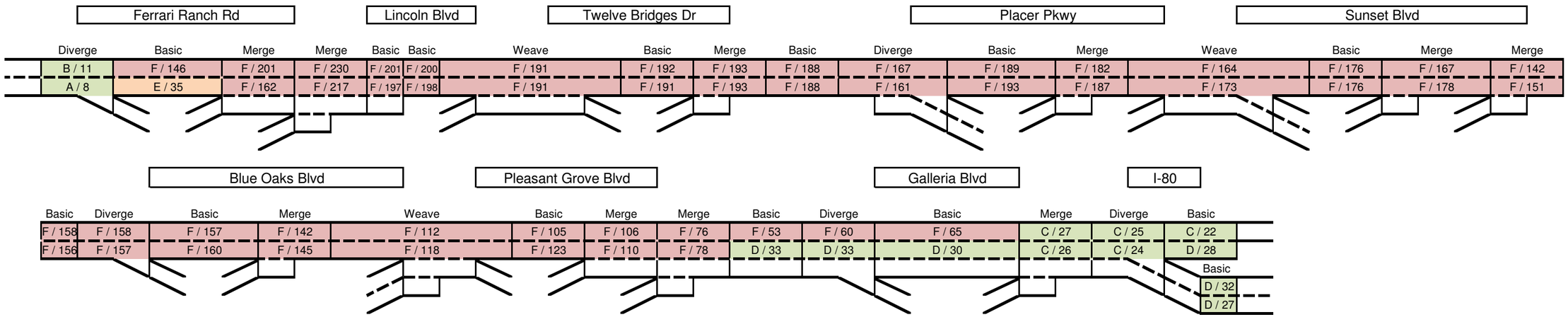

Legend:
- LOS A - D
- LOS E
- LOS F
- Interchange
- <> HOV Lane
- Facility Type (Basic, Merge, Diverge, or Weave)
- AM Peak Hour LOS / Density
- PM Peak Hour LOS / Density

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Existing Conditions**
Network Statistics **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	143,451	56
Travel Distance [mi]	All Vehicles	645,274	1,372
Travel Time [h]	All Vehicles	13,757	107.7
Average Speed [mph]	All Vehicles	46.9	0.4
Total Delay [h]	All Vehicles	2,672	118.7
Average Delay per Vehicle [s]	All Vehicles	66	2.9
VHD/VMT [min/mile]	All Vehicles	0.25	0.01
Number of Vehicles Served	HOV	29,190	103
Travel Distance [mi]	HOV	127,289	610
Travel Time [h]	HOV	2,707	23
Average Speed [mph]	HOV	47.0	0.3
Total Delay [h]	HOV	518	19
Average Delay per Vehicle [s]	HOV	63	2
VHD/VMT [min/mile]	HOV	0.24	0.01
Number of Vehicles Served	Truck	3,675	31
Travel Distance [mi]	Truck	19,339	309
Travel Time [h]	Truck	398	6
Average Speed [mph]	Truck	48.5	0
Total Delay [h]	Truck	68	3
Average Delay per Vehicle [s]	Truck	65	3
VHD/VMT [min/mile]	Truck	0.21	0.01

	Vehicle Types		
Performance Measure	HOV	Truck	All
Vehicles Served	29,190	3,670	143,450
Demand Volume	24,518	3,839	143,735
Percent Demand Served	119.1%	95.6%	99.8%
Vehicle Miles of Travel	127,290	19,340	645,270
Person Miles of Travel	267,310	20,310	786,260
Vehicle Hours of Travel	2,710	400	13,760
Vehicle Hours of Delay	520	70	2,670
VHD % of VHT	19.2%	17.5%	19.4%
Average Delay per Vehicle (min)	1.07	1.14	1.12
Person Hours of Delay	1,090	70	3,240
Average Travel Speed	47.0	48.5	46.9

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Existing Conditions
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,108	643	0	09:44	00:00	20.1
	I-80 at Auburn to SR-65 at Blue Oaks	32,854	1176	0	07:11	00:00	20.8
	I-80 at Sierra College to I-80 at Antelope	45,830	1060	0	08:27	00:00	24.6
	I-80 at Auburn to I-80 at Sierra College	36,738	651	0	06:41	00:00	25.0
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,108	212	0	09:27	00:00	20.7
	I-80 at Auburn to SR-65 at Blue Oaks	32,854	331	0	07:06	00:00	21.0
	I-80 at Sierra College to I-80 at Antelope	45,830	252	0	08:18	00:00	25.1
	I-80 at Auburn to I-80 at Sierra College	36,738	174	0	06:34	00:00	25.4

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Existing Conditions**
Network Statistics **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	198,170	39
Travel Distance [mi]	All Vehicles	730,101	1,288
Travel Time [h]	All Vehicles	16,851	93.9
Average Speed [mph]	All Vehicles	43.3	0.2
Total Delay [h]	All Vehicles	3,946	91.1
Average Delay per Vehicle [s]	All Vehicles	71	1.6
VHD/VMT [min/mile]	All Vehicles	0.32	0.01
Number of Vehicles Served	HOV	36,144	153
Travel Distance [mi]	HOV	135,800	858
Travel Time [h]	HOV	3,038	20
Average Speed [mph]	HOV	44.7	0.2
Total Delay [h]	HOV	652	16
Average Delay per Vehicle [s]	HOV	64	2
VHD/VMT [min/mile]	HOV	0.29	0.01
Number of Vehicles Served	Truck	2,717	49
Travel Distance [mi]	Truck	13,929	276
Travel Time [h]	Truck	297	5
Average Speed [mph]	Truck	46.9	1
Total Delay [h]	Truck	60	3
Average Delay per Vehicle [s]	Truck	78	5
VHD/VMT [min/mile]	Truck	0.26	0.02

	Vehicle Types		
Performance Measure	HOV	Truck	All
Vehicles Served	36,140	2,720	198,170
Demand Volume	35,829	2,724	195,975
Percent Demand Served	100.9%	99.9%	101.1%
Vehicle Miles of Travel	135,800	13,930	730,100
Person Miles of Travel	285,180	14,630	880,180
Vehicle Hours of Travel	3,040	300	16,850
Vehicle Hours of Delay	650	60	3,950
VHD % of VHT	21.4%	20.0%	23.4%
Average Delay per Vehicle (min)	1.08	1.32	1.20
Person Hours of Delay	1,370	60	4,670
Average Travel Speed	44.7	46.9	43.3

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Existing Conditions
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,109	466	0	08:25	00:00	23.3
	I-80 at Auburn to SR-65 at Blue Oaks	32,854	1113	0	09:16	00:00	16.1
	I-80 at Sierra College to I-80 at Antelope	44,492	473	0	08:11	00:00	24.7
	I-80 at Auburn to I-80 at Sierra College	35,359	874	0	06:35	00:00	24.4
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,109	131	0	08:17	00:00	23.7
	I-80 at Auburn to SR-65 at Blue Oaks	32,854	246	0	09:11	00:00	16.3
	I-80 at Sierra College to I-80 at Antelope	44,492	160	0	08:01	00:00	25.2
	I-80 at Auburn to I-80 at Sierra College	35,359	156	0	06:23	00:00	25.2

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Construction Year - No Build***
Network Statistics | **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	162,951	226
Travel Distance [mi]	All Vehicles	744,641	1,735
Travel Time [h]	All Vehicles	24,485	173.3
Average Speed [mph]	All Vehicles	30.4	0.3
Total Delay [h]	All Vehicles	11,678	189.9
Average Delay per Vehicle [s]	All Vehicles	248	4.2
VHD/VMT [min/mile]	All Vehicles	0.94	0.02
Number of Vehicles Served	HOV	31,276	78
Travel Distance [mi]	HOV	151,376	416
Travel Time [h]	HOV	4,757	64
Average Speed [mph]	HOV	31.8	0.4
Total Delay [h]	HOV	2,178	61
Average Delay per Vehicle [s]	HOV	240	7
VHD/VMT [min/mile]	HOV	0.86	0.02
Number of Vehicles Served	Truck	7,346	20
Travel Distance [mi]	Truck	36,241	299
Travel Time [h]	Truck	1,192	18
Average Speed [mph]	Truck	30.4	0
Total Delay [h]	Truck	564	18
Average Delay per Vehicle [s]	Truck	264	8
VHD/VMT [min/mile]	Truck	0.93	0.03

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	31,280	7,350	162,950
Demand Volume	33,520	8,150	170,610
Percent Demand Served	93.3%	90.2%	95.5%
Vehicle Miles of Travel	151,380	36,240	744,640
Person Miles of Travel	317,890	38,050	912,960
Vehicle Hours of Travel	4,760	1,190	24,490
Vehicle Hours of Delay	2,180	560	11,680
VHD % of VHT	45.8%	47.1%	47.7%
Average Delay per Vehicle (min)	4.18	4.57	4.30
Person Hours of Delay	4,580	590	14,110
Average Travel Speed	31.8	30.4	30.4

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - No Build*
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,047	554	11	14:11	00:23	13.8
	I-80 at Auburn to SR-65 at Blue Oaks	32,881	1,485	17	09:32	00:49	15.7
	I-80: Sierra College to Antelope	45,827	1,128	13	08:38	00:09	24.1
	I-80: Auburn to Sierra College	36,777	689	12	07:03	00:40	23.7
	SR-65: I-80 to Sunset	43,056	641	12	04:48	00:17	40.8
	SR-65: Sunset to Ferrari Ranch	45,816	173	5	03:31	00:01	59.2
	SR-65: Ferrari Ranch to Sunset	36,773	629	13	56:03	03:45	3.0
	SR-65: Sunset to I-80	32,882	493	14	22:37	01:20	6.6
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,047	125	5	13:07	00:25	40.8
	I-80 at Auburn to SR-65 at Blue Oaks	32,881	372	9	09:22	00:31	59.2
	I-80: Sierra College to Antelope	45,827	501	8	08:20	00:02	3.0
	I-80: Auburn to Sierra College	36,777	234	5	06:38	00:08	6.6
	SR-65: I-80 to Sunset	43,056	159	5	04:48	00:18	14.9
	SR-65: Sunset to Ferrari Ranch	45,816	37	3	03:31	00:02	16.0
	SR-65: Ferrari Ranch to Sunset	36,773	88	4	56:00	04:38	25.0
	SR-65: Sunset to I-80	32,882	163	8	23:01	01:25	25.2

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - No Build*
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,241	36	110.0%	1,013	17	108.9%				62.1	0.2	28.6	0.3	D
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,243	58	109.8%							55.9	3.3	36.9	2.6	E
3	I-80 EB - Douglas Blvd Slip Off	Diverge	8,237	84	109.7%				1,434	76	109.5%	60.8	0.5	29.2	0.7	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	6,798	97	109.6%				580	46	109.4%	59.2	8.1	24.5	10.6	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,214	105	109.6%							63.2	0.1	24.6	0.3	C
6	I-80 EB - Douglas Blvd On-ramp	Merge	6,213	102	109.6%	862	34	95.8%				62.2	0.5	27.7	1.0	C
7	I-80 EB - Eureka Rd Off-ramp	Diverge	7,078	112	107.7%				1,389	77	108.5%	62.0	0.3	28.7	1.0	D
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	5,689	86	86.6%							63.1	0.3	24.1	0.3	C
9	I-80 EB - Eureka Rd EB On-ramp	Merge	5,691	84	86.6%	174	7	96.8%				59.3	12.1	23.5	14.2	C
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	5,865	79	86.9%	460	33	102.2%	365	29	107.3%	50.9	16.8	39.7	30.2	E
11	I-80 EB -Taylor Rd to SR 65	Basic	5,941	193	86.6%							34.5	21.5	69.3	39.2	F
17	I-80 EB - SR 65 Off-ramp	Diverge	5,926	202	86.4%				3,063	117	104.9%	25.3	8.1	90.8	15.0	F
18	I-80 EB - SR 65 Off to On-ramp	Basic	2,811	148	71.3%							63.8	0.1	15.6	0.5	B
19	I-80 EB - SR-65 On-ramp	Merge	2,814	149	71.4%	1,191	63	88.2%				63.0	0.4	20.0	1.1	B
21	I-80 EB - SR-65 to Rocklin Rd	Basic	4,011	174	75.8%							63.6	0.1	19.4	0.7	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,016	173	75.9%				1,439	84	101.4%	63.7	0.1	19.3	0.5	B
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	2,586	138	66.8%							63.9	0.1	16.2	0.9	B
24	I-80 EB - Rocklin Rd On-ramp	Merge	2,589	140	66.9%	239	6	95.4%				61.3	0.5	16.8	0.9	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	2,831	140	68.7%							63.7	0.2	17.4	0.9	B
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	2,833	142	68.8%				363	38	95.5%	63.2	0.3	18.7	0.9	B
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,476	129	66.2%							63.8	0.1	16.2	0.7	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,477	129	66.2%	131	5	100.8%				62.8	0.2	15.3	0.5	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	2,612	120	67.5%	413	6	108.8%				62.3	0.3	17.0	0.5	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,933	24	105.9%				851	51	106.4%	56.7	1.6	28.1	0.8	D
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	4,079	65	105.7%							61.7	0.5	24.9	0.5	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	4,083	65	105.8%	51	4	84.7%				62.9	0.3	22.0	0.3	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	4,133	73	105.4%	307	8	102.5%				61.3	1.1	23.7	0.5	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,439	89	105.2%							62.3	0.2	26.7	0.6	D
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,438	90	105.2%				245	34	106.3%	61.5	0.4	27.4	0.6	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,191	94	105.0%							63.1	0.1	25.0	0.6	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,190	95	105.0%	887	39	97.5%				61.0	0.3	26.4	0.3	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,068	123	103.4%							62.4	0.2	28.5	0.4	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,061	130	103.3%							61.8	0.4	22.4	0.5	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,062	129	103.3%				1,444	70	104.6%	62.9	0.3	22.5	0.4	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,617	91	102.7%							63.6	0.1	19.4	0.6	C
50	I-80 WB - SR-65 On-ramp	Merge	3,614	97	102.7%	3,241	86	88.3%				61.7	0.3	26.5	0.6	C
60	I-80 WB - Taylor Rd On-ramp	Merge	6,847	137	95.2%	622	40	109.1%				58.8	1.3	33.6	1.5	D
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	7,463	136	96.2%				353	41	110.3%	60.3	1.3	34.3	0.8	D
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,107	136	95.5%				866	59	89.3%	61.2	0.8	33.6	0.8	D
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,235	143	96.4%							61.5	0.5	30.2	0.8	D
64	I-80 WB - Atlantic St On-ramp	Merge	6,232	140	96.3%	1,170	58	107.3%				51.7	8.1	31.9	6.0	D
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,395	145	97.8%				884	71	97.1%	53.4	2.7	37.3	2.2	E
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,513	141	97.9%							58.2	7.4	34.0	7.4	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,515	146	98.0%	1,012	36	106.5%				46.2	14.2	45.2	21.6	F
68	I-80 WB - Douglas Blvd Slip On	Merge	7,529	169	99.1%	406	8	94.4%				35.7	9.0	52.1	16.3	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,931	151	98.8%							59.3	0.5	34.1	0.7	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,932	149	98.8%				862	61	93.7%	62.2	0.1	28.8	0.7	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	7,072	117	99.5%							62.2	0.1	34.0	0.7	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	7,068	117	99.4%	283	6	83.3%				62.8	0.1	26.9	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,352	118	98.7%	857	15	102.0%				63.1	0.1	25.0	0.4	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,219	116	99.1%							62.4	0.0	30.4	0.5	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,223	112	99.2%				346	25	91.1%	61.5	0.8	31.1	1.0	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	7,873	121	99.5%							62.0	0.7	30.1	0.6	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	7,876	123	99.6%	567	13	97.7%				59.2	2.8	31.3	2.3	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,452	129	99.6%	444	14	96.5%	87	21	79.4%	60.2	1.1	33.0	1.1	D
79	I-80 WB - Truck Scales Off to On-ramp	Basic	8,822	125	99.8%							58.4	6.3	36.5	5.5	E
80	I-80 WB - Truck Scales On-ramp	Merge	8,842	130	100.0%	87	19	78.6%				47.7	13.0	53.8	21.7	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	8,989	150	100.4%							47.1	10.7	50.7	13.5	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	8,998	160	100.5%				730	45	98.7%	46.4	11.7	44.7	11.9	E
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	8,326	153	101.4%							34.9	14.6	74.5	24.3	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	8,359	167	101.8%	802	10	95.5%				33.8	14.6	81.7	26.9	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	9,225	167	101.9%	829	24	90.1%				38.5	12.3	68.8	16.3	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - No Build*
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
100	SR-65 NB - EB I-80 Connector	Basic	3,035	119	103.9%							14.5	0.5	105.8	1.8	F
101	SR-65 NB - WB I-80 Connector	Basic	1,443	71	104.6%							42.1	3.2	38.3	3.4	E
103	SR-65 NB - I-80 WB On-ramp	Merge	3,000	97	102.8%	1,442	68	104.5%				26.7	0.8	76.9	3.3	F
104	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,417	87	102.7%							54.6	4.8	41.3	5.2	E
105	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Diverge	4,417	88	102.7%				718	48	99.7%	55.8	4.8	40.3	4.9	E
106	SR-65 NB - Stanford Ranch Rd Off-ramp	Basic	3,698	72	103.3%							51.4	17.7	43.0	21.1	E
107	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	3,698	87	103.3%	749	35	104.0%				46.0	12.2	48.9	17.0	F
108	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,444	98	103.3%							57.6	0.8	39.4	1.1	E
109	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,444	99	103.3%				681	59	94.6%	60.2	0.6	35.2	1.0	E
110	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,759	97	105.0%							62.4	0.2	31.7	1.0	D
111	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,761	92	105.1%	221	13	96.1%	1,742	73	104.9%	63.1	0.1	24.2	0.6	C
114	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,243	73	104.3%							63.6	0.2	18.7	0.9	C
115	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,244	74	104.4%	462	35	98.3%				60.9	0.6	21.4	0.9	C
116	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,707	76	103.3%							62.3	0.3	24.1	0.9	C
118	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,704	77	103.2%				1,167	62	103.2%	62.8	3.0	18.9	1.0	B
119	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	1,534	65	102.9%							63.9	0.2	13.0	0.4	B
120	SR-65 NB - Sunset Blvd EB On-ramp	Merge	1,535	66	103.0%	45	10	90.4%				63.9	0.2	12.9	0.4	B
121	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	1,579	66	102.5%	241	11	105.0%	308	41	93.2%	63.7	0.2	12.9	0.4	B
124	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	1,514	53	105.1%							63.8	0.1	12.9	0.5	B
125	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	1,516	56	105.3%	186	13	97.6%				63.5	0.2	13.4	0.5	B
126	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	1,702	59	104.4%	211	15	105.4%				63.3	0.2	15.9	0.4	B
127	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	1,913	54	104.5%							63.5	0.2	16.3	0.5	B
128	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	1,911	54	104.4%				390	33	90.7%	63.3	0.2	16.7	0.4	B
129	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	1,525	56	108.9%							63.7	0.1	13.6	0.4	B
130	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	1,529	55	109.2%	224	19	89.4%	616	46	85.5%	63.7	0.1	12.2	0.4	B
133	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	914	48	98.3%							64.1	0.2	11.6	0.5	B
134	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,138	51	122.4%				654	47	102.3%	64.3	0.1	9.7	0.5	A
135	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	485	34	167.3%							64.6	0.1	4.6	0.4	A
136	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	487	33	167.8%	114	8	103.4%				62.3	0.3	5.2	0.4	A
150	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	969	34	110.2%				72	16	103.1%	64.3	0.2	11.2	0.2	B
151	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	867	46	107.0%							2.8	1.0	145.7	43.9	F
152	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	821	44	101.4%	533	40	65.0%				1.9	0.2	201.4	4.0	F
153	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,218	75	74.7%	435	32	58.0%				1.8	0.2	229.6	2.7	F
154	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	1,443	108	60.6%							1.9	0.3	201.5	4.4	F
155	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	1,394	111	58.6%							2.0	0.3	200.2	5.1	F
156	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	1,325	110	55.7%	458	61	55.2%	187	36	58.5%	2.0	0.2	191.4	4.0	F
159	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	1,349	113	46.7%							2.6	0.4	192.0	4.6	F
160	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	1,308	111	45.3%	332	35	62.7%				2.4	0.4	192.5	4.4	F
161	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	1,454	147	42.5%							2.9	0.2	187.7	3.4	F
162	SR-65 SB - Placer Pkwy Off-ramp	Diverge	1,391	150	40.7%				171	32	47.5%	6.4	0.8	166.9	5.5	F
163	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	1,073	121	35.1%							2.7	0.2	188.9	2.8	F
164	SR-65 SB - Placer Pkwy WB On-ramp	Merge	1,029	106	33.6%	202	32	84.0%				3.1	0.4	181.8	3.0	F
165	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	1,176	102	35.6%	217	16	114.4%	170	51	32.0%	3.9	0.5	164.0	6.3	F
168	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	1,243	92	42.0%							3.9	0.3	176.0	2.8	F
169	SR-65 SB - Sunset Blvd WB On-ramp	Merge	1,244	91	42.0%	248	2	95.5%				3.8	0.3	166.6	5.0	F
170	SR-65 SB - Sunset Blvd EB On-ramp	Merge	1,495	97	46.4%	347	16	102.0%				5.5	0.5	142.4	4.8	F
171	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	1,847	107	51.9%							5.8	0.5	158.2	3.5	F
172	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	1,849	104	51.9%				278	55	46.4%	5.8	0.5	158.4	2.8	F
173	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	1,589	83	53.7%							6.2	0.4	157.3	1.9	F
174	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	1,588	77	53.7%	410	29	89.1%				6.8	0.4	142.0	4.2	F
175	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	2,007	106	58.7%	1,226	66	103.0%	382	54	62.6%	9.3	0.9	112.3	7.4	F
178	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	2,875	92	71.9%							14.0	0.9	105.4	3.1	F
179	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	2,881	94	72.0%	747	42	102.4%				14.4	0.6	105.6	3.6	F
180	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	3,622	91	76.6%	650	39	101.6%				26.4	1.6	76.1	2.5	F
181	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	4,279	69	79.7%							41.7	9.1	52.8	11.0	F
182	SR-65 SB - Galleria Blvd Off-ramp	Diverge	4,280	69	79.7%				640	56	61.6%	37.4	10.0	60.5	14.3	F
183	SR-65 SB - Galleria Blvd Off-ramp to Lane Add	Basic	3,676	84	84.9%							31.3	8.3	65.2	13.9	F
184	SR-65 SB - Lane Add to Galleria Blvd On-ramp	Basic	3,682	88	85.0%							61.2	1.3	22.4	0.6	C
185	SR-65 SB - Galleria Blvd On-ramp	Merge	3,685	89	85.1%	729	42	104.1%				60.5	0.9	26.9	0.7	C
186	SR-65 SB - I-80 Off-ramp	Diverge	4,411	97	87.7%				3,235	82	88.1%	62.2	0.4	25.5	0.8	C
187	SR-65 SB - EB I-80 Connector (2 lanes)	Basic	1,184	68	87.7%							61.2	0.7	22.1	1.1	C
188	SR-65 SB - EB I-80 Connector (1 lane)	Basic	1,187	63	87.9%							62.2	0.2	22.0	1.0	C
189	SR-65 SB - WB I-80 Connector	Basic	3,239	83	88.3%							52.6	0.2	32.3	1.0	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - No Build*
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Parkway	Signal	1,890	1,792	94.8%	107.9	16.5	F
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,150	854	74.3%	437.5	52.3	F
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,285	1,071	83.3%	166.3	34.6	F
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,300	1,997	86.8%	81.2	20.7	F
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,585	2,392	92.5%	28.6	11.9	C
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	4,580	4,224	92.2%	80.8	13.3	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,040	3,083	101.4%	84.2	34.6	F
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	3,900	3,762	96.5%	7.8	0.7	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	2,985	2,986	100.0%	20.7	12.5	C
10	Stanford Ranch Rd/Five Star Blvd	Signal	2,885	2,690	93.2%	29.2	2.0	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,435	3,557	103.5%	19.5	16.0	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,675	3,410	92.8%	21.0	1.4	C
13	Galleria Blvd/Antelope Creek Dr	Signal	2,855	2,608	91.3%	12.9	2.5	B
14	Galleria Blvd/Roseville Pkwy	Signal	5,195	5,242	100.9%	35.6	0.9	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,550	3,572	100.6%	8.3	1.4	A
16	Taylor Rd/East Roseville Pkwy	Signal	4,530	4,665	103.0%	115.6	19.6	F
17	North Sunrise Ave/East Roseville Pkwy	Signal	4,325	4,473	103.4%	21.9	1.6	C
18	Wills Rd/Atlantic St	Signal	1,955	2,191	112.1%	17.8	2.0	B
19	I-80 WB Ramps/Atlantic St	Signal	3,395	3,516	103.5%	11.0	1.2	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	4,385	4,513	102.9%	21.9	1.8	C
21	North Sunrise Ave/Eureka Rd	Signal	3,995	4,080	102.1%	25.0	1.0	C
22	Harding Blvd/Wills Rd	Signal	2,125	2,155	101.4%	13.4	1.2	B
23	Harding Blvd/Douglas Blvd	Signal	2,735	2,770	101.3%	77.4	28.2	E
24	I-80 WB Ramps/Douglas Blvd	Signal	3,680	3,783	102.8%	44.5	13.9	D

Network Summary	
Total Demand Volume (veh/hr)	76,435
Total Volume Served (veh/hr)	75,386
Percent Served	98.6%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - No Build*
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	4,060	4,300	105.9%	15.5	8.9	B
26	North Sunrise Ave/Douglas Blvd	Signal	4,380	4,589	104.8%	28.7	1.4	C
27	Pacific St/Woodside Dr	Signal	1,700	1,879	110.5%	9.1	0.9	A
28	Pacific St/Sunset Blvd	Signal	2,600	2,875	110.6%	26.7	1.0	C
29	Granite Dr/Rocklin Rd	Signal	2,401	2,465	102.7%	24.9	11.6	C
30	I-80 WB Ramps/Rocklin Rd	Signal	2,655	2,727	102.7%	35.8	11.5	D
31	I-80 EB Ramps/Rocklin Rd	Signal	2,745	2,849	103.8%	41.8	27.4	D
32	Aguilar Rd/Rocklin Rd	Signal	1,930	2,017	104.5%	31.2	41.1	C
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	1,835	1,605	87.4%	261.4	41.6	F
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,270	910	71.6%	523.4	41.0	F
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,690	1,521	90.0%	6.3	4.8	A
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,625	1,616	99.5%	9.9	3.6	A
40	Galleria Blvd/Berry St	Signal	1,965	1,962	99.8%	9.2	1.1	A

Network Summary	
Total Demand Volume (veh/hr)	30,856
Total Volume Served (veh/hr)	31,315
Percent Served	101.5%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Values from 10 Runs | **Construction Year - No Build***
Network Statistics | **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	215,025	598
Travel Distance [mi]	All Vehicles	804,173	3,393
Travel Time [h]	All Vehicles	41,742	447.7
Average Speed [mph]	All Vehicles	19.3	0.3
Total Delay [h]	All Vehicles	27,507	478.9
Average Delay per Vehicle [s]	All Vehicles	439	8.3
VHD/VMT [min/mile]	All Vehicles	2.05	0.04
Number of Vehicles Served	HOV	43,237	211
Travel Distance [mi]	HOV	178,099	1,276
Travel Time [h]	HOV	7,503	137
Average Speed [mph]	HOV	23.7	0.4
Total Delay [h]	HOV	4,391	127
Average Delay per Vehicle [s]	HOV	350	10
VHD/VMT [min/mile]	HOV	1.48	0.04
Number of Vehicles Served	Truck	7,937	61
Travel Distance [mi]	Truck	30,067	234
Travel Time [h]	Truck	1,646	40
Average Speed [mph]	Truck	18.3	0
Total Delay [h]	Truck	1,105	38
Average Delay per Vehicle [s]	Truck	475	13
VHD/VMT [min/mile]	Truck	2.21	0.07

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	43,240	7,940	215,020
Demand Volume	47,310	9,670	235,630
Percent Demand Served	91.4%	82.1%	91.3%
Vehicle Miles of Travel	178,100	30,070	804,170
Person Miles of Travel	374,010	31,570	1,001,580
Vehicle Hours of Travel	7,500	1,650	41,740
Vehicle Hours of Delay	4,390	1,110	27,510
VHD % of VHT	58.5%	67.3%	65.9%
Average Delay per Vehicle (min)	6.09	8.39	7.68
Person Hours of Delay	9,220	1170	32,400
Average Travel Speed	23.7	18.3	19.3

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - No Build*
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,047	452	11	14:44	00:25	13.3
	I-80 at Auburn to SR-65 at Blue Oaks	32,881	987	39	38:33	01:16	3.9
	I-80: Sierra College to Antelope	45,827	502	11	09:28	00:48	22.0
	I-80: Auburn to Sierra College	36,777	469	22	34:35	01:34	4.8
	SR-65: I-80 to Sunset	43,056	851	14	04:57	00:19	39.5
	SR-65: Sunset to Ferrari Ranch	45,816	218	7	03:33	00:01	58.7
	SR-65: Ferrari Ranch to Sunset	36,773	445	16	04:02	05:49	2.6
	SR-65: Sunset to I-80	32,882	469	13	24:31	01:15	6.1
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,047	73	5	14:05	00:30	39.5
	I-80 at Auburn to SR-65 at Blue Oaks	32,881	510	11	14:08	00:53	58.7
	I-80: Sierra College to Antelope	45,827	201	6	09:18	00:47	2.6
	I-80: Auburn to Sierra College	36,777	266	8	09:33	00:40	6.1
	SR-65: I-80 to Sunset	43,056	371	11	04:55	00:19	13.9
	SR-65: Sunset to Ferrari Ranch	45,816	48	3	03:33	00:02	10.6
	SR-65: Ferrari Ranch to Sunset	36,773	75	4	04:26	07:02	22.4
	SR-65: Sunset to I-80	32,882	111	5	24:23	01:42	17.5

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - No Build*
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	5,366	515	71.5%	641	135	67.5%				22.8	3.0	162.3	10.6	F
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	5,970	676	70.6%							16.8	3.0	140.2	8.9	F
3	I-80 EB - Douglas Blvd Slip Off	Diverge	5,972	549	70.6%				776	156	66.9%	20.3	3.0	121.2	8.5	F
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	5,171	383	70.8%				437	103	61.5%	23.7	1.6	184.8	7.9	F
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	4,713	345	71.5%							20.7	3.3	156.6	4.7	F
6	I-80 EB - Douglas Blvd On-ramp	Merge	4,695	337	71.2%	674	103	51.5%				9.7	1.1	175.9	6.3	F
7	I-80 EB - Eureka Rd Off-ramp	Diverge	5,344	399	67.6%				765	99	69.6%	12.5	1.4	160.7	9.8	F
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	4,552	320	66.9%							20.1	1.9	157.1	4.0	F
9	I-80 EB - Eureka Rd EB On-ramp	Merge	4,549	337	66.9%	321	23	103.6%				12.1	1.7	159.0	8.1	F
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	4,847	357	68.2%	1,096	54	100.6%	352	52	60.6%	15.4	1.2	141.0	2.7	F
11	I-80 EB - Taylor Rd to SR-65	Basic	5,578	271	73.2%							12.5	1.3	138.4	5.4	F
17	I-80 EB - SR-65 Off-ramp	Diverge	5,578	276	73.2%				2,985	86	73.9%	14.9	2.1	115.8	2.7	F
18	I-80 EB - SR-65 Off to On-ramp	Basic	2,586	243	72.2%							63.1	0.3	13.9	0.8	B
19	I-80 EB - SR-65 On-ramp	Merge	2,588	232	72.3%	1,653	57	86.1%				62.7	0.3	19.4	0.6	B
21	I-80 EB - SR-65 to Rocklin Rd	Basic	4,247	214	77.2%							63.4	0.2	19.4	0.6	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,249	208	77.2%				773	73	45.7%	63.4	0.2	18.3	0.6	B
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	2,917	165	76.6%							63.6	0.2	16.8	0.8	B
24	I-80 EB - Rocklin Rd On-ramp	Merge	2,921	167	76.7%	285	25	109.6%				61.1	0.6	17.3	0.9	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,206	174	78.8%							63.4	0.2	17.8	1.0	B
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,208	173	78.8%				240	37	75.1%	62.9	0.4	19.2	1.0	B
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,968	166	79.2%							63.6	0.3	17.3	0.8	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,970	170	79.2%	236	3	94.5%				62.3	0.3	16.6	1.1	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	3,204	163	80.1%	611	17	101.9%				61.4	0.3	19.6	1.0	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	3,660	21	105.8%				585	40	106.4%	60.5	0.7	19.4	0.3	B
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,075	54	105.7%							63.6	0.3	18.1	0.4	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,074	53	105.6%	151	6	100.9%				63.2	0.3	16.5	0.3	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,225	57	105.4%	223	5	92.8%				63.0	0.2	17.5	0.4	B
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	3,447	61	104.5%							63.4	0.1	19.8	0.3	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	3,445	58	104.4%				283	33	104.8%	63.0	0.2	20.7	0.4	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,159	55	104.3%							56.5	8.9	21.2	3.9	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,151	66	104.0%	1,252	77	92.0%				30.3	20.4	75.7	50.4	F
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,215	161	96.0%							14.3	2.4	108.1	15.7	F
47	I-80 WB - HOV Lane Start to SR-65	Basic	4,128	147	94.0%							30.6	1.1	59.9	1.3	F
48	I-80 WB - SR-65 Off-ramp	Diverge	4,112	141	93.7%				1,546	47	91.5%	39.9	1.2	115.6	2.9	F
49	I-80 WB - SR-65 Off to On-ramp	Basic	2,544	131	94.2%							64.0	0.2	15.2	0.7	B
50	I-80 WB - SR-65 On-ramp	Merge	2,542	133	94.1%	2,698	90	84.1%				62.7	0.2	20.6	1.0	C
60	I-80 WB - Taylor Rd On-ramp	Merge	5,248	186	88.8%	444	43	82.1%				61.9	0.2	24.7	1.3	C
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	5,695	191	88.3%				333	33	87.6%	63.5	0.4	23.8	1.2	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	5,364	190	88.4%				910	68	95.8%	63.0	0.5	24.9	1.2	C
63	I-80 WB - Atlantic St Off to On-ramp	Basic	4,454	163	87.0%							63.2	0.2	21.0	1.1	C
64	I-80 WB - Atlantic St On-ramp	Merge	4,454	156	87.0%	1,285	80	94.5%				61.9	0.5	21.1	0.9	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	5,745	163	88.7%				795	44	86.4%	61.2	0.4	26.9	0.6	C
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	4,948	156	89.0%							63.1	0.3	25.5	0.5	C
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	4,945	160	88.9%	1,262	106	89.5%				61.2	0.3	23.8	0.6	C
68	I-80 WB - Douglas Blvd Slip On	Merge	6,204	200	89.0%	797	38	96.0%				59.2	3.8	21.0	2.4	C
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,013	202	89.9%							61.8	0.8	28.5	1.1	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,021	189	90.0%				1,042	62	89.9%	62.7	0.1	25.2	0.4	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	5,980	192	90.1%							62.7	0.2	28.9	1.1	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	5,984	193	90.1%	206	1	98.1%				63.1	0.1	23.6	0.7	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,195	190	90.4%	576	7	99.4%				62.5	0.5	19.9	0.7	B
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	6,763	207	91.0%							62.7	0.3	25.0	0.9	C
75	I-80 WB - Antelope Rd Off-ramp	Diverge	6,760	200	91.0%				923	57	96.1%	62.4	0.7	25.4	1.2	C
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	5,844	180	90.3%							63.1	0.4	22.2	0.8	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	5,846	175	90.4%	372	8	97.9%				61.7	0.3	19.9	0.8	B
78	I-80 WB - Antelope Rd to Truck Scales	Weave	6,222	191	90.8%	367	15	99.3%	61	10	102.0%	62.8	0.2	21.7	0.7	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	6,532	190	91.2%							63.1	0.2	24.0	0.7	C
80	I-80 WB - Truck Scales On-ramp	Merge	6,533	199	91.2%	61	11	101.3%				62.8	0.2	24.0	0.7	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	6,600	189	91.4%							62.1	0.4	25.4	0.8	C
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	6,599	192	91.4%				970	72	88.1%	62.5	0.2	23.6	0.7	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	5,628	152	92.0%							63.1	0.3	21.4	0.6	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	5,627	150	91.9%	899	3	99.9%				58.5	0.7	23.1	0.6	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	6,529	133	93.0%	619	19	96.8%				61.9	0.5	26.4	0.7	C

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - No Build*
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph) Avg.	St. Dev.	%	On-ramp Volume (vph) Avg.	St. Dev.	%	Off-ramp Volume (vph) Avg.	St. Dev.	%	Speed (mph) Avg.	St. Dev.	Density (vplpm) Avg.	St. Dev.	LOS
100	SR-65 NB - EB I-80 Connector	Basic	2,987	66	73.9%							13.1	0.5	118.1	2.2	F
101	SR-65 NB - WB I-80 Connector	Basic	1,545	47	91.4%							18.0	1.3	84.2	3.3	F
103	SR-65 NB - I-80 On-ramp	Merge	2,988	58	74.0%	1,544	51	91.3%				26.0	0.5	84.6	1.0	F
104	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,531	66	79.1%							56.4	5.0	40.6	4.5	E
105	SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	4,531	67	79.1%				945	54	78.1%	55.4	7.3	41.9	7.8	E
106	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,574	72	79.1%							46.1	17.6	47.9	25.4	F
107	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	3,556	72	78.7%	906	51	97.4%				35.7	10.0	60.8	14.3	F
108	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,442	72	81.5%							57.9	1.4	38.9	1.1	E
109	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,442	72	81.5%				1,009	47	86.2%	60.5	0.9	34.2	0.6	D
110	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,430	69	80.1%							62.7	0.2	29.4	0.6	D
111	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,431	69	80.2%	608	47	101.3%	1,518	65	84.3%	62.8	0.3	24.0	0.5	C
114	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,515	87	81.6%							63.4	0.2	20.8	0.4	C
115	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,514	86	81.6%	497	40	103.5%				60.7	0.9	23.4	0.5	C
116	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	3,006	83	84.4%							62.6	0.2	25.1	0.6	C
118	SR-65 NB - Sunset Blvd Off-ramp	Diverge	3,006	84	84.4%				544	32	90.7%	63.0	0.1	22.8	0.6	C
119	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	2,461	78	83.1%							63.0	0.1	21.3	0.5	C
120	SR-65 NB - Sunset Blvd EB On-ramp	Merge	2,462	74	83.2%	137	17	105.0%				62.6	0.3	21.8	0.5	C
121	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	2,592	79	83.9%	199	43	49.8%	390	38	79.6%	62.7	0.2	21.1	0.6	C
124	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	2,398	97	79.9%							63.0	0.1	20.9	0.8	C
125	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	2,396	95	79.9%	168	10	93.2%				62.6	0.2	21.4	0.7	C
126	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	2,562	98	80.6%	265	20	102.0%				62.2	0.2	24.1	0.7	C
127	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	2,827	100	82.2%							62.6	0.2	24.6	0.8	C
128	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	2,826	100	82.1%				631	46	91.4%	62.1	0.1	25.2	0.8	C
129	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,193	84	79.7%							63.3	0.2	19.5	0.6	C
130	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,192	86	79.7%	236	30	81.2%	816	51	80.0%	63.5	0.1	16.7	0.6	B
133	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	1,610	69	79.7%							63.6	0.2	16.1	0.7	B
134	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,608	70	79.6%				1,092	57	78.0%	64.1	0.1	12.7	0.5	B
135	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	513	41	82.7%							64.6	0.3	4.6	0.3	A
136	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	512	41	82.6%	83	5	92.1%				63.1	0.3	4.8	0.3	A
150	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	950	38	101.1%				145	18	96.8%	64.5	0.2	8.2	0.2	A
151	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	804	44	101.8%							23.0	21.0	35.2	29.7	E
152	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	775	55	98.1%	399	56	85.0%				3.9	5.2	161.9	54.9	F
153	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,050	120	83.3%	253	53	72.2%				2.0	0.3	216.6	29.2	F
154	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	1,090	163	67.7%							2.1	0.2	196.8	3.3	F
155	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	1,040	163	64.6%							2.1	0.2	198.4	3.7	F
156	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	969	165	60.2%	406	88	57.2%	145	54	53.8%	2.1	0.1	191.2	2.2	F
159	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	991	167	48.3%							2.6	0.2	190.8	2.9	F
160	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	964	150	47.0%	278	53	69.5%				2.4	0.1	192.8	1.7	F
161	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	1,149	136	46.9%							2.8	0.2	188.0	2.1	F
162	SR-65 SB - Placer Pkwy Off-ramp	Diverge	1,136	113	46.4%				194	33	43.2%	7.4	0.8	160.6	5.1	F
163	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	932	85	46.6%							2.4	0.2	193.2	2.8	F
164	SR-65 SB - Placer Pkwy WB On-ramp	Merge	927	84	46.3%	215	49	69.5%				2.7	0.4	186.6	3.3	F
165	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	1,125	101	48.7%	279	24	93.1%	169	49	45.6%	3.4	0.3	172.8	6.6	F
168	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	1,179	80	52.6%							4.0	0.2	175.5	2.5	F
169	SR-65 SB - Sunset Blvd WB On-ramp	Merge	1,179	88	52.6%	277	32	47.0%				4.0	0.3	177.7	3.4	F
170	SR-65 SB - Sunset Blvd EB On-ramp	Merge	1,447	104	51.1%	530	66	99.9%				5.7	0.8	151.4	10.9	F
171	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	1,972	159	58.7%							6.2	0.6	155.6	4.4	F
172	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	1,973	157	58.7%				273	59	41.3%	6.1	0.6	157.4	4.8	F
173	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	1,698	128	62.9%							5.7	0.3	159.6	2.2	F
174	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	1,699	128	62.9%	370	13	97.4%				6.3	0.7	145.3	5.0	F
175	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	2,056	121	66.8%	1,193	64	97.8%	337	42	59.1%	9.9	0.6	117.7	2.9	F
178	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	2,908	104	78.0%							12.1	0.7	122.9	3.4	F
179	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	2,903	100	77.8%	531	43	102.2%				13.9	0.8	109.6	2.4	F
180	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	3,433	78	80.8%	796	36	97.0%				26.9	0.6	77.9	1.8	F
181	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	4,230	63	83.4%							63.3	0.2	33.4	0.5	D
182	SR-65 SB - Galleria Blvd Off-ramp	Diverge	4,230	62	83.4%				828	47	82.8%	64.9	0.1	32.6	0.5	D
183	SR-65 SB - Galleria Blvd Off-ramp to Lane Add	Basic	3,401	67	83.6%							60.7	1.1	30.4	0.9	D
184	SR-65 SB - Lane Add to Galleria Blvd On-ramp	Basic	3,371	62	82.8%							63.2	0.3	20.7	0.5	C
185	SR-65 SB - Galleria Blvd On-ramp	Merge	3,403	69	83.6%	948	61	89.4%				60.4	0.5	25.5	0.6	C
186	SR-65 SB - I-80 Off-ramp	Diverge	4,349	89	84.8%				2,694	89	140.3%	62.5	0.3	23.9	0.4	C
187	SR-65 SB - EB I-80 Connector (2 lanes)	Basic	1,653	56	86.1%							58.8	0.9	28.0	1.2	D
188	SR-65 SB - EB I-80 Connector (1 lane)	Basic	1,653	58	86.1%							61.2	0.3	27.3	0.8	D
189	SR-65 SB - WB I-80 Connector	Basic	2,694	91	83.9%							53.2	0.2	26.7	1.1	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - No Build*
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Parkway	Signal	2,485	2,181	87.8%	24.3	20.9	C
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	985	765	77.7%	225.1	96.5	F
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,430	1,271	88.9%	26.4	23.2	C
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,725	2,040	74.9%	154.9	18.1	F
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,725	1,885	69.2%	480.9	61.7	F
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	5,485	5,226	95.3%	78.1	5.8	E
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,725	3,732	100.2%	14.9	1.5	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	5,230	4,954	94.7%	8.2	0.5	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	4,500	4,344	96.5%	11.1	1.8	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	4,575	3,970	86.8%	45.9	4.1	D
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	5,410	5,095	94.2%	12.3	1.1	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	5,465	5,130	93.9%	17.3	0.9	B
13	Galleria Blvd/Antelope Creek Dr	Signal	4,545	4,016	88.4%	25.4	2.4	C
14	Galleria Blvd/Roseville Pkwy	Signal	7,650	6,572	85.9%	233.0	16.0	F
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,675	4,107	87.9%	34.8	18.0	C
16	Taylor Rd/East Roseville Pkwy	Signal	5,880	5,437	92.5%	39.5	6.9	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,465	5,214	95.4%	30.6	2.2	C
18	Wills Rd/Atlantic St	Signal	2,945	2,792	94.8%	21.0	3.2	C
19	I-80 WB Ramps/Atlantic St	Signal	4,435	4,249	95.8%	12.1	1.2	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,725	5,519	96.4%	41.5	3.5	D
21	North Sunrise Ave/Eureka Rd	Signal	5,595	5,719	102.2%	63.0	15.7	E
22	Harding Blvd/Wills Rd	Signal	2,990	2,787	93.2%	16.7	1.4	B
23	Harding Blvd/Douglas Blvd	Signal	3,785	3,465	91.6%	64.4	5.5	E
24	I-80 WB Ramps/Douglas Blvd	Signal	4,510	3,968	88.0%	22.2	6.6	C

Network Summary	
Total Demand Volume (veh/hr)	102,940
Total Volume Served (veh/hr)	94,437
Percent Served	91.7%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - No Build*
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,245	4,143	79.0%	64.1	10.1	E
26	North Sunrise Ave/Douglas Blvd	Signal	5,870	4,691	79.9%	159.5	39.9	F
27	Pacific St/Woodside Dr	Signal	2,250	1,911	84.9%	8.0	0.8	A
28	Pacific St/Sunset Blvd	Signal	3,580	3,014	84.2%	83.7	3.0	F
29	Granite Dr/Rocklin Rd	Signal	3,740	3,408	91.1%	127.7	12.5	F
30	I-80 WB Ramps/Rocklin Rd	Signal	3,770	3,527	93.6%	37.8	5.6	D
31	I-80 EB Ramps/Rocklin Rd	Signal	3,545	3,287	92.7%	33.1	7.5	C
32	Aguilar Rd/Rocklin Rd	Signal	2,415	2,358	97.6%	35.1	11.9	D
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,345	1,911	81.5%	122.0	63.8	F
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,380	1,015	73.5%	338.6	100.8	F
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,950	1,599	82.0%	50.1	53.3	D
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,945	1,731	89.0%	27.5	19.3	C
40	Galleria Blvd/Berry St	Signal	2,855	2,602	91.1%	9.0	1.2	A

Network Summary	
Total Demand Volume (veh/hr)	40,890
Total Volume Served (veh/hr)	35,196
Percent Served	86.1%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Construction Year - Phase 1**
Network Statistics **AM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	168,972	69
Travel Distance [mi]	All Vehicles	791,607	1,870
Travel Time [h]	All Vehicles	18,555	240.8
Average Speed [mph]	All Vehicles	42.7	0.5
Total Delay [h]	All Vehicles	4,973	235.5
Average Delay per Vehicle [s]	All Vehicles	103	4.9
VHD/VMT [min/mile]	All Vehicles	0.38	0.02
Number of Vehicles Served	HOV	32,350	31
Travel Distance [mi]	HOV	159,516	525
Travel Time [h]	HOV	3,541	29
Average Speed [mph]	HOV	45.0	0.3
Total Delay [h]	HOV	828	26
Average Delay per Vehicle [s]	HOV	90	3
VHD/VMT [min/mile]	HOV	0.31	0.01
Number of Vehicles Served	Truck	7,572	12
Travel Distance [mi]	Truck	37,958	342
Travel Time [h]	Truck	920	17
Average Speed [mph]	Truck	41.3	1
Total Delay [h]	Truck	263	15
Average Delay per Vehicle [s]	Truck	122	7
VHD/VMT [min/mile]	Truck	0.42	0.02

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	32,350	7,570	168,970
Demand Volume	33,520	8,150	170,610
Percent Demand Served	96.5%	92.9%	99.0%
Vehicle Miles of Travel	159,520	37,960	791,610
Person Miles of Travel	334,980	39,860	968,970
Vehicle Hours of Travel	3,540	920	18,560
Vehicle Hours of Delay	830	260	4,970
VHD % of VHT	23.4%	28.3%	26.8%
Average Delay per Vehicle (min)	1.54	2.06	1.76
Person Hours of Delay	1,740	270	5,890
Average Travel Speed	45.0	41.3	42.7

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Phase 1
AM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,046	847	14	12:48	01:09	15.3
	I-80 at Auburn to SR-65 at Blue Oaks	32,880	1,484	17	07:08	00:07	21.0
	I-80: Sierra College to Antelope	45,827	1,126	15	11:34	00:44	18.0
	I-80: Auburn to Sierra College	36,777	687	12	06:40	00:05	25.1
	SR-65: I-80 to Sunset	43,055	664	16	04:19	00:01	45.3
	SR-65: Sunset to Ferrari Ranch	45,816	174	6	03:31	00:01	59.1
	SR-65: Ferrari Ranch to Sunset	36,773	953	9	03:36	00:01	46.5
	SR-65: Sunset to I-80	32,881	1,237	19	05:12	00:30	28.7
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,046	246	6	11:02	00:55	45.3
	I-80 at Auburn to SR-65 at Blue Oaks	32,880	371	9	07:03	00:03	59.1
	I-80: Sierra College to Antelope	45,827	503	7	08:59	00:11	46.5
	I-80: Auburn to Sierra College	36,777	234	6	06:34	00:02	28.7
	SR-65: I-80 to Sunset	43,055	160	5	04:19	00:02	17.7
	SR-65: Sunset to Ferrari Ranch	45,816	38	3	03:31	00:02	21.2
	SR-65: Ferrari Ranch to Sunset	36,773	108	4	03:36	00:01	23.2
	SR-65: Sunset to I-80	32,881	368	9	05:13	00:32	25.5

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Phase 1
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,240	37	110.0%	1,014	15	109.0%				62.0	0.3	28.7	0.3	D
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,225	114	109.5%							55.0	3.3	37.7	2.8	E
3	I-80 EB - Douglas Blvd Slip Off	Diverge	8,207	176	109.3%				1,417	103	108.2%	58.6	7.9	31.6	14.7	D
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	6,772	163	109.2%				567	64	107.0%	61.0	6.0	24.5	15.4	C
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,200	139	109.4%							63.2	0.1	24.7	0.5	C
6	I-80 EB - Douglas Blvd On-ramp	Merge	6,201	134	109.4%	879	28	97.6%				62.1	0.4	27.6	0.8	C
7	I-80 EB - Eureka Rd Off-ramp	Diverge	7,085	135	107.8%				1,381	83	107.9%	61.9	0.4	28.7	1.0	D
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	5,704	101	86.8%							62.9	0.5	24.3	0.5	C
9	I-80 EB - Eureka Rd EB On-ramp	Merge	5,706	100	86.8%	174	7	96.7%				63.2	0.2	22.1	0.7	C
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	5,884	100	87.2%	459	32	102.0%	364	29	107.0%	62.4	0.4	24.7	0.6	C
11	I-80 EB -Taylor Rd to SR 65	Basic	5,978	93	87.1%							59.8	1.4	30.9	0.6	D
17	I-80 EB - SR 65 Off-ramp	Diverge	5,978	92	87.1%				3,126	101	107.0%	60.4	1.0	31.5	0.9	D
18	I-80 EB - SR 65 Off to On-ramp	Basic	2,850	80	72.3%							63.9	0.1	15.6	0.5	B
19	I-80 EB - SR-65 On-ramp	Merge	2,851	85	72.4%	1,411	67	104.5%				62.8	0.2	22.2	0.5	C
21	I-80 EB - SR-65 to Rocklin Rd	Basic	4,269	118	80.7%							63.5	0.1	20.9	0.4	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	4,276	125	80.8%				1,487	61	104.7%	63.6	0.1	20.5	0.5	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	2,798	102	72.3%							63.8	0.2	17.4	0.6	B
24	I-80 EB - Rocklin Rd On-ramp	Merge	2,799	100	72.3%	239	8	95.6%				61.2	0.4	17.9	0.8	B
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,041	107	73.8%							63.6	0.2	18.4	0.7	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,040	109	73.8%				398	45	104.8%	63.2	0.3	19.6	0.7	B
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	2,647	96	70.8%							63.8	0.1	16.9	0.4	B
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	2,649	93	70.8%	131	5	100.8%				62.9	0.2	15.9	0.5	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	2,781	94	71.8%	414	6	108.9%				62.3	0.4	17.7	0.5	B
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	4,935	23	105.9%				848	50	105.9%	56.8	1.6	28.1	0.8	D
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	4,086	66	105.8%							61.8	0.5	25.0	0.5	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	4,088	67	105.9%	51	4	84.8%				62.8	0.4	22.2	0.4	C
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	4,138	75	105.6%	308	7	102.5%				61.2	1.1	23.8	0.5	C
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	4,443	86	105.3%							62.3	0.2	26.8	0.5	D
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	4,442	85	105.3%				245	35	106.3%	61.5	0.4	27.5	0.7	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	4,198	97	105.2%							63.1	0.1	25.1	0.6	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	4,196	99	105.2%	894	38	98.2%				60.6	0.9	26.6	0.3	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	5,079	123	103.6%							62.3	0.3	28.6	0.4	D
47	I-80 WB - HOV Lane Start to SR-65	Basic	5,073	130	103.5%							61.8	0.2	22.6	0.5	C
48	I-80 WB - SR-65 Off-ramp	Diverge	5,074	129	103.5%				1,453	71	105.3%	63.0	0.2	22.8	0.5	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	3,621	91	102.9%							63.1	0.7	19.4	0.5	C
50	I-80 WB - SR-65 On-ramp	Merge	3,617	94	102.8%	3,847	158	104.8%				34.2	12.5	59.5	18.3	F
60	I-80 WB - Taylor Rd On-ramp	Merge	7,438	200	103.4%	624	35	109.4%				24.5	11.5	83.4	19.2	F
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	8,010	241	103.2%				328	34	102.5%	20.8	8.0	105.5	20.5	F
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	7,639	255	102.7%				970	66	100.0%	21.2	1.9	99.5	7.8	F
63	I-80 WB - Atlantic St EB Off to On-ramp	Basic	6,577	204	101.7%							21.3	0.8	98.9	2.5	F
64	I-80 WB - Atlantic St On-ramp	Merge	6,548	194	101.2%	1,163	63	106.7%				23.2	0.7	73.1	1.4	F
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	7,654	181	101.2%				901	66	99.0%	34.5	3.5	60.4	6.9	F
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	6,743	143	101.4%							28.7	4.1	87.5	11.9	F
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	6,739	143	101.3%	1,011	28	106.4%				23.3	1.7	110.7	11.3	F
68	I-80 WB - Douglas Blvd Slip On	Merge	7,732	129	101.7%	473	36	110.0%				28.7	0.4	73.4	1.0	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	8,206	117	102.2%							58.7	0.9	33.9	1.0	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	8,203	117	102.2%				888	59	96.5%	62.0	0.4	28.4	0.6	D
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	7,316	110	102.9%							62.0	0.5	33.7	0.6	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	7,316	112	102.9%	284	6	83.4%				62.7	0.1	26.8	0.6	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	7,600	107	102.0%	857	16	102.0%				63.1	0.2	25.3	0.5	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	8,460	115	102.1%							62.4	0.2	30.6	0.5	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	8,463	119	102.1%				342	26	90.1%	61.9	0.2	31.1	0.6	D
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	8,131	117	102.8%							62.0	0.5	30.3	0.4	D
77	I-80 WB - Antelope Rd WB On-ramp	Merge	8,131	110	102.8%	566	13	97.6%				59.2	3.4	32.2	2.8	D
78	I-80 WB - Antelope Rd to Truck Scales	Weave	8,701	106	102.5%	444	13	96.5%	88	20	79.6%	52.6	9.2	42.4	10.9	E
79	I-80 WB - Truck Scales Off to On-ramp	Basic	9,097	156	102.9%							44.4	15.9	59.3	24.5	F
80	I-80 WB - Truck Scales On-ramp	Merge	9,129	170	103.3%	88	19	80.3%				38.5	12.6	72.6	25.1	F
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	9,278	214	103.7%							39.1	7.6	61.2	11.3	F
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	9,291	220	103.8%				774	54	104.6%	38.9	8.5	51.9	9.2	F
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	8,601	200	104.8%							30.7	11.1	84.4	18.4	F
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	8,634	196	105.2%	802	10	95.5%				28.5	3.9	89.7	11.4	F
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	9,500	203	105.0%	827	21	89.9%				33.1	0.4	76.4	0.9	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Phase 1
AM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
100	SR-65 NB - EB I-80 Connector	Basic	3,127	108	107.1%							41.6	1.0	44.3	1.9	E
101	SR-65 NB - WB I-80 Connector	Basic	1,452	74	105.2%							51.2	0.3	31.6	1.2	D
103	SR-65 NB - I-80 WB On-ramp	Merge	3,124	103	107.0%	1,452	75	105.2%				61.3	0.4	28.0	0.8	D
104	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,575	125	106.4%							63.0	0.1	27.0	0.8	D
105	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Diverge	4,576	126	106.4%				741	52	103.0%	62.4	0.6	26.9	1.0	C
106	SR-65 NB - Stanford Ranch Rd Off-ramp	Basic	3,839	116	107.2%							63.2	0.2	23.0	0.6	C
107	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	3,840	117	107.3%	744	36	103.4%				57.5	1.4	30.2	1.1	D
108	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	4,588	134	106.7%							56.6	1.2	37.0	1.3	E
109	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,588	134	106.7%				713	54	99.0%	59.1	0.9	35.2	1.3	E
110	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,872	130	108.2%							61.8	0.2	35.7	1.1	E
111	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,874	129	108.2%	223	14	96.7%	1,800	78	108.5%	62.8	0.1	26.8	0.8	C
114	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,303	87	107.1%							63.4	0.2	20.1	0.7	C
115	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,302	85	107.1%	463	38	98.5%				61.0	0.5	21.9	1.1	C
116	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,765	85	105.5%							62.2	0.5	24.8	1.2	C
118	SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,763	86	105.5%				1,192	62	105.4%	63.6	0.1	19.1	0.8	B
119	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	1,573	75	105.5%							63.8	0.2	13.8	0.6	B
120	SR-65 NB - Sunset Blvd EB On-ramp	Merge	1,572	72	105.5%	46	11	91.0%				63.9	0.2	13.6	0.5	B
121	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	1,619	66	105.1%	242	10	105.2%	318	42	96.2%	63.6	0.1	13.3	0.5	B
124	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	1,541	59	107.0%							63.7	0.2	13.5	0.5	B
125	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	1,543	60	107.2%	186	12	97.7%				63.3	0.3	14.0	0.5	B
126	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	1,730	62	106.1%	211	14	105.4%				63.2	0.2	16.3	0.5	B
127	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	1,939	67	106.0%							63.5	0.2	16.8	0.5	B
128	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	1,939	65	106.0%				404	39	94.0%	63.2	0.3	17.1	0.6	B
129	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	1,538	64	109.9%							63.6	0.2	14.1	0.5	B
130	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	1,540	60	110.0%	265	17	105.9%	639	50	88.8%	63.7	0.2	12.5	0.3	B
133	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	940	47	101.1%							64.1	0.2	12.0	0.5	B
134	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,170	55	125.8%				665	50	104.0%	64.5	0.2	9.9	0.4	A
135	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	507	41	175.0%							64.5	0.3	4.8	0.5	A
136	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	509	42	175.4%	114	7	103.3%				62.3	0.3	5.3	0.5	A
150	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	992	27	112.8%				71	16	100.9%	64.3	0.2	11.1	0.2	B
151	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	921	29	113.7%							64.3	0.1	10.3	0.3	A
152	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	921	31	113.7%	885	17	108.0%				60.4	0.2	13.8	0.3	B
153	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,808	39	110.9%	773	13	103.1%				58.8	0.8	18.1	0.5	B
154	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	2,581	47	108.4%							59.0	3.9	30.7	1.6	D
155	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	2,581	45	108.4%							60.7	1.4	29.2	0.9	D
156	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	2,580	46	108.4%	871	57	105.0%	355	28	111.1%	60.6	0.9	26.8	0.6	C
159	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	3,094	67	107.1%							62.1	0.4	29.8	0.6	D
160	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	3,094	71	107.1%	601	25	113.4%				57.9	3.3	34.1	2.1	D
161	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	3,691	84	107.9%							61.2	0.5	34.9	0.9	D
162	SR-65 SB - Placer Pkwy Off-ramp	Diverge	3,692	88	107.9%				404	40	112.1%	61.8	0.9	32.0	0.9	D
163	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	3,285	83	107.3%							62.6	0.2	29.2	0.7	D
164	SR-65 SB - Placer Pkwy WB On-ramp	Merge	3,283	83	107.3%	254	28	105.9%				62.2	0.5	29.8	0.7	D
165	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	3,538	77	107.2%	217	16	114.3%	553	43	104.3%	61.7	0.3	28.3	0.8	D
168	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	3,202	104	108.2%							62.4	0.2	28.3	1.0	D
169	SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,202	103	108.2%	267	2	102.7%				59.2	6.3	29.8	5.3	D
170	SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,471	97	107.8%	346	16	101.7%				49.5	14.0	43.6	16.0	E
171	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	3,815	109	107.2%							44.4	15.2	51.6	20.7	F
172	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	3,816	112	107.2%				623	47	103.8%	34.2	15.0	66.0	22.4	F
173	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,190	105	107.8%							19.2	7.0	93.1	19.1	F
174	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,187	107	107.7%	452	10	98.3%				21.7	2.0	79.2	5.2	F
175	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,626	98	106.0%	1,215	56	102.1%	639	52	104.8%	35.5	1.4	54.6	2.1	F
178	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,188	95	104.7%							59.6	2.0	36.0	1.5	E
179	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,187	96	104.7%	744	40	101.9%				61.9	0.3	29.6	0.5	D
180	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,924	112	104.1%	654	36	102.1%				60.4	0.8	29.3	0.6	D
181	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,570	105	103.7%							59.6	3.6	31.7	2.3	D
182	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,570	104	103.7%				1,026	61	98.7%	58.9	10.0	34.2	9.2	D
183	SR-65 SB - Galleria Blvd Off to On-ramp	Basic	4,539	110	104.8%							57.8	14.8	33.3	22.4	D
185	SR-65 SB - Galleria Blvd On-ramp	Merge	4,534	122	104.7%	728	44	104.0%				48.3	5.9	44.7	6.7	E
186	SR-65 SB - I-80 Off-ramp	Diverge	5,258	138	104.5%				3,848	134	104.9%	56.6	9.3	35.3	12.4	E
187	SR-65 SB - EB I-80 Connector (2 lanes)	Basic	1,413	69	104.7%							60.6	0.5	26.9	0.9	D
188	SR-65 SB - EB I-80 Connector (1 lane)	Basic	1,411	68	104.5%							61.7	0.3	26.5	0.8	D
189	SR-65 SB - WB I-80 Connector	Basic	3,850	147	104.9%							44.2	11.9	49.0	19.8	F

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Phase 1
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Parkway	Signal	1,890	2,068	109.4%	9.8	0.8	A
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	1,150	1,291	112.2%	9.2	0.8	A
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,285	1,364	106.2%	9.2	1.0	A
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,300	2,424	105.4%	37.1	16.5	D
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,585	2,790	107.9%	15.6	4.0	B
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	4,580	4,722	103.1%	47.8	18.0	D
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,040	3,275	107.7%	12.3	3.2	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	3,900	4,025	103.2%	5.7	0.4	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	2,985	3,028	101.5%	20.0	7.1	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	2,885	2,992	103.7%	29.1	1.7	C
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	3,435	3,620	105.4%	17.3	14.7	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	3,675	3,795	103.3%	21.4	0.9	C
13	Galleria Blvd/Antelope Creek Dr	Signal	2,855	2,931	102.7%	13.0	2.7	B
14	Galleria Blvd/Roseville Pkwy	Signal	5,195	5,541	106.7%	36.5	1.3	D
15	Creekside Ridge Dr/Roseville Pkwy	Signal	3,550	3,757	105.8%	8.7	3.3	A
16	Taylor Rd/East Roseville Pkwy	Signal	4,530	4,793	105.8%	135.5	27.0	F
17	North Sunrise Ave/East Roseville Pkwy	Signal	4,325	4,600	106.4%	23.8	1.9	C
18	Wills Rd/Atlantic St	Signal	1,955	2,161	110.5%	18.4	1.6	B
19	I-80 WB Ramps/Atlantic St	Signal	3,395	3,587	105.7%	17.4	1.6	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	4,385	4,605	105.0%	21.9	2.0	C
21	North Sunrise Ave/Eureka Rd	Signal	3,995	4,171	104.4%	25.4	1.5	C
22	Harding Blvd/Wills Rd	Signal	2,125	2,269	106.8%	14.1	0.8	B
23	Harding Blvd/Douglas Blvd	Signal	2,735	2,969	108.6%	19.6	2.5	B
24	I-80 WB Ramps/Douglas Blvd	Signal	3,680	3,924	106.6%	50.9	12.6	D

Network Summary	
Total Demand Volume (veh/hr)	76,435
Total Volume Served (veh/hr)	80,704
Percent Served	105.6%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Phase 1
AM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	4,060	4,365	107.5%	19.9	9.0	B
26	North Sunrise Ave/Douglas Blvd	Signal	4,380	4,639	105.9%	29.0	1.5	C
27	Pacific St/Woodside Dr	Signal	1,700	1,876	110.3%	9.1	0.7	A
28	Pacific St/Sunset Blvd	Signal	2,600	2,871	110.4%	27.3	0.9	C
29	Granite Dr/Rocklin Rd	Signal	2,401	2,489	103.7%	26.5	14.0	C
30	I-80 WB Ramps/Rocklin Rd	Signal	2,655	2,764	104.1%	31.8	11.4	C
31	I-80 EB Ramps/Rocklin Rd	Signal	2,745	2,917	106.3%	36.8	21.8	D
32	Aguilar Rd/Rocklin Rd	Signal	1,930	2,065	107.0%	21.9	27.7	C
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	1,835	2,005	109.3%	6.1	0.8	A
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,270	1,361	107.2%	21.1	2.4	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,690	1,735	102.7%	8.7	0.6	A
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,625	1,727	106.3%	10.7	6.9	B
40	Galleria Blvd/Berry St	Signal	1,965	2,079	105.8%	10.1	1.3	B

Network Summary	
Total Demand Volume (veh/hr)	30,856
Total Volume Served (veh/hr)	32,894
Percent Served	106.6%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Phase 1**
Queue Length | **AM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	20	5	123	38	NO
	Through						
	Right Turn	1,500	17	6	124	38	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	6	1	57	19	NO
	Through						
	Right Turn	1,500	6	1	57	19	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	51	6	185	27	NO
	Through						
	Right Turn	1,330	53	6	188	27	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,400	57	5	257	42	NO
	Through						
	Right Turn	1,400	9	1	81	23	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Phase 1**
Queue Length | **AM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	23	4	103	28	NO
	Through	2,260	52	11	248	30	NO
	Right Turn	200	0	0	5	14	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	31	17	425	188	MAX
	Through						
	Right Turn	1,100	32	17	426	188	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	11	3	103	18	NO
	Through						
	Right Turn	1,130	14	2	105	18	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,420	32	1	122	13	NO
	Through						
	Right Turn	1,420	30	1	121	13	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Phase 1**
Queue Length | **AM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1,800	9	3	131	40	NO
WB	Left Turn						
	Through						
	Right Turn	1,170	0	0	0	0	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1,130	51	4	280	44	NO
WB	Left Turn						
	Through						
	Right Turn	1,780	16	8	137	26	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1,430	0	0	8	20	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Phase 1**
Queue Length **AM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	47	17	227	34	MAX
	Through	1,700	41	3	192	51	NO
	Right Turn	1,700	0	1	60	191	NO
SB	Left Turn	550	18	4	78	20	NO
	Through						
	Right Turn	550	47	3	260	60	NO
EB	Left Turn	1,120	26	4	97	31	NO
	Through	1,120	61	7	442	79	NO
	Right Turn	810	3	5	91	73	NO
WB	Left Turn						
	Through	1,370	43	9	246	30	NO
	Right Turn	280	0	0	0	0	NO

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,530	51	50	289	71	NO
	Through	1,530	51	50	289	71	NO
	Right Turn	730	52	50	289	71	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Phase 1**
Queue Length **AM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,400	0	0	3	8	NO
SB	Left Turn						
	Through						
	Right Turn	1,250	108	103	561	487	NO

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	8	2	121	20	NO
	Through						
	Right Turn	1,230	14	3	129	23	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,080	56	6	250	67	NO
	Through						
	Right Turn	1,080	55	6	247	67	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Phase 1**
Queue Length **AM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1,940	0	0	0	0	NO
	Through						
	Right Turn	1,940	0	0	0	0	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,650	28	9	206	36	NO
	Through						
	Right Turn	1,650	28	9	206	36	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,620	22	3	122	13	NO
	Through						
	Right Turn	1,620	22	3	122	13	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Values from 10 Runs **Construction Year - Phase 1**
Network Statistics **PM Peak Period**

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	234,259	239
Travel Distance [mi]	All Vehicles	910,863	1,349
Travel Time [h]	All Vehicles	25,716	479.5
Average Speed [mph]	All Vehicles	35.4	0.7
Total Delay [h]	All Vehicles	9,670	489.7
Average Delay per Vehicle [s]	All Vehicles	146	7.4
VHD/VMT [min/mile]	All Vehicles	0.64	0.03
Number of Vehicles Served	HOV	46,204	93
Travel Distance [mi]	HOV	192,966	703
Travel Time [h]	HOV	4,906	41
Average Speed [mph]	HOV	39.3	0.3
Total Delay [h]	HOV	1,538	38
Average Delay per Vehicle [s]	HOV	118	3
VHD/VMT [min/mile]	HOV	0.48	0.01
Number of Vehicles Served	Truck	9,033	43
Travel Distance [mi]	Truck	36,823	257
Travel Time [h]	Truck	1,115	36
Average Speed [mph]	Truck	33.1	1
Total Delay [h]	Truck	460	35
Average Delay per Vehicle [s]	Truck	179	14
VHD/VMT [min/mile]	Truck	0.75	0.06

	Vehicle Types		
Performance Measure	**HOV**	**Truck**	**All**
Vehicles Served	46,200	9,030	234,260
Demand Volume	47,310	9,670	235,630
Percent Demand Served	97.7%	93.4%	99.4%
Vehicle Miles of Travel	192,970	36,820	910,860
Person Miles of Travel	405,230	38,660	1,124,960
Vehicle Hours of Travel	4,910	1,120	25,720
Vehicle Hours of Delay	1,540	460	9,670
VHD % of VHT	31.4%	41.1%	37.6%
Average Delay per Vehicle (min)	2.00	3.06	2.48
Person Hours of Delay	3,230	480	11,380
Average Travel Speed	39.3	33.1	35.4

VISSIM Post-Processor
Average Values from 10 Runs
Peak Hour Travel Time

I-80/SR 65 Interchange
Construction Year - Phase 1
PM Peak Period

Mode	Description	Distance (ft)	Volume (vehicles)		Travel Time (min.:sec.)		Speed (mph)
			Average	Std. Dev.	Average	Std. Dev.	Average
SOV	SR-65 at Blue Oaks to I-80 at Antelope	43,046	676	10	08:37	00:20	22.7
	I-80 at Auburn to SR-65 at Blue Oaks	32,880	1,474	21	17:06	02:01	8.7
	I-80: Sierra College to Antelope	45,827	504	11	08:35	00:19	24.3
	I-80: Auburn to Sierra College	36,777	707	17	16:02	02:03	10.4
	SR-65: I-80 to Sunset	43,055	1,183	17	04:23	00:02	44.6
	SR-65: Sunset to Ferrari Ranch	45,816	243	8	03:34	00:01	58.3
	SR-65: Ferrari Ranch to Sunset	36,773	587	11	03:31	00:00	47.5
	SR-65: Sunset to I-80	32,881	792	13	04:11	00:01	35.8
HOV	SR-65 at Blue Oaks to I-80 at Antelope	43,046	117	6	08:23	00:11	44.6
	I-80 at Auburn to SR-65 at Blue Oaks	32,880	563	12	09:29	00:19	58.3
	I-80: Sierra College to Antelope	45,827	199	6	08:15	00:05	47.5
	I-80: Auburn to Sierra College	36,777	292	9	08:06	00:25	35.8
	SR-65: I-80 to Sunset	43,055	421	9	04:23	00:02	23.3
	SR-65: Sunset to Ferrari Ranch	45,816	52	3	03:34	00:02	15.8
	SR-65: Ferrari Ranch to Sunset	36,773	93	4	03:31	00:01	25.2
	SR-65: Sunset to I-80	32,881	199	6	04:11	00:01	20.6

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Phase 1
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
1	I-80 EB - Auburn Blvd On-ramp	Merge	7,515	394	100.1%	902	79	94.9%				36.5	16.5	75.4	35.7	F
2	I-80 EB - Auburn Blvd to Douglas Blvd	Basic	8,233	530	97.3%							32.2	13.6	80.1	29.7	F
3	I-80 EB - Douglas Blvd Slip Off	Diverge	8,156	554	96.4%				1,084	140	93.5%	31.8	7.7	75.1	18.4	F
4	I-80 EB - Douglas Blvd WB Off-ramp	Diverge	6,992	464	95.8%				660	103	92.9%	26.3	5.8	116.5	22.9	F
5	I-80 EB - Douglas Blvd Off to On-ramp	Basic	6,244	378	94.7%							27.4	11.4	107.5	33.4	F
6	I-80 EB - Douglas Blvd On-ramp	Merge	6,207	372	94.2%	1,194	73	91.1%				20.6	13.7	115.4	31.9	F
7	I-80 EB - Eureka Rd Off-ramp	Diverge	7,392	431	93.6%				1,042	99	94.7%	25.2	12.5	96.1	25.1	F
8	I-80 EB - Eureka Rd Off to On-ramp	Basic	6,368	327	93.6%							21.2	0.4	119.4	4.1	F
9	I-80 EB - Eureka Rd EB On-ramp	Merge	6,380	326	93.8%	320	24	103.2%				16.8	0.6	125.7	3.9	F
10	I-80 EB - Eureka Rd to Taylor Rd	Weave	6,709	320	94.4%	1,128	69	103.5%	534	55	92.0%	19.7	0.9	115.8	5.0	F
11	I-80 EB - Taylor Rd to SR-65	Basic	7,288	250	95.6%							20.5	1.3	107.6	3.9	F
17	I-80 EB - SR-65 Off-ramp	Diverge	7,280	240	95.5%				3,890	69	96.3%	26.3	1.8	89.8	5.2	F
18	I-80 EB - SR-65 Off to On-ramp	Basic	3,387	209	94.6%							62.7	0.5	17.0	1.0	B
19	I-80 EB - SR-65 On-ramp	Merge	3,386	212	94.6%	1,844	74	96.0%				62.5	0.4	22.7	0.9	C
21	I-80 EB - SR-65 to Rocklin Rd	Basic	5,218	225	94.9%							63.0	0.3	22.7	0.9	C
22	I-80 EB - Rocklin Rd Off-ramp	Diverge	5,219	221	94.9%				958	62	56.7%	62.4	3.1	21.3	1.9	C
23	I-80 EB - Rocklin Rd Off to On-ramp	Basic	3,602	168	94.5%							63.4	0.1	20.6	1.1	C
24	I-80 EB - Rocklin Rd On-ramp	Merge	3,602	168	94.5%	278	27	107.1%				60.4	0.4	20.8	1.1	C
25	I-80 EB - Rocklin Rd to Sierra College Blvd	Basic	3,877	167	95.2%							63.2	0.2	21.7	1.0	C
26	I-80 EB - Sierra College Blvd Off-ramp	Diverge	3,876	169	95.2%				287	41	89.7%	62.4	0.6	22.9	1.3	C
27	I-80 EB - Sierra College Blvd Off to On-ramp	Basic	3,587	160	95.7%							63.2	0.3	20.6	0.9	C
28	I-80 EB - Sierra College Blvd SB On-ramp	Merge	3,587	160	95.7%	236	3	94.4%				61.1	1.0	19.8	1.1	B
29	I-80 EB - Sierra College Blvd NB On-ramp	Merge	3,823	161	95.6%	609	15	101.5%				60.9	0.3	23.0	1.0	C
38	I-80 WB - Sierra College Blvd Off-ramp	Diverge	3,661	21	105.8%				586	40	106.6%	60.6	0.8	19.4	0.4	B
39	I-80 WB - Sierra College Blvd Off to On-ramp	Basic	3,075	52	105.7%							63.6	0.3	18.2	0.4	C
40	I-80 WB - Sierra College Blvd NB On-ramp	Merge	3,075	50	105.7%	152	6	101.0%				63.2	0.3	16.6	0.3	B
41	I-80 WB - Sierra College Blvd SB On-ramp	Merge	3,224	51	105.4%	223	5	93.0%				63.0	0.2	17.5	0.4	B
42	I-80 WB - Sierra College Blvd to Rocklin Rd	Basic	3,447	56	104.4%							63.4	0.2	19.8	0.4	C
43	I-80 WB - Rocklin Rd Off-ramp	Diverge	3,445	53	104.4%				279	38	103.3%	62.3	2.2	20.7	1.0	C
44	I-80 WB - Rocklin Rd Off to On-ramp	Basic	3,164	45	104.4%							63.6	0.1	18.5	0.3	C
45	I-80 WB - Rocklin Rd On-ramp	Merge	3,165	47	104.4%	1,298	30	95.4%				60.4	0.6	22.4	0.3	C
46	I-80 WB - Rocklin Rd to HOV Lane Start	Basic	4,460	68	101.6%							62.9	0.2	24.0	0.4	C
47	I-80 WB - HOV Lane Start to SR-65	Basic	4,457	78	101.5%							62.3	0.3	19.5	0.4	C
48	I-80 WB - SR-65 Off-ramp	Diverge	4,456	78	101.5%				1,726	63	102.1%	62.5	0.6	25.5	1.1	C
49	I-80 WB - SR-65 Off to On-ramp	Basic	2,725	71	100.9%							64.0	0.1	15.2	0.3	B
50	I-80 WB - SR-65 On-ramp	Merge	2,724	71	100.9%	3,217	114	100.2%				61.9	0.2	24.9	0.5	C
60	I-80 WB - Taylor Rd On-ramp	Merge	5,945	126	100.6%	435	44	80.5%				61.7	0.3	28.5	0.7	D
61	I-80 WB - Atlantic St WB Off-ramp	Diverge	6,383	136	99.0%				369	31	97.1%	63.2	0.2	27.3	0.6	C
62	I-80 WB - Atlantic St EB Off-ramp	Diverge	6,013	127	99.1%				939	65	98.9%	62.6	0.6	28.7	0.5	D
63	I-80 WB - Atlantic St Off to On-ramp	Basic	5,071	128	99.0%							62.6	0.4	24.8	0.6	C
64	I-80 WB - Atlantic St On-ramp	Merge	5,071	121	99.1%	1,399	59	102.9%				61.0	0.4	24.0	0.7	C
65	I-80 WB - Douglas Blvd Off-ramp	Diverge	6,469	149	99.8%				908	68	98.6%	59.9	1.1	29.8	0.8	D
66	I-80 WB - Douglas Blvd Off to On-ramp	Basic	5,558	136	100.0%							60.0	9.2	30.4	8.2	D
67	I-80 WB - Douglas Blvd WB On-ramp	Merge	5,552	138	99.9%	1,424	41	101.0%				54.4	13.3	36.6	28.7	E
68	I-80 WB - Douglas Blvd Slip On	Merge	6,960	136	99.9%	799	35	96.2%				35.7	11.1	50.4	17.9	F
69	I-80 WB - Douglas Blvd to Riverside Ave	Basic	7,743	137	99.3%							60.4	0.6	30.9	0.5	D
70	I-80 WB - Riverside Ave Off-ramp	Diverge	7,742	145	99.3%				1,168	63	100.7%	62.5	0.2	26.9	0.8	C
71	I-80 WB - Riverside Ave Off to On-ramp	Basic	6,574	138	99.0%							62.6	0.1	31.2	0.9	D
72	I-80 WB - Riverside Ave NB On-ramp	Merge	6,571	140	99.0%	206	0	98.1%				63.0	0.1	25.0	0.4	C
73	I-80 WB - Riverside Ave SB On-ramp	Merge	6,779	144	99.0%	576	7	99.4%				62.6	0.4	21.4	0.4	C
74	I-80 WB - Riverside Ave to Antelope Rd	Basic	7,346	146	98.9%							62.7	0.1	26.9	0.4	D
75	I-80 WB - Antelope Rd Off-ramp	Diverge	7,345	148	98.9%				957	56	99.7%	62.5	0.4	27.4	0.6	C
76	I-80 WB - Antelope Rd Off to On-ramp	Basic	6,389	151	98.7%							62.9	0.4	24.1	0.5	C
77	I-80 WB - Antelope Rd WB On-ramp	Merge	6,389	145	98.7%	373	7	98.1%				61.1	0.9	21.7	0.5	C
78	I-80 WB - Antelope Rd to Truck Scales	Weave	6,759	150	98.7%	368	14	99.4%	62	13	104.0%	62.6	0.2	23.2	0.6	C
79	I-80 WB - Truck Scales Off to On-ramp	Basic	7,067	137	98.7%							63.0	0.1	25.6	0.7	C
80	I-80 WB - Truck Scales On-ramp	Merge	7,070	143	98.7%	63	12	104.7%				62.7	0.2	25.8	0.9	C
81	I-80 WB - Truck Scales to Elkhorn Blvd	Basic	7,130	151	98.8%							61.7	0.8	27.3	0.9	D
82	I-80 WB - Elkhorn Blvd Off-ramp	Diverge	7,135	142	98.8%				1,058	69	96.2%	62.4	0.3	25.2	0.6	C
83	I-80 WB - Elkhorn Blvd Off to On-ramp	Basic	6,074	134	99.3%							63.2	0.2	22.9	0.7	C
84	I-80 WB - Elkhorn Blvd WB On-ramp	Merge	6,078	135	99.3%	898	3	99.8%				57.5	0.9	24.7	0.9	C
85	I-80 WB - Elkhorn Blvd EB On-ramp	Merge	6,974	122	99.3%	622	17	97.2%				62.0	0.5	27.3	0.6	C

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Freeway Operations Summary

I-80/SR 65 Interchange
Construction Year - Phase 1
PM Peak Hour

	Location	Facility Type	Mainline Volume (vph)			On-ramp Volume (vph)			Off-ramp Volume (vph)			Speed (mph)		Density (vplpm)		LOS
			Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	
100	SR-65 NB - EB I-80 Connector	Basic	3,887	61	96.2%							35.8	1.0	62.1	1.6	F
101	SR-65 NB - WB I-80 Connector	Basic	1,725	65	102.1%							50.7	0.3	35.3	1.3	E
103	SR-65 NB - I-80 On-ramp	Merge	3,885	60	96.2%	1,725	65	102.1%				60.6	0.5	31.9	0.3	D
104	SR-65 NB - I-80 to Stanford Ranch Rd	Basic	5,610	86	97.9%							60.7	6.7	31.9	5.1	D
105	SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	5,610	86	97.9%				1,161	56	95.9%	58.2	7.5	34.7	7.1	D
106	SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	4,445	102	98.3%							62.7	0.4	24.7	0.6	C
107	SR-65 NB - Stanford Ranch Rd On-ramp	Merge	4,443	101	98.3%	903	44	97.1%				52.9	4.2	33.6	2.9	D
108	SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Basic	5,341	100	98.0%							55.9	1.9	37.3	1.9	E
109	SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	3,148	69	57.8%				1,131	57	96.7%	58.5	1.2	35.5	1.3	E
110	SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	4,212	104	98.4%							61.2	0.7	36.1	1.4	E
111	SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	4,212	107	98.4%	609	47	101.4%	1,785	92	99.2%	62.2	0.4	28.6	1.0	D
114	SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	3,032	107	98.4%							63.0	0.2	24.8	1.0	C
115	SR-65 NB - Blue Oaks Blvd On-ramp	Merge	3,032	107	98.4%	489	38	101.9%				60.0	0.7	27.7	0.9	C
116	SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	3,515	90	98.7%							62.0	0.2	29.5	0.8	D
118	SR-65 NB - Sunset Blvd Off-ramp	Diverge	3,511	97	98.6%				617	38	102.8%	62.7	0.1	26.5	0.8	C
119	SR-65 NB - Sunset Blvd Off to On-ramp	Basic	2,896	79	97.8%							62.8	0.1	24.9	0.7	C
120	SR-65 NB - Sunset Blvd EB On-ramp	Merge	2,894	77	97.8%	139	20	106.9%				62.2	0.3	25.3	0.7	C
121	SR-65 NB - Sunset Blvd to Whitney Ranch Pkwy	Weave	3,034	83	98.2%	394	16	98.6%	481	50	98.1%	62.3	0.2	24.7	0.6	C
124	SR-65 NB - Whitney Ranch Pkwy Off to On-ramp	Basic	2,942	81	98.1%							62.7	0.2	25.1	0.6	C
125	SR-65 NB - Whitney Ranch Pkwy EB On-ramp	Merge	2,940	80	98.0%	168	9	93.3%				62.3	0.1	25.7	0.6	C
126	SR-65 NB - Whitney Ranch Pkwy WB On-ramp	Merge	3,107	86	97.7%	266	19	102.2%				61.6	0.3	28.6	0.6	D
127	SR-65 NB - Whitney Ranch Pkwy to Twelve Bridges Dr	Basic	3,369	85	97.9%							62.1	0.2	29.0	0.6	D
128	SR-65 NB - Twelve Bridges Dr Off-ramp	Diverge	3,368	85	97.9%				721	50	104.5%	61.5	0.3	29.8	0.5	D
129	SR-65 NB - Twelve Bridges Dr Off to On-ramp	Basic	2,644	69	96.1%							62.9	0.1	23.2	0.7	C
130	SR-65 NB - Twelve Bridges Dr to Lincoln Blvd	Weave	2,644	77	96.1%	271	29	93.6%	996	52	97.7%	63.3	0.1	19.4	0.5	B
133	SR-65 NB - Lincoln Blvd to Ferrari Ranch Rd	Basic	1,915	63	94.8%							63.4	0.1	18.3	0.6	C
134	SR-65 NB - Ferrari Ranch Rd Off-ramp	Diverge	1,914	66	94.7%				1,333	65	95.2%	64.0	0.1	14.3	0.6	B
135	SR-65 NB - Ferrari Ranch Rd Off to On-ramp	Basic	575	43	92.7%							64.5	0.2	5.3	0.4	A
136	SR-65 NB - Ferrari Ranch Rd On-ramp	Merge	574	44	92.6%	83	5	91.9%				63.1	0.3	5.5	0.4	A
150	SR-65 SB - Ferrari Ranch Rd Off-ramp	Diverge	947	37	100.8%				145	17	96.4%	64.5	0.2	8.3	0.2	A
151	SR-65 SB - Ferrari Ranch Rd Off to On-ramp	Basic	804	39	101.7%							64.6	0.2	6.9	0.2	A
152	SR-65 SB - Ferrari Ranch Rd WB On-ramp	Merge	804	39	101.8%	475	17	101.0%				61.9	0.2	7.8	0.2	A
153	SR-65 SB - Ferrari Ranch Rd EB On-ramp	Merge	1,280	40	101.6%	349	12	99.8%				61.8	0.3	8.8	0.3	A
154	SR-65 SB - Ferrari Ranch Rd to Lane Drop	Basic	1,628	37	101.1%							63.8	0.3	14.8	0.5	B
155	SR-65 SB - Lane Drop to Lincoln Blvd	Basic	1,628	36	101.1%							63.8	0.3	14.4	0.3	B
156	SR-65 SB - Lincoln Blvd to Twelve Bridges Dr	Weave	1,627	41	101.1%	702	41	98.9%	266	33	98.5%	62.5	0.8	14.6	0.3	B
159	SR-65 SB - Twelve Bridges Dr Off to On-ramp	Basic	2,065	51	100.7%							63.7	0.3	16.9	0.3	B
160	SR-65 SB - Twelve Bridges Dr On-ramp	Merge	2,065	51	100.7%	390	17	97.5%				62.2	0.2	18.7	0.4	B
161	SR-65 SB - Twelve Bridges Dr to Placer Pkwy	Basic	2,453	52	100.1%							63.4	0.2	20.1	0.4	C
162	SR-65 SB - Placer Pkwy Off-ramp	Diverge	2,452	55	100.1%				451	40	100.3%	63.3	0.3	19.1	0.4	B
163	SR-65 SB - Placer Pkwy Off to On-ramp	Basic	2,001	58	100.1%							63.6	0.3	16.5	0.5	B
164	SR-65 SB - Placer Pkwy WB On-ramp	Merge	2,001	53	100.1%	302	28	97.4%				62.2	0.4	18.1	0.6	B
165	SR-65 SB - Placer Pkwy to Sunset Blvd	Weave	2,303	60	99.7%	287	25	95.6%	366	31	99.0%	63.0	0.2	18.0	0.4	B
168	SR-65 SB - Sunset Blvd Off to On-ramp	Basic	2,223	66	99.3%							63.4	0.1	18.4	0.5	C
169	SR-65 SB - Sunset Blvd WB On-ramp	Merge	2,222	73	99.2%	598	5	101.4%				61.6	0.2	21.0	0.5	C
170	SR-65 SB - Sunset Blvd EB On-ramp	Merge	2,820	69	99.6%	532	28	100.3%				61.5	0.4	27.8	0.4	C
171	SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	3,353	75	99.8%							62.4	0.3	28.1	0.5	D
172	SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	3,351	75	99.7%				627	43	95.0%	62.6	0.2	27.6	0.5	C
173	SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	2,725	84	100.9%							63.2	0.2	23.0	0.5	C
174	SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	2,726	82	101.0%	373	15	98.1%				60.5	0.7	24.9	0.6	C
175	SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,096	85	100.5%	1,153	76	94.5%	546	50	95.8%	60.4	0.4	26.4	0.8	C
178	SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	3,706	126	99.4%							62.2	0.3	31.1	1.0	D
179	SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	3,706	126	99.4%	528	41	101.6%				61.8	0.3	26.7	0.8	C
180	SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,232	130	99.6%	791	36	96.5%				60.6	1.3	26.1	0.8	C
181	SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,018	141	99.0%							63.9	0.1	26.9	0.8	D
182	SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,018	141	99.0%				946	65	94.6%	64.9	0.1	27.6	0.7	C
183	SR-65 SB - Galleria Blvd Off to On-ramp	Basic	4,042	125	99.3%							62.4	0.3	24.9	0.6	C
185	SR-65 SB - Galleria Blvd On-ramp	Merge	4,042	121	99.3%	1,009	57	95.2%				54.6	4.0	34.2	3.1	D
186	SR-65 SB - I-80 Off-ramp	Diverge	5,051	141	98.5%				3,209	116	167.1%	60.8	0.7	28.6	1.0	D
187	SR-65 SB - EB I-80 Connector (2 lanes)	Basic	1,844	78	96.1%							55.6	2.3	33.9	2.1	D
188	SR-65 SB - EB I-80 Connector (1 lane)	Basic	1,845	77	96.1%							60.7	0.6	31.6	1.2	D
189	SR-65 SB - WB I-80 Connector	Basic	3,210	117	100.0%							52.6	0.2	32.0	1.2	D

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.
Mainline volume is the upstream served volume for all lanes.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Phase 1
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
1	Lincoln Blvd/Sterling Parkway	Signal	2,485	2,429	97.8%	8.7	0.8	A
2	SR-65 SB Ramps/Twelve Bridges Dr	Signal	985	965	98.0%	7.2	0.8	A
3	SR-65 NB Ramps/Twelve Bridges Dr	Signal	1,430	1,436	100.4%	8.2	0.6	A
4	SR-65 SB Ramps/Sunset Blvd	Signal	2,725	2,789	102.3%	67.1	14.2	E
5	SR-65 NB Ramps/Sunset Blvd	Signal	2,725	2,815	103.3%	47.1	38.6	D
6	SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd	Signal	5,485	5,480	99.9%	92.0	8.7	F
7	SR-65 NB Ramps/Blue Oaks Blvd	Signal	3,725	3,913	105.0%	18.4	2.6	B
8	SR-65 SB Ramps/Pleasant Grove Blvd	Signal	5,230	5,210	99.6%	6.7	0.7	A
9	SR-65 NB Ramps/Pleasant Grove Blvd	Signal	4,500	4,495	99.9%	11.2	1.3	B
10	Stanford Ranch Rd/Five Star Blvd	Signal	4,575	4,558	99.6%	57.1	9.3	E
11	SR-65 NB Ramps/Stanford Ranch Rd	Signal	5,410	5,391	99.7%	18.8	8.8	B
12	SR-65 SB Ramps/Galleria Blvd	Signal	5,465	5,419	99.2%	19.4	6.2	B
13	Galleria Blvd/Antelope Creek Dr	Signal	4,545	4,314	94.9%	24.9	1.9	C
14	Galleria Blvd/Roseville Pkwy	Signal	7,650	7,507	98.1%	55.6	10.7	E
15	Creekside Ridge Dr/Roseville Pkwy	Signal	4,675	4,612	98.7%	24.3	5.8	C
16	Taylor Rd/East Roseville Pkwy	Signal	5,880	5,867	99.8%	41.5	3.6	D
17	North Sunrise Ave/East Roseville Pkwy	Signal	5,465	5,518	101.0%	29.7	2.2	C
18	Wills Rd/Atlantic St	Signal	2,945	3,027	102.8%	21.6	1.9	C
19	I-80 WB Ramps/Atlantic St	Signal	4,435	4,514	101.8%	12.2	1.5	B
20	Taylor Rd-I-80 EB Ramps/Eureka Rd	Signal	5,725	5,837	101.9%	40.1	5.3	D
21	North Sunrise Ave/Eureka Rd	Signal	5,595	5,833	104.3%	57.9	15.5	E
22	Harding Blvd/Wills Rd	Signal	2,990	3,067	102.6%	18.3	2.0	B
23	Harding Blvd/Douglas Blvd	Signal	3,785	3,757	99.3%	65.9	5.8	E
24	I-80 WB Ramps/Douglas Blvd	Signal	4,510	4,531	100.5%	36.9	6.0	D

Network Summary	
Total Demand Volume (veh/hr)	102,940
Total Volume Served (veh/hr)	103,284
Percent Served	100.3%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor
Average Results from 10 Runs
Intersection Volume and Delay

I-80/SR 65 Interchange
Construction Year - Phase 1
PM Peak Hour

	Intersection	Control	Volume (vph)		Percent Served	Delay (sec/veh)		Level of Service
			Demand	Served		Average	Std. Dev.	
25	I-80 EB Ramps/Douglas Blvd	Signal	5,245	5,200	99.1%	49.5	24.2	D
26	North Sunrise Ave/Douglas Blvd	Signal	5,870	5,867	99.9%	39.0	1.6	D
27	Pacific St/Woodside Dr	Signal	2,250	2,065	91.8%	8.2	1.1	A
28	Pacific St/Sunset Blvd	Signal	3,580	3,117	87.1%	86.3	2.9	F
29	Granite Dr/Rocklin Rd	Signal	3,740	3,631	97.1%	129.7	9.6	F
30	I-80 WB Ramps/Rocklin Rd	Signal	3,770	3,757	99.7%	40.4	9.8	D
31	I-80 EB Ramps/Rocklin Rd	Signal	3,545	3,593	101.3%	40.4	13.8	D
32	Aguilar Rd/Rocklin Rd	Signal	2,415	2,456	101.7%	30.8	5.9	C
33	Lincoln Blvd/SR-65 NB Off-Ramp	Signal	2,345	2,288	97.6%	7.8	0.7	A
34	Lincoln Blvd/SR-65 SB On-Ramp	Signal	1,380	1,299	94.2%	22.1	2.4	C
35	SR-65 SB Ramps/Placer Pkwy	Signal	1,950	1,966	100.8%	8.5	0.6	A
36	SR-65 NB Ramps/Whitney Ranch Pkwy	Signal	1,945	1,964	101.0%	22.3	16.1	C
40	Galleria Blvd/Berry St	Signal	2,855	2,885	101.1%	9.8	1.6	A

Network Summary	
Total Demand Volume (veh/hr)	40,890
Total Volume Served (veh/hr)	40,089
Percent Served	98.0%

Notes: 1. Volume is measured for the entire peak hour.
2. Delay is measured for the peak 15 minutes in the peak hour.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Phase 1**
Queue Length | **PM Peak Hour**

Intersection 2 **SR-65 SB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	440	14	2	97	23	NO
	Through						
	Right Turn	1,500	11	3	97	23	NO

Intersection 3 **SR-65 NB Ramps/Twelve Bridges Dr** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	700	9	1	77	26	NO
	Through						
	Right Turn	1,500	9	1	77	26	NO

Intersection 4 **SR-65 SB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	360	36	2	130	21	NO
	Through						
	Right Turn	1,330	38	2	132	21	NO

Intersection 5 **SR-65 NB Ramps/Sunset Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,400	41	1	156	27	NO
	Through						
	Right Turn	1,400	3	0	48	11	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Phase 1**
Queue Length | **PM Peak Hour**

Intersection 6 **SR-65 SB Ramps-Washington Blvd/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	200	30	3	132	40	NO
	Through	2,260	62	13	322	71	NO
	Right Turn	200	0	0	57	43	NO

Intersection 7 **SR-65 NB Ramps/Blue Oaks Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	400	88	52	873	403	MAX
	Through						
	Right Turn	1,100	89	52	874	403	NO

Intersection 8 **SR-65 SB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	430	13	4	107	20	NO
	Through						
	Right Turn	1,130	16	4	109	20	NO

Intersection 9 **SR-65 NB Ramps/Pleasant Grove Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,420	40	1	137	26	NO
	Through						
	Right Turn	1,420	38	1	137	26	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Phase 1**
Queue Length **PM Peak Hour**

Intersection 11 **SR-65 NB Ramps/Stanford Ranch Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1,800	25	6	229	94	NO
WB	Left Turn						
	Through						
	Right Turn	1,170	4	7	86	273	NO

Intersection 12 **SR-65 SB Ramps/Galleria Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
EB	Left Turn						
	Through						
	Right Turn	1,130	57	5	240	43	NO
WB	Left Turn						
	Through						
	Right Turn	1,780	41	17	253	114	NO

Intersection 19 **I-80 WB Ramps/Atlantic St** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,150	0	0	0	0	NO
SB	Left Turn						
	Through						
	Right Turn	1,430	0	0	12	18	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Phase 1**
Queue Length **PM Peak Hour**

Intersection 20 **Taylor Rd-I-80 EB Ramps/Eureka Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	180	182	68	1,082	329	AVG
	Through	1,700	29	2	163	41	NO
	Right Turn	1,700	54	41	869	459	NO
SB	Left Turn	550	30	7	114	16	NO
	Through						
	Right Turn	550	160	69	664	130	MAX
EB	Left Turn	1,120	38	17	143	36	NO
	Through	1,120	98	6	587	105	NO
	Right Turn	810	4	2	199	88	NO
WB	Left Turn						
	Through	1,370	173	25	719	142	NO
	Right Turn	280	20	9	355	142	MAX

Intersection 24 **I-80 WB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,530	57	55	299	60	NO
	Through	1,530	57	55	299	60	NO
	Right Turn	730	58	56	300	60	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor **I-80/SR 65 Interchange**
Average Results from 10 Runs **Construction Year - Phase 1**
Queue Length **PM Peak Hour**

Intersection 25 **I-80 EB Ramps/Douglas Blvd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn						
	Through						
	Right Turn	1,400	0	0	10	32	NO
SB	Left Turn						
	Through						
	Right Turn	1,250	767	135	1,254	680	MAX

Intersection 30 **I-80 WB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	700	152	14	399	437	NO
	Through						
	Right Turn	1,230	163	14	413	437	NO

Intersection 31 **I-80 EB Ramps/Rocklin Rd** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,080	167	59	568	402	NO
	Through						
	Right Turn	1,080	165	59	564	402	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

VISSIM Post-Processor | **I-80/SR 65 Interchange**
Average Results from 10 Runs | **Construction Year - Phase 1**
Queue Length | **PM Peak Hour**

Intersection 33 **Lincoln Blvd/SR-65 NB Off-Ramp** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
WB	Left Turn	1,940	0	0	0	0	NO
	Through						
	Right Turn	1,940	0	0	7	22	NO

Intersection 35 **SR-65 SB Ramps/Placer Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
SB	Left Turn	1,650	27	2	150	30	NO
	Through						
	Right Turn	1,650	27	2	150	30	NO

Intersection 36 **SR-65 NB Ramps/Whitney Ranch Pkwy** **Signalized**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn	1,620	29	2	174	31	NO
	Through						
	Right Turn	1,620	29	2	174	31	NO

Note: The "Average Queue" is calaculated on a time-step basis so that queues when the approach is green (zero length) are included in the average.

Attachment N
Draft Stormwater Data Report

Dist-County-Route: 03-Pla-65/80
Post Mile Limits: (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3
Project Type: Interchange Improvement
Project ID (or EA): 0300000696 (03-4E3200)
Program Identification:
Phase: ☐ PID ☒ PA/ED ☐ PS&E

Regional Water Quality Control Board(s): Region 5, Central Valley

Is the Project required to consider Treatment BMPs? Yes ☒ No ☐
If yes, can Treatment BMPs be incorporated into the project? Yes ☒ No ☐
If No, a Technical Data Report must be submitted to the RWQCB at least 30 days prior to the projects RTL date. List RTL Date:

Total Disturbed Soil Area: Alt 1: 160 ac; Alt 2: 165 ac; Alt 3: 177 ac Risk Level: 2
Estimated: Construction Start Date: 2020 Construction Completion Date: 2036
Notification of Construction (NOC) Date to be submitted: TBD

Erosivity Waiver	Yes ☐	Date:	No ☒
Notification of ADL reuse (if Yes, provide date)	Yes ☒	Date: TBD at PS&E	No ☐
Separate Dewatering Permit (if yes, permit number)	Yes ☒	Permit # TBD at PS&E	No ☐

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

Analette Ochoa, P.E., Registered Project Engineer — Date: 10/23/14

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Leo Heuston, Project Manager — *Date*

Brian Toepfer, Designated Maintenance Representative — *Date*

T. Chris Johnson, Designated Landscape Architect Representative — *Date*

[Stamp Required for PS&E only)

Wesley Faubel, District/Regional Design SW Coordinator or Designee — *Date*

STORM WATER DATA INFORMATION

1. Project Description

The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTPA), Placer County, and the cities of Roseville, Rocklin, and Lincoln, proposes to improve the Interstate 80/State Route 65 (I-80/SR 65) Interchange in Placer County, California.

The I-80/SR 65 Interchange Project (Project) is located in Placer County in the cities of Roseville and Rocklin at the I-80/SR 65 Interchange. The Project limits include I-80 from the Douglas Boulevard Interchange to the Rocklin Road Interchange (post miles [PM] 1.9 to 6.1) and SR 65 from the I-80 junction to the Pleasant Grove Boulevard Interchange (PM R4.8 to R7.3). The existing I-80/SR 65 Interchange is a type F-6 freeway-to-freeway interchange. See Required Attachments for Project location and vicinity maps.

The purpose of the Project is to reduce future traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards.

Three alternatives are under consideration and were designed to satisfy the purpose and need, while avoiding or minimizing environmental impacts.

Build Alternatives

All of the build alternatives propose to add capacity, a bidirectional high-occupancy vehicle (HOV) system, and high-speed connector ramps. Local and regional circulation and access would be improved, as would vehicle lane-weaving conditions along I-80 between Eureka Road/Atlantic Street and Taylor Road and along SR 65 between the I-80/SR 65 interchange and Galleria Boulevard/Stanford Ranch Road. Other improvements would include widening the East Roseville Viaduct, replacing the Taylor Road overcrossing, and realigning the existing eastbound I-80 to northbound SR 65 loop connector.

The alternatives under consideration are:

- Build Alternative 1—Taylor Road Full Access Interchange
- Build Alternative 2—Collector–Distributor System Ramps
- Build Alternative 3—Taylor Road Interchange Eliminated

Alternative 1 would improve spacing and vehicle lane-weaving movements between interchanges on I-80. The two existing Taylor Road interchange ramps would be relocated to the east and reconstructed in a Type L-1/L-12 interchange configuration, providing two additional ramp connections and improving access between the local streets and freeway system. The interchange would be positioned within the I-80/SR 65 interchange footprint and utilize portions of the existing eastbound I-80 to northbound SR 65 loop connector as well as the existing southbound SR 65 to eastbound I-80 connector. The existing Taylor Road interchange ramps would be removed, and the area would be re-graded.

Alternative 2 would improve spacing and vehicle lane-weaving movements between interchanges on I-80 by collecting and redirecting eastbound ramp traffic onto a collector-distributor ramp system. The collector-distributor system would provide eastbound access to Taylor Road and from Eureka Road at the Atlantic Street/Eureka Road interchange and would restrict local traffic from leaving or entering I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. The two existing Taylor Road interchange ramps would remain in their current location but would be reconfigured to accommodate the surrounding improvements.

Similar to Alternative 2, Alternative 3 would improve spacing and vehicle lane-weaving movements between interchanges on I-80 by collecting eastbound Eureka Road on-ramp traffic. Weaving on I-80 would be significantly improved because ramp traffic would be redirected to a collector-distributor ramp system and restricted from entering and exiting I-80 mainline until after the critical weave area between Eureka Road and the I-80/SR 65 interchange. Unique to Alternative 3, the two existing Taylor Road interchange ramps would be eliminated, and access to the Taylor Road area would be accommodated by the adjacent local interchanges at the Atlantic Street/Eureka Road, Rocklin Road, and Galleria Boulevard/Stanford Ranch Road interchanges. The connector ramps serving I-80 and SR 65 are the same between Alternatives 2 and 3.

Transportation System Management Alternative

This alternative includes ramp metering, HOV bypass lanes, traffic signal coordination, transit options, and bicycle and pedestrian facilities in order to improve the transportation system at the I-80/SR 65 interchange. However, the transportation system management (TSM) measures alone could not satisfy the purpose and need of the Project. This alternative has been eliminated, but the TSM features have been incorporated into the build alternatives for this Project.

No-Build Alternative

This alternative would not make any improvements to the I-80/SR 65 interchange or adjacent transportation facilities to satisfy the purpose and need. HOV and auxiliary lanes proposed on SR 65 north of Galleria Boulevard/Stanford Ranch Road, and other local improvements separately proposed and identified in the Metropolitan Transportation Plan, would be implemented according to their proposed schedules.

Project's Disturbed Soil Area, Added Impervious Area, and Reworked Impervious Area

The total disturbed soil area (DSA) and additional impervious area (AIA) for the Project are summarized in Table 1, Table 2, and Table 3 for the entire Project area, the portion within Caltrans' right-of-way, and the portion within the City's right-of-way, respectively. The DSA for each alternative was conservatively calculated by taking the entire Project area minus the existing impervious area to remain. The impervious area and DSA values will be further refined during the PS&E phase once the limits of grading, construction staging locations, and other areas of disturbance have been developed. The Project would be required to treat

between 27 ac and 32 ac of the added impervious area, depending on the alternative chosen.

Table 1. DSA and AIA for Project Alternatives

Alternative	DSA, acres (ac)	Proposed Impervious Area, ac	Existing Impervious Area, ac	AIA, ac
1	160	127	95	32
2	165	124	95	29
3	177	122	95	27

Source: CH2M Hill 2014

Table 2. DSA and AIA for Project Alternatives in Caltrans' Right-of-Way

Alternative	DSA, acres (ac)	Proposed Impervious Area, ac	Existing Impervious Area, ac	AIA, ac
1	147	119	89	30
2	151	117	89	28
3	156	114	88	26

Source: CH2M Hill 2014

Table 3. DSA and AIA for Project Alternatives in the City's Right-of-Way

Alternative	DSA, acres (ac)	Proposed Impervious Area, ac	Existing Impervious Area, ac	AIA, ac
1	13	7	6	1
2	13	7	6	1
3	21	7	6	1

Source: CH2M Hill 2014

The Project traverses through Placer County, the City of Roseville, and the City of Rocklin, which are under a Phase II Municipal Separate Storm Sewer System (MS4).

2. Site Data and Storm Water Quality Design Issues (refer to Checklists SW-1, SW-2, and SW-3)

The Project is located entirely within the jurisdiction of Caltrans District 3 and the Central Valley Regional Water Quality Control Board (CVRWQCB), Region 5.

This Project's Project Initiation Document phase was completed prior to the effective date of the current Caltrans MS4 Permit (Order No. 2012-0011-DWQ), so this Project is not expected to be required to comply with the current Caltrans MS4 Permit. Therefore, the measures presented in this SWDR are based on the previous Caltrans MS4 Permit (Order No. 99-06-DWQ) and are consistent with current Caltrans District 3 practices.

Receiving Water Bodies and Hydrologic Sub-Areas

I-80 and SR 65 within the Project limits cross two hydrologic sub-areas, Lower American (HSA# 519.21) and Pleasant Grove (HSA# 519.22), within one hydrologic unit: see Table 4. Lower American includes Antelope Creek, Miners Ravine, Secret Ravine, and Sucker Ravine. Pleasant Grove includes Highland Ravine and the tributary to South Branch Pleasant Grove Creek. The Water Quality Planning Tool shows that there are three hydrologic sub-areas; this is hydrologically incorrect because Secret Ravine is a tributary to Miners Ravine, which in turn is a tributary to Dry Creek.

Table 4. Hydrologic Units within the Project Limits

PM Limits	Hydrologic Unit	Hydrologic Sub-area	Hydrologic Sub-area Number
I-80 PM 1.9-6.1 and SR 65 PM R4.8-R5.58	Valley-American	Lower American	519.21
SR 65 PM R5.58-R7.3	Valley-American	Pleasant Grove	519.22

Source: Caltrans

A list of creek and stream crossings within the Project limits was created using Federal Emergency Management Agency (FEMA) maps, United States Geological Survey (USGS) topographic maps, Oakland Museum of California watershed maps, and aerial photographs.

Table 5 lists the identified creek and stream crossings within the Project limits. A map identifying the approximate location of each creek and stream crossing is included in the Required Attachments of this report. The five creek crossings within the Project limits are Sucker Ravine, Miners Ravine, Highland Ravine, a tributary to South Branch Pleasant Grove Creek, and Antelope Creek. Secret Ravine generally flows parallel to I-80 within the Project limits, from the Taylor Road overcrossing, which is located 0.2 mi north of Roseville Parkway on I-80, to the Project's northern limits at Rocklin Road.

Table 5. Receiving Water Bodies

Stream Name	Crossing Type	Approximate Station(s)
Sucker Ravine	Culvert	195+40 (I-80)
Secret Ravine	Longitudinal	113+30, 137+80, 145+90, 164+50, and 109+05 – 111+05 (I-80)
Miners Ravine	Bridge	58+90, 60+75, and 62+00 (I-80)
Highland Ravine	Culvert	191+00 (SR 65)
Tributary to South Branch of Pleasant Grove Creek	Culvert	156+35 (skew 121°), 162+72 (skew 78°), 168+25 (skew 64°), and 174+00 (SR 65)
Antelope Creek	Bridge	126+00 (SR 65)

Source: FEMA and USGS

Impaired Water Bodies and Total Maximum Daily Loads

One of the receiving water bodies for this Project, Miners Ravine, is listed as an impaired water body in the 2010 Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments. According to this list, the pollutant of impairment is dissolved oxygen. The potential source for dissolved oxygen is unknown. The expected total maximum daily load completion date is 2021. This pollutant is not considered a Caltrans Targeted Design Constituent (TDC).

Beneficial Uses for Hydrologic Sub-areas

The CVRWQCB Basin Plan (2011) lists beneficial uses for the Lower American Hydrologic Sub-area (No. 519.21), within and near the Project. Table 6 summarizes the beneficial uses.

Table 6. Beneficial Uses for Hydrologic Units

Hydrologic Sub-area	Beneficial Uses										
	MUN	AGR	IND	REC-1	REC-2	WARM	COLD	MIGR	SPWN	WILD	NAV
Lower American (No. 519.21)	E	E	E	E	E	E	E	E	E	E	

Source: Central Valley RWQCB Basin Plan 2011

Notes:
AGR—Agricultural Supply NAV—Navigation

COLD—Cold Freshwater Habitat
IND—Industrial Service Supply
E—Existing Beneficial Uses
MIGR—Fish Migration
MUN—Municipal & Domestic Water Supply
REC-1—Water Contact Recreation
REC-2—Non-contact Water Recreation
SPWN—Fish Spawning
WARM—Warm Freshwater Habitat
WILD—Wildlife Habitat

Municipal or Domestic Water Supply Reservoirs

No District 3 drinking water reservoirs or recharge facilities were identified within or adjacent to the Project area.

Local Agency Requirements/Concerns

The Project is under a Phase II Municipal Separate Storm Sewer System (MS4), which would be subject to the Waste Discharge Requirements (WDRs) for Storm Water Discharges from Small Municipal Separate Storm Systems, effective on July 1, 2013. This General Permit presents the provision for permanent post-construction stormwater requirements for areas outside of Caltrans' right-of-way. These standards would be required for Caltrans projects that connect or discharge into local drainage facilities as directed by the Caltrans Department Office of Water Quality or CVRWQCB.

Table 7 contains the permits and coordination that will likely be required for the Project.

Table 7. Permits and Approvals Needed

Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Coordination regarding threatened and endangered species	Not yet initiated
U.S. Army Corps of Engineers	Section 404 authorization for fill of waters of the United States	Not yet initiated
California Department of Fish and Wildlife	A 1602 Permit for streambed alteration	Not yet initiated
Central Valley Regional Water Quality Control Board	Section 401 Water Quality Certification and coverage under the existing Caltrans National Pollutant Discharge Elimination System Permit (Order No. 99-06-DWQ)	Not yet initiated
Placer County Air Pollution Control District	Formal notification prior to construction	Not yet initiated

Source: CH2M Hill 2014

A project-specific WDR is not required for the CVRWQCB, unless the anticipated dewatering discharge from the Project results in greater than 0.25 million gallons per day and requires treatment before discharging, or there may be associated significant impacts from dewatering activities. These are not expected for the Project; therefore, a project-specific WDR is not anticipated. Construction site BMPs would be considered to address any Project impacts from the dewatering activities.

According to the *Delineation of Potential Waters of the United States, Including Wetlands* (ICF International 2014), a total of 6.7 ac of wetlands and other waters were identified in the delineation area. This Project proposes work within or near water bodies that are identified as waters of the State and waters of the U.S.; therefore, a Section 401 Water Quality Certification is anticipated for this Project, as well as a Section 404 nationwide permit from the USACE. The 401 Certification would be prepared and submitted during the PS&E phase. A 1602 Permit for streambed alteration would likely be required from the California Department of Fish and Wildlife. Currently, Antelope Creek and Miners Ravine are the water bodies where in-water work is planned and where temporary creek diversion or dewatering is expected. Construction windows would be specified in the permits.

Because the Project would create impervious areas and discharge to small MS4 areas, hydromodification requirements from the Phase II MS4 permit may apply to areas outside of Caltrans' right-of-way. During the design phase, these requirements would be further analyzed.

Land Use

The City of Rocklin General Plan (2012) identifies the land use surrounding I-80/SR 65 within the city limits as medium density residential and recreation/conservation with some low density residential, retail commercial, medium-high density residential, high density residential, and business professional.

The land use map in City of Roseville General Plan 2025 (2014) identifies the land use surrounding I-80/SR 65 within the city limits as community commercial, regional commercial, and business professional, with some general industrial, open space, parks and recreation, and high density residential.

Climate, Topography, and Soils

Roseville has a Mediterranean climate that is characterized by cool, wet winters and hot, dry summers. Average daily high temperatures range from 54°F in January to 95°F in July and 94°F in August. Daily low temperatures range from 39°F in winter to 60°F in summer. The rainy season for the Project is from October 15 through April 15, as indicated in the Northern and Central California Areas, Figure 1-1, Designation of Rainy Season, in the *Caltrans Storm Water Quality Handbooks, Construction Site Best Management Practices Manual* (Caltrans 2009).

Precipitation data were collected using the National Oceanic and Atmospheric Administration (NOAA) Atlas Precipitation Frequency Data Server (PFDS) web application. The location chosen was in Roseville, California, with latitude 38.7716 and longitude 121.2479. The 24-hour rainfall depths are summarized in Table 8 and the Intensity-Duration-Frequency (IDF) curve is shown in the Required Attachments.

Table 8. 24-hour Rainfall Depth Summary

Recurrence (years)	2	10	25	50	100
Depth (inches)	2.23	3.21	3.84	4.34	4.86

Source: NOAA

Both I-80 and SR 65 run through relatively flat terrain in a heavily urbanized area with frequent interchanges. The SR 65 alignment from Pleasant Grove Boulevard to I-80, the elevation ranges between about 160 and 260 feet above mean sea level (amsl) with an average elevation of 215 ft. The Project crosses over Antelope Creek at a peak elevation of about 254 ft amsl and then lowers into I-80 at an elevation of 206 ft. The I-80 alignment from Rocklin Road to Douglas Boulevard gradually decreases from 285 ft to 173 ft with an average elevation of 215 ft.

The Project site can be characterized by rolling hills with southwest trending ridges and relatively gentle slope gradients. In the Project area, I-80 is constructed near natural grade with some cuts through ridges and fills across low lying areas. SR 65 is mostly elevated by fills and bridges above natural grade from the interchange area to the northwest side of

Antelope Creek near PM 5.4. Northwest of Antelope Creek to Pleasant Grove Boulevard, SR 65 is constructed near natural grade with some cuts and fills (Blackburn Consulting 2013).

The hydrologic soil group (HSG) information is not available from the *Structures Preliminary Geotechnical Report* (Blackburn Consulting 2013). Per the Natural Resources Conservation Service Web Soil Survey, the soils in the Project area primarily consist of HSG D with some HSG B and C. Soils in HSG D have high runoff potential when thoroughly wet. Group B and C soils have a moderate to slow infiltration rate, respectively, when thoroughly wet.

Geology

The following geologic information referenced the Structures Preliminary Geotechnical Report for the Project (Blackburn Consulting 2013). A geologic map is included in the Required Attachments of this report.

The Project area lies on the eastern margin of the Great Valley Geomorphic Province (Sacramento Valley portion). The Great Valley is bordered by the Coast Ranges to the west, the Sierra Nevada to the east, and the Cascade and Klamath ranges to the north. The valley was formed by tilting of the Sierran Block with the eastern side uplifted to form the Sierra Nevada and the western side dropping to form the valley. The valley deposits are characterized by a thick sequence of alluvial, lacustrine, and marine sediments. The thickness of the sediments varies from a thin veneer at the margin, to thousands of feet in the central portion. Granitic rock and volcanic deposits occur along the valley margin in the Project area. Based on review of published geologic maps, site review, and available subsurface information, the Project area is underlain by the following:

Granitic Rock

Granitic rock in the Project area is known as the Rocklin Pluton; it is composed of quartz diorite and is deeply weathered in many areas. Granitic rock occurs immediately west of the Rocklin Road Interchange within the Project area. The rock is typically decomposed to intensely weathered within approximately 5 to 10 feet of the surface with isolated "boulders" (or bodies) of moderately to slightly weathered, hard rock. This unit is shown as "Mzg" in the Required Attachments.

Mehrten Formation

Deposits of the Mehrten Formation in the Project area consist primarily of andesitic, volcanic mudflow breccia, and cobble conglomerate. Breccia consists of a gray mixture of gravel to boulder size, angular, andesitic fragments. These fragments are well cemented in a matrix of volcanic lapilli and ash (tuff). The conglomerate consists primarily of cobbles in a well-cemented matrix of andesitic sand and silt, and often contains interbedded layers of sandstone, siltstone, and lenses of mudflow breccia. In the Project area, the lowest portions of the Mehrten Formation are often underlain by claystones possibly associated with the Valley Springs or Ione Formations. Bedding of sediments and flows within the Mehrten Formation typically dip gently (2 to 4 degrees) to the west/southwest. These volcanic materials were deposited during Miocene time (5 to 20 million years ago). Mapped locations are shown as "Tva" in the Required Attachments.

Riverbank and Turlock Lake Formations
Sediments of the Riverbank and Turlock Lake formations occur in the central portion of the Project area. These are alluvial deposits that are typically composed of interbedded medium dense to dense sands (often cemented) and gravels, and stiff to hard silts and clays. Bedding is typically horizontal, lenticular, and discontinuous. These sediments are Late to Middle Pleistocene age (deposited over 150,000 years ago). Mapped locations are shown as "Qa" in the Required Attachments.

Other Geologic Units
Several shallow waterways cross the Project area, and these waterways may contain a certain thickness of young alluvial deposits. This includes alluvial deposits at the banks (stream terrace deposits), as well as active channel deposits. Alluvium likely consists of several feet of loose sand and gravel with some cobbles and boulders.

Highway embankment fill is also present at a number of locations along the Project corridor. The embankment fill is expected to be engineered fill, placed in accordance with Caltrans specifications, that consists of locally derived clay, silt, sand, and gravel.

Groundwater
Per the Structures Preliminary Geotechnical Report for the Project (Blackburn Consulting 2013), the depth to groundwater beneath the Project area is variable due to:

- Significant changes in ground surface elevation
- The presence of alluvial sediments that extend through the central portion of the area
- Relatively hard, well consolidated sediments and hard rock on the Project perimeter
- The presence of several creek beds

Regionally, MWH shows the groundwater elevation ranging from approximately 45 feet above mean sea level (msl) at the west end to approximately 65 feet at the east end of the Project. A portion of the groundwater elevation map is included in the Required Attachments. Based on this map, regional groundwater levels could be greater than 100 feet below the ground surface and the gradient is to the west-southwest.

While the groundwater mapping provides the approximate elevation of the deeper/regional groundwater conditions, groundwater that can impact Project design and construction may occur much shallower. In general, groundwater should be expected near the elevation of water in the adjacent creek beds such as Secret Ravine, Miners Ravine, and Antelope Creek.

Hazardous Soils
A Draft Initial Site Assessment (ISA) Update was prepared by Blackburn Consulting (2014). This ISA concludes there is a potential for hazardous materials conditions within or adjacent to the Project boundaries which may potentially impact the Project. Two parcels in the I-80/SR 65 interchange area and one parcel adjacent to I-80 have been identified as potentially contaminated areas that need further assessment including a site inspection, owner interview, and county file review.

Reuse of Soil Containing Aerially Deposited Lead (ADL)
Per the Draft ISA Update prepared by Blackburn Consulting (2014), previous sampling results indicate the average levels of lead found along I-80 within the Project limits are below the levels requiring regulatory action. Soils excavated from the surface to any depth up to 3 ft can be reused or disposed as non-hazardous soil with respect to lead content. An appropriate Lead Compliance Plan and Lead Awareness Training Plan must be prepared by the contractor to prevent or minimize worker exposure to lead.

The presence of ADL is not uncommon adjacent to heavily traveled roadways in service prior to 1987. Based on review of aerial photos and topographic maps, the existing Taylor Road has been in service as a primary route in the region since at least 1941. Project plans include disturbing soil along Taylor Road; therefore, the ADL assessment would need to be expanded to include this area.

Right-of-Way
The Project involves full and partial right-of-way acquisition from private and city properties. Some full and partial property acquisitions as well as temporary easements for construction access and staging would be necessary. Per the Project Study Report (Baker 2009), a Right-of-Way Data Sheet was prepared for the Project. These areas are approximate and may change as the alternatives get refined in the PS&E phase.

Unit Costs of Additional Right-of-Way
The right-of-way for the Project has ample room for treatment BMPs. No additional right-of-way certification is anticipated for BMP deployment or maintenance. This will be verified and updated in the PS&E phase.

Measures for Avoiding or Reducing Potential Stormwater Impacts
The added impervious area is directly related to the potential permanent water quality impacts. Because of the added impervious area, Alternative 1 would have the greatest impact on runoff volume and velocity. With the greatest DSA, Alternative 3 would have the most potential impact on sedimentation and erosion during construction.

Slopes are planned to be no greater than 2:1 (H:V), compacted as specified in the Caltrans *Standard Specifications*, and stabilized using the permanent erosion control measures to be specified during the design phase. There are locations that are likely to have existing slopes greater than 2:1 (H:V), especially where the terrain is naturally hilly and consisting of steep slopes. At these locations, the existing slopes would be maintained where feasible; proposed slopes would be graded to match the existing condition. To avoid grading new slopes steeper than 2:1 (H:V) at locations where the existing slopes are flatter than 2:1 (H:V), and to reduce the need for further right-of-way acquisition, retaining walls would be constructed to achieve the proposed Project widening within the existing Caltrans right-of-way.

Measures would be employed to prevent any construction material from getting into the receiving water bodies. All work in creeks and waterways would be scheduled per regulatory

requirements and detailed in the Project's special provisions to be prepared during the PS&E phase. Concentrated flows would be collected into stabilized drains and channels.

Placement of all BMPs would be done in a manner to allow for maintenance access. Maintenance vehicle pullouts would be proposed, and side slopes would be specified to be as flat as possible, for ease of maintenance.

3. Regional Water Quality Control Board Agreements

At this stage, there are no key negotiated understandings or agreements with the CVRWQCB pertaining to this Project.

4. Proposed Design Pollution Prevention BMPs to be used on the Project.

The proposed Project would be constructed to minimize erosion by disturbing slopes only when necessary, minimizing cut and fill areas to reduce slope lengths, and providing cut and fill slopes flat enough to allow revegetation to limit erosion rates. In addition, design pollution prevention BMPs can be proposed to provide concentrated flow conveyance systems consisting of ditches, storm drains, and inlet and outlet protection devices, and maximize onsite infiltration by increased detention time within drainage systems and vegetated conveyances and surfaces.

Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

This Project would increase impervious areas that would increase runoff, volume and velocity. The Project would add 27 ac to 32 ac of impervious area depending on the alternative chosen and may need to consider design pollution prevention BMPs or energy dissipation devices, such as rock slope protection (RSP) or devices to meter flows (e.g., weirs or check dams).

Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

Fill slopes of 2:1 (H:V) are proposed along portions of WN Connector for all build alternatives. All proposed cut slopes are 2:1 (H:V). At locations where existing slopes are steeper than 2:1 (H:V), proposed slopes would be graded to match the existing condition. This Project is planned to process an advisory exception and obtain Caltrans District 3 Landscape Architect approval for any slopes steeper than 4:1 (H:V). Due to the existing roadway width and limited right-of-way, new retaining walls would be constructed to achieve the desired final roadway width. The grading and retaining wall details would be developed during the PS&E phase.

Replacement landscaping and vegetation for slope stabilization would be placed wherever existing landscaping is disturbed. Further information on vegetated surfaces would be

provided during the design phase of the Project and receive concurrence from the Caltrans District 3 Landscape Architect.

The need for hard surface erosion control measures would be determined during the design phase and would include slope paving where standard erosion control measures are deemed to be inadequate to protect slopes, RSP and energy dissipation devices at culvert outlets, and ditch lining if concentrated flow velocities result in erosion of slopes.

Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4

Concentrated flow conveyance systems, such as ditches, berms, swales, overside drains, flared end sections, outlet protection, and velocity dissipation devices would be considered for this Project. Dikes would likely be required in areas where slopes are steeper than 4:1 (H:V) to divert sheet flow and are needed to route runoff to existing and proposed drainage inlets. Outlet protection and velocity dissipation devices would be placed at all outlets of drainage systems that discharge into earth-lined ditches/basins. The existing roadway drainage systems would either be modified or be removed and replaced by new systems. The modifications to existing drainage facilities would likely result in changes in the interception of surface runoff. The goal of the drainage design is to maintain the existing flow patterns and to minimize the increase in runoff flow volumes to the maximum extent practicable. Proposed drainage facilities would be developed during the PS&E phase.

Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

Existing mature vegetation and landscaping would be protected in place where possible. Areas of clearing and grubbing would be limited to those areas impacted by new construction. Studies to determine environmentally sensitive areas are currently being conducted and will be discussed in the PS&E phase Storm Water Data Report. Details of the areas to be preserved will be shown in the Project plans to be developed during the PS&E phase.

Existing wetlands would be preserved during construction with the use of ESA fencing. Existing wetlands that cannot be preserved would be mitigated with appropriate measures to be developed during the PS&E phase.

5. Proposed Permanent Treatment BMPs to be used on the Project

Treatment BMP Strategy, Checklist T-1

This Project is required to consider the use of treatment BMPs because this Project is a major reconstruction project and would result in the addition of 1 acre or more of impervious area. Dry weather flow diversion, gross solids removal devices and traction sand traps were not considered for this Project because there is no dry weather diversion, no receiving water bodies on the 303(d) List for trash, and traction sand is not regularly applied to I-80 or SR 65 in the Project area. The potentially feasible treatment devices for this Project are

biofiltration devices, infiltration devices, detention devices, Austin vault sand filters, Delaware filters, multi-chambered treatment trains, and wet basins.

The Project is not expected to result in an increase of greater than 50 percent of the existing impervious surface. Within Caltrans' right-of-way, the Project team is proposing treatment equal to the added impervious areas. Table 1 breaks down the impervious areas by alternative. Conceptual treatment BMP locations have been identified and are listed in Table 9, along with percent water quality flow (WQF) infiltrated for bioswales and biostrips or percent water quality volume (WQV) infiltrated for detention devices. Conceptual Treatment Plans and preliminary calculations using infiltration Tool (Version 3.01.034) are included in the Supplemental Attachments of this report.

Preliminary calculations show that 83 to 100 percent of WQF can be infiltrated with biostrips and 12 to 34 percent of WQF can be infiltrated with bioswales by using soil amendments. Because infiltration is less than 50 percent with bioswales, infiltration devices, detention devices, and Austin sand filters would be considered and further studied in the next phase.

Table 9. Treatment BMP Summary Table

BMP ID	Alignment	Lt/Rt	Approximate Station	Treated Impervious Area (ac)	WQV/ WQF infiltrated (with amended soil)	Potential BMP Type
1	ME1	Lt	58+00	0.36	21	Bioswale
2	ME1	Lt	60+00	0.50	28	Bioswale
3	ME1	Lt	62+50	1.7[1]	14	Bioswale
4	ME1	Lt	64+30	2.3[1]	13	Bioswale
5[2]	ME1	Rt	64+00	0.89[1]	14	Bioswale
6	ME1	Rt	63+75	2.1[1]	13	Bioswale
7[2]	ME1	Rt	77+00	2.9[1]	14	Bioswale
8	MW1	Lt	105+50	0.60	19	Bioswale
9	MW1	Lt	130+00	1.3[1]	16	Bioswale
10	ME1	Rt	133+00	2.3[1]	16	Bioswale
11	T1	Lt	36+50	1.1[1]	17	Bioswale
12	ME1	Rt	137+00	1.0[1]	16	Bioswale
13	MS	Lt	170+50	0.88[1]	14	Bioswale
14	MS	Lt	172+00	1.9	31	Detention Basin
15	MS	Lt	177+50	0.40	100	Biostrip
16	MS	Lt	190+50	0.93	34	Bioswale

Table 9. Treatment BMP Summary Table (continued)

BMP ID	Alignment	Lt/Rt	Approximate Station	Treated Impervious Area (ac)	WQV/ WQF infiltrated (with amended soil)	Potential BMP Type
17	MS	Lt	216+00	3.4[1]	12	Bioswale
18	MS	Rt	221+50	0.49	33	Bioswale
19	MS	Lt	226+50	1.5	83	Biostrip
20	T1	Lt	39+00	0.80	21	Bioswale
21	ME1	Rt	16+150	0.89[1]	16	Bioswale
22	ME1	Rt	16+700	1.6[1]	16	Bioswale
23	ME1	Rt	17+500	0.58	31	Bioswale
24	ME1	Lt	17+800	1.2[1]	23	Bioswale
25	ME1	Lt	18+675	1.3	20	Bioswale
26	ME1	Rt	20+650	1.2[1]	15	Bioswale

Notes:
1. Can consider other alternatives such as detention basins and Austin vault sand filters.
2. BMP 5 and 7 are proposed for Alternatives 1 and 3, but not for Alternative 2 due to construction conflict.

Based on this preliminary feasibility study, 100% of the AIA can be treated within the existing right-of-way for all three alternatives; see Table 10.

Table 10. Impervious Areas Summary

Alternative	1	2	3
Additional Impervious Area (ac)	32	29	27
Proposed Treated Impervious Area (ac)	34	30	34
Treated Impervious Area Deficit (ac)	0	0	0

BMPs were proposed in areas that avoided potential waters of the U.S. per the *Delineation of Potential Waters of the U.S. including Wetlands Report* (ICF International 2014) and mine tailings and historic foundations as provided by CH2M Hill. The proposed BMP locations are preliminary and therefore may be updated during the next phase.

Biofiltration Swales/Strips, Checklist T-1, Parts 1 and 2

Biofiltration devices that provide retention and infiltration are the most feasible treatment BMPs for the Project. To increase the retention capabilities of the biofiltration swales, the swales would be designed to include a layer of imported biofiltration soil. The proposed conceptual treatment BMPs shown in Table 9 were sized using the "T.1 Checklist Infiltration Tools v. 3.01." For retention BMPs, the Infiltration Tool was designed to estimate the percentage of WQV infiltrated by a biofiltration strip, biofiltration swale, existing pervious surface, or infiltration trench. Detailed design calculations to size the retention devices would be completed during the PS&E phase.

Infiltration Devices – Checklist T-1, Parts 1 and 4

Infiltration devices are not feasible for the majority of the Project because the soils are predominantly within HSGs C or D. Infiltration devices may be feasible for areas within HSGs A and B. Further geotechnical studies are needed to determine the actual infiltration rates of the soils in these areas. However, the existing soils can be amended, or engineered soil media can be used to increase the infiltration potential of proposed treatment BMPs in these areas. The design feasibility of infiltration devices should be further evaluated during the PS&E phase once detailed infiltration studies have been conducted and appropriate soil amendments or engineered soil mixes are developed.

Detention Devices, Checklist T-1, Parts 1 and 5

Detention devices are feasible for the Project and could be placed in the interchange areas for the purpose of achieving flow control. Soil amendments increase the infiltration capacity and water retention capabilities and help reduce runoff from the site. The possibility of amending the soils of the detention devices would be explored during the next phase.

Media Filters, Checklist T-1, Parts 1 and 8

Austin sand media filters are feasible for the Project and could be placed in the interchange areas where there is adequate space to place the device with a volume equal to at least the water quality volume with the minimum 3-foot hydraulic head. There are no anticipated groundwater conflicts in the ramp loop areas if either an earthen or concrete base is used. The design feasibility of Austin sand filters should be further investigated during the PS&E phase when the existing drainage facilities have been surveyed and proposed drainage facilities and outfalls have been established.

Delaware filters remove fine sediment, particulate-associated pollutants, and sometimes dissolved pollutants. Delaware filters are also ranked fourth for general pollutant removal and are only to be considered after detention devices have been determined to be infeasible. Delaware filters were determined to not be feasible for this Project as detention devices are feasible for the Project.

Multi-Chambered Treatment Trains (MCTTs), Checklist T-1, Parts 1 and 9

Multi-Chambered Treatment Trains (MCTTs) use three treatment mechanisms in three different chambers. These include a catch basin with a sump pump, a sedimentation chamber with tube settlers and sorbent pads, and a filtering chamber lined with media. MCTTs also are ranked fourth for general pollutant removal and are to be considered only when both detention basins and media filters have been determined to be infeasible. MCTTs were developed for treatment of stormwater at critical source areas, such as vehicle service facilities, parking areas, paved storage areas and fueling stations. MCTTs were determined to not be feasible for this Project as detention basins and media filters are feasible for the Project and there is no critical source area available for the project.

Wet Basins, Checklist T-1, Parts 1 and 10

Wet basins are permanent pools of water designed to mimic naturally occurring wetlands. The main distinction between constructed and natural wetlands is that constructed wetlands are placed in upland areas and are not subject to wetland protection regulations.

Wet basins are ranked second for consideration for general pollutant removal but to be considered only when biofiltration strips have been determined to be infeasible. Wet basins were determined to be infeasible for this Project, as biofiltration devices are feasible for the Project, and a permanent source of water in sufficient quantities is not available.

6. Proposed Temporary Construction Site BMPs to be used on Project

The Project risk level is identified as 2. The risk level would be confirmed as detailed information on the Project geometry and schedule become available during the PS&E phase. This section presents the temporary construction site BMP strategy to be considered for this Project to meet both current Caltrans criteria and the requirements presented in the CGP.

Risk Level Determination

All three build alternatives would disturb more than one acre of soil, so in accordance with the *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Order No, 2009-0009-DWQ, NPDES No. CAS000002), this Project is required to perform a risk assessment to determine the Project Risk Level.

The Caltrans Stormwater Design Application website identifies the planning watersheds within the Project limits. A map identifying the planning watersheds is included in the Required Attachments of this report. The Project risk level is determined from the sediment risk and the receiving water risk. The sediment risk factor is determined from the product of the rainfall runoff erosivity factor (R), the soil erodibility factor (K), and the length-slope factor (LS). The R factor was determined from the U.S. EPA "Stormwater Phase II Final Rule Construction Rainfall Erosivity Waiver" Fact Sheet 3.1 (EPA 833-F-00-014, Revised March 2012). The K and LS factors were determined from the Caltrans Stormwater Design Application website. To be conservative, the maximum K and LS values within each planning watershed were used to determine the sediment risk. The construction period is assumed to span from 2020 to 2036, with each construction phase lasting approximately 2 years. The sediment risk was calculated using a 2-year construction duration. The factors used to determine the planning watershed sediment risk are included in Required Attachments of this report and summarized in Table 11.

Table 11. Risk Level Determination by Planning Watersheds

PM Limit	Planning watershed	California Isoerodent Map	EI Index	R	K	LS	Sediment Risk	Receiving Water Risk	Risk Level
I-80 PM 1.9-6.1 and SR 65 PM R4.8-R5.58	Undefined	50	21	100	0.2	0.85 to 1.48	Medium (29.6)	High	2
SR 65 PM R5.58 to R7.3	Undefined			100	0.2	1.37	Medium (27.4)	Low	2

Source: Caltrans

The Hydrologic Sub-area 519.21 has the beneficial uses of COLD, SPAWN, and MIGRATORY, and therefore, the receiving water risk for that planning watershed is high. The other

undefined planning watershed from SR 65 PM R5.58 to R7.3 is not a sediment-sensitive water body and therefore has a low receiving water risk.

Table 11 summarizes the sediment and receiving water risks for each planning watershed, as well as the corresponding risk levels. The risk levels presented are based on planning level information available at the time of preparation of this report; the Project may contain planning watersheds with Risk Level 2.

The actual planning watershed or single Project Risk Level would be determined in the next submittal, revised in the design phase, and coordinated with Caltrans District 3.

Storm Water Pollution Prevention Plan

A Storm Water Pollution Prevention Plan (SWPPP) would be prepared by the Contractor and approved by the Caltrans Resident Engineer prior to the start of construction. The SWPPP includes the development of a Construction Site Monitoring Program that presents procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, and pH. Risk Level 2 and 3 projects are also required to prepare Rain Event Action Plans (REAPs) prior to an anticipated rain event, perform stormwater sampling at all discharge locations during a qualifying rain event, comply with numeric action levels and prepare annual reports detailing BMP and sampling efforts.

REAPs are required for this Project. REAPs should be developed prior to an anticipated rain event. The quantities for REAPs would be determined during the PS&E phase when the construction schedule has been refined. The nearest weather station that may be used to develop these quantities is in Rocklin, 2.3 miles to the northeast. These weather stations were identified using the Caltrans Stormwater Design Application website.

Construction Site BMP Strategy

The construction period for each Project phase would be determined during the PS&E phase. Whenever possible, the scheduling of earth-disturbing construction activities would not be made during anticipated rain events. To mitigate any potential runoff or run-on within the Project area, construction site BMPs would be installed prior to the start of construction or as early as feasibly possible during construction.

DSAs would be protected in accordance with the Project's pollution control measures. Measures to be considered for this Project would be detailed during the PS&E phase. The construction site BMP strategy for this Project would consist of the following:

- Soil Stabilization Measures
- Sediment Control Measures
- Tracking Control
- Non-stormwater Management Measures

- General Construction Site Management
- Stormwater Sampling and Analysis

Storm drain inlet protection would be deployed throughout the Project at all existing, temporary, and permanent drainage inlets.

There are areas adjacent to creeks that would be designated as ESAs and protected with temporary high visibility fencing such temporary fence or temporary reinforced silt fence.

Currently, Antelope Creek and Miners Ravine are the water bodies where in-water work is planned and where temporary creek diversion or dewatering is expected. Construction within other creek channels or at cross culvert locations may be necessary, so temporary stream crossings, clear water diversions, and dewatering would be considered as appropriate; details for these systems would be developed during the PS&E phase. Construction windows would be specified in the permits. A project-specific WDR is not expected for the proposed work at identified perennial waterways.

There is potential for wind erosion. Off-site tracking of sediment would be limited by placing stabilized construction entrances in combination with regular street sweeping and vacuuming. Stabilized construction roadways would be used to provide access for construction activities. Locations of these tracking-control BMPs would be considered during the design phase.

Various waste management, materials handling, and other housekeeping BMPs would be used throughout the duration of the Project. Stockpiles of various kinds are anticipated and would be maintained with the appropriate BMPs. These efforts would be covered under the job site management lump sum for the Project. The lump sum cost would be included in the cost estimate prepared during the PS&E phase.

7. Maintenance BMPs (Drain Inlet Stenciling)

Drain inlet stenciling is not required along the mainline of I-80 and SR 65 because pedestrian and bicycle traffic is prohibited. Stenciling may be required for proposed inlets where the ramps intersect with local roads because there is potential for pedestrian and bicycle access. The locations of drain inlet stenciling would be identified on the design plans to be prepared during the PS&E phase.

Maintenance access to all BMP areas would be coordinated with the Caltrans Maintenance Area Manager and incorporated into the Project design to be developed during the PS&E phase.

Required Attachments

- Vicinity Map
- Evaluation Documentation Form (EDF)
- Risk Level Determination Documentation

Supplemental Attachments

Note: Supplemental Attachments are to be supplied during the SWDR approval process; where noted, some of these items may only be required on a project-specific basis.

- Storm Water BMP Cost Summary
- BMP cost information from: Project Planning Cost Estimate (PPCE) during PID and PA/ED project phases; Preliminary Engineer's Cost Estimate (PECE) for PS&E project phase
- Plans showing BMP Deployment (i.e. Layout Sheets, Drainage Sheets, Water Pollution Control Sheets, etc.)
- Checklist SW-1, Site Data Sources
- Checklist SW-2, Storm Water Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water BMPs
- Checklists DPP-1, Parts 1–5 (Design Pollution Prevention BMPs) [only those parts that are applicable]
- Checklists T-1, Parts 1–10 (Treatment BMPs) [only those Parts that are applicable]

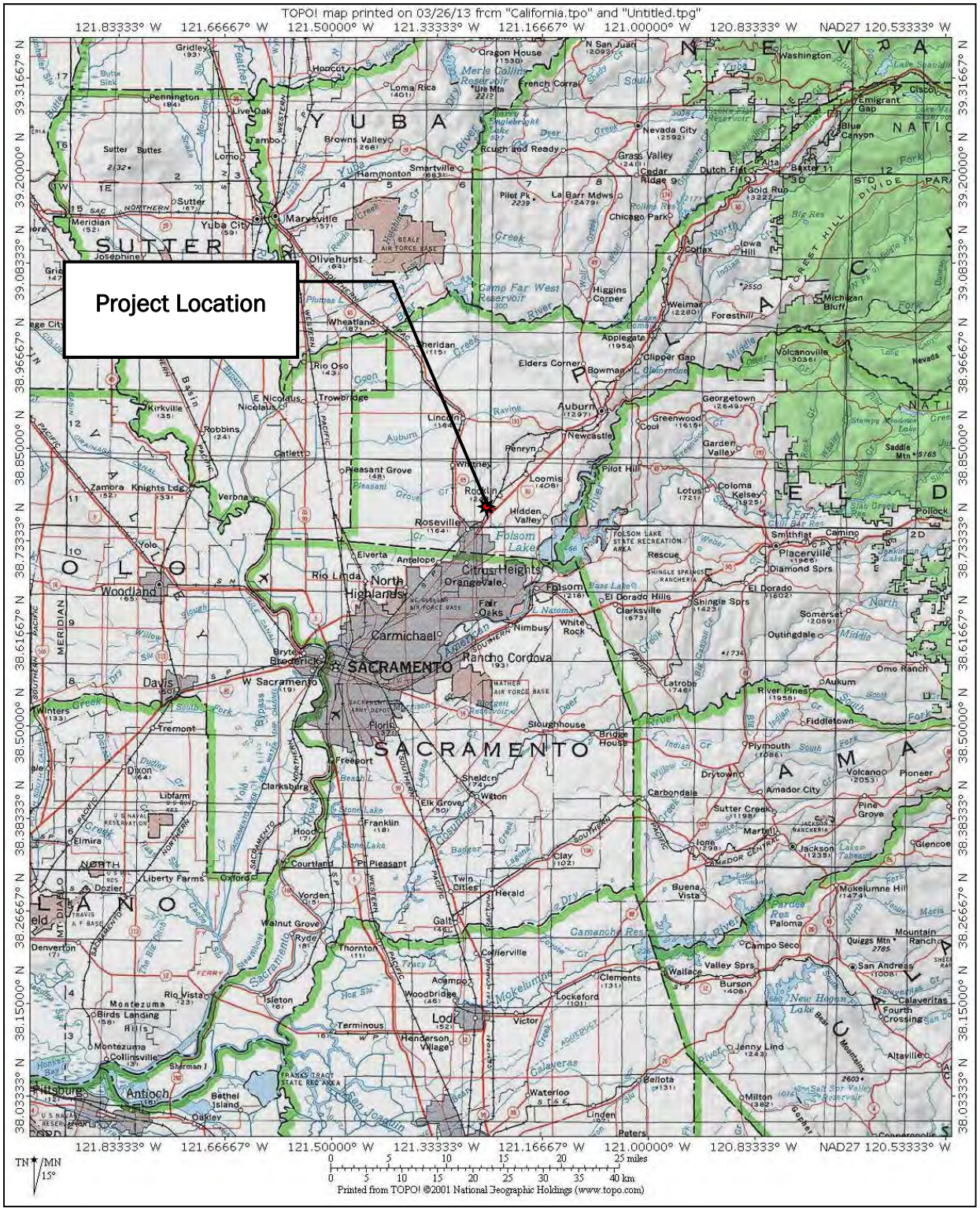

Figure 1. Location Map

Source: United States Geological Survey

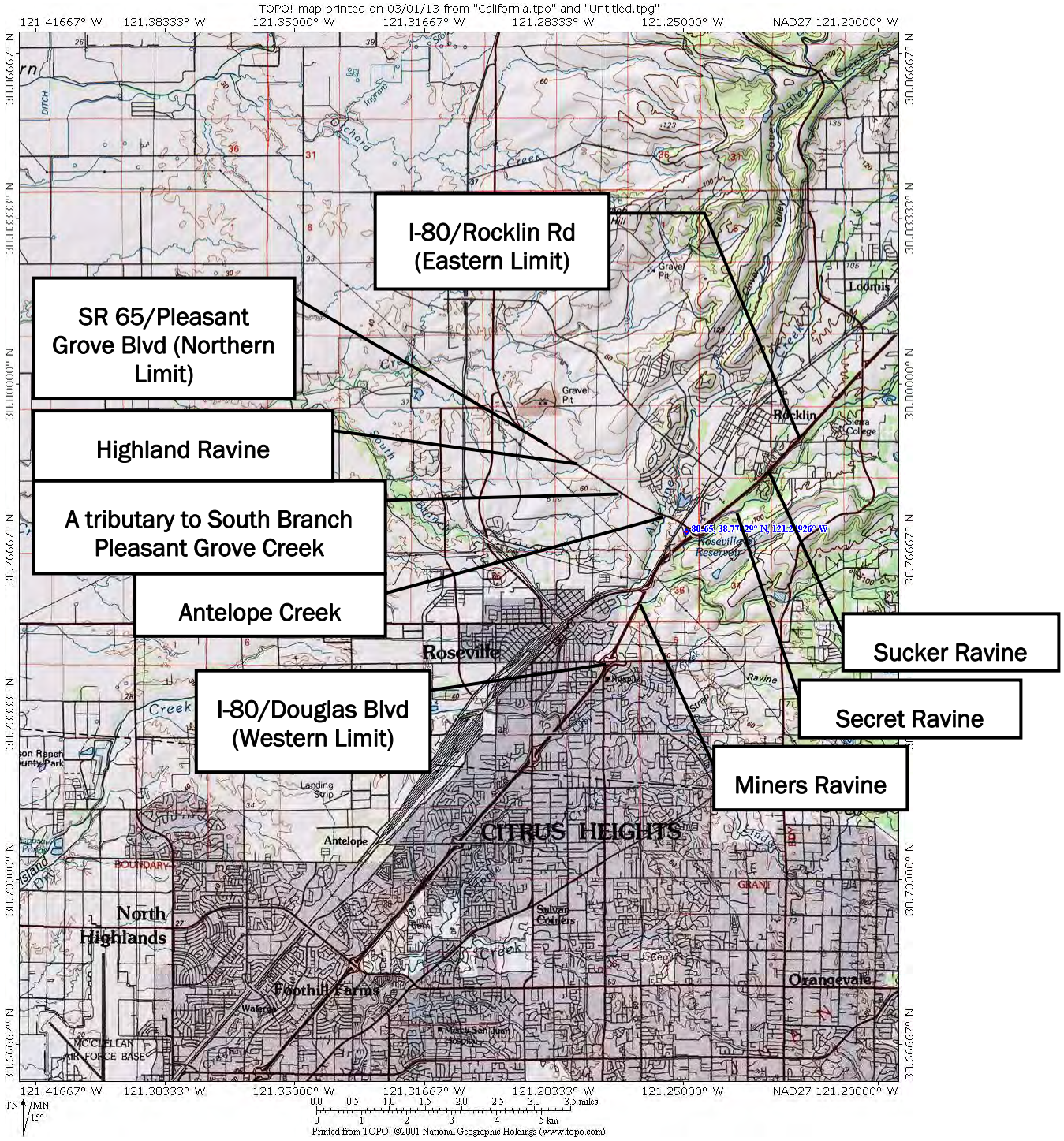

Figure 2. Vicinity Map

Source: United States Geological Survey

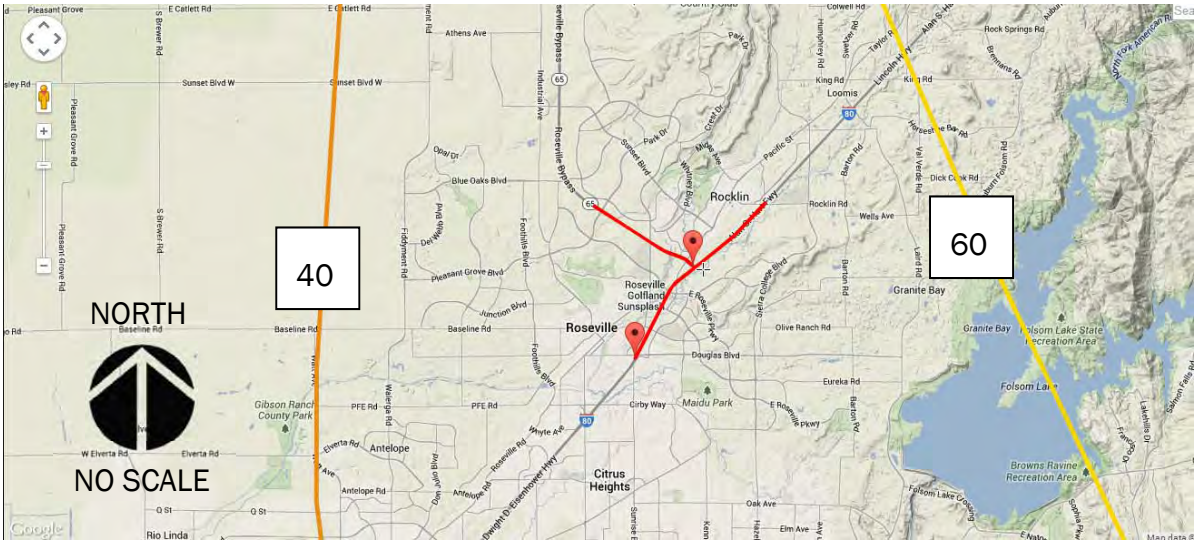

Figure 3. California Isoerodent Map

Source: Caltrans

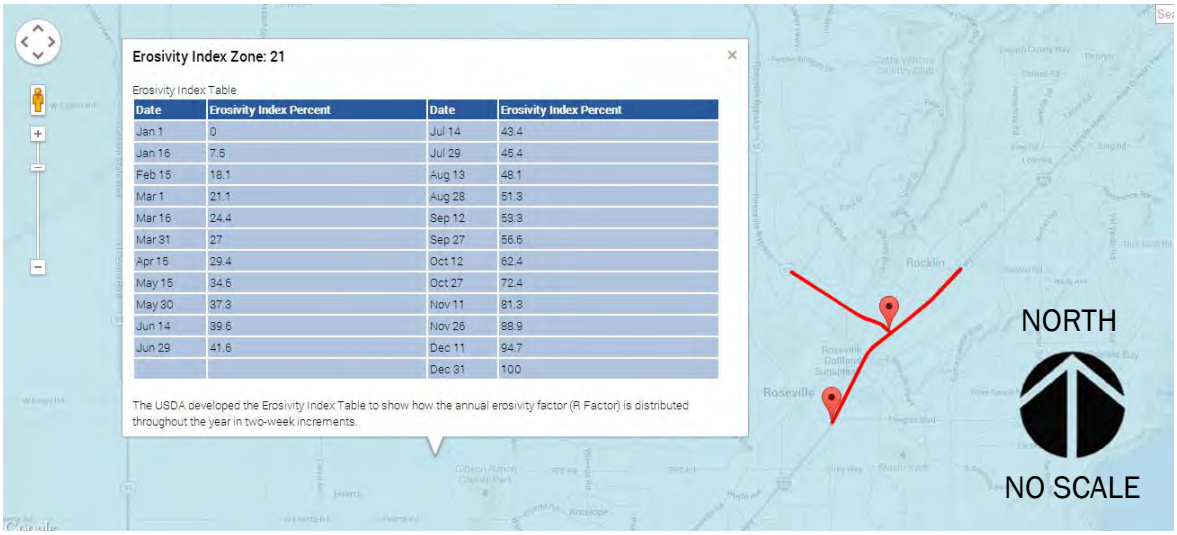

Figure 4. Erosivity Index Zone Map

Source: Caltrans

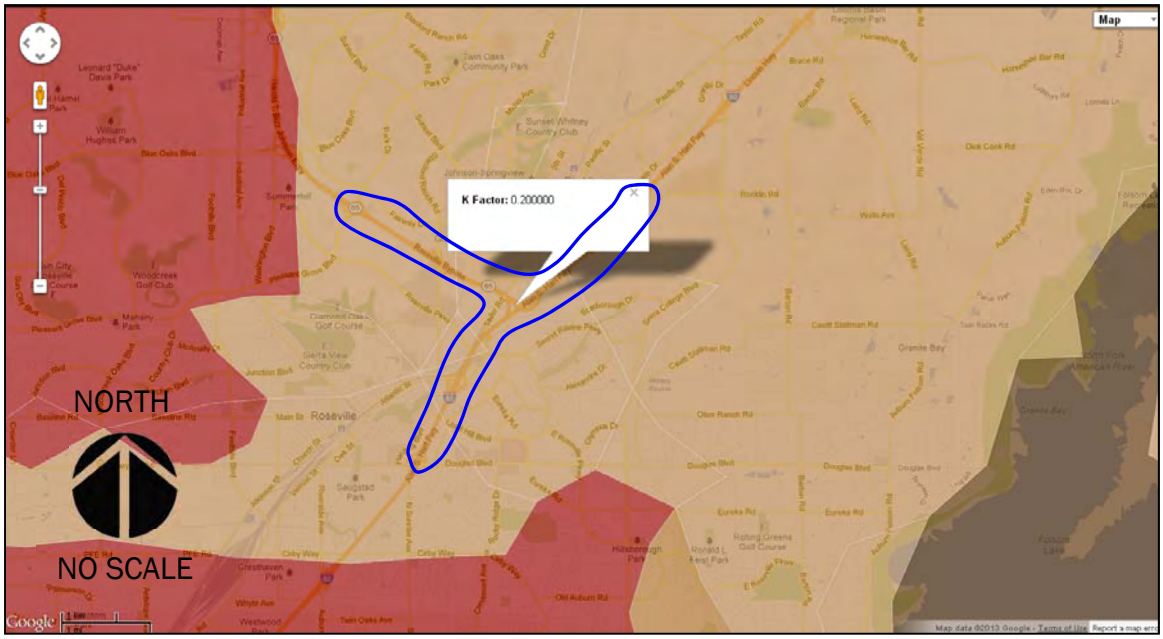

Figure 5. K Factor

Source: Caltrans

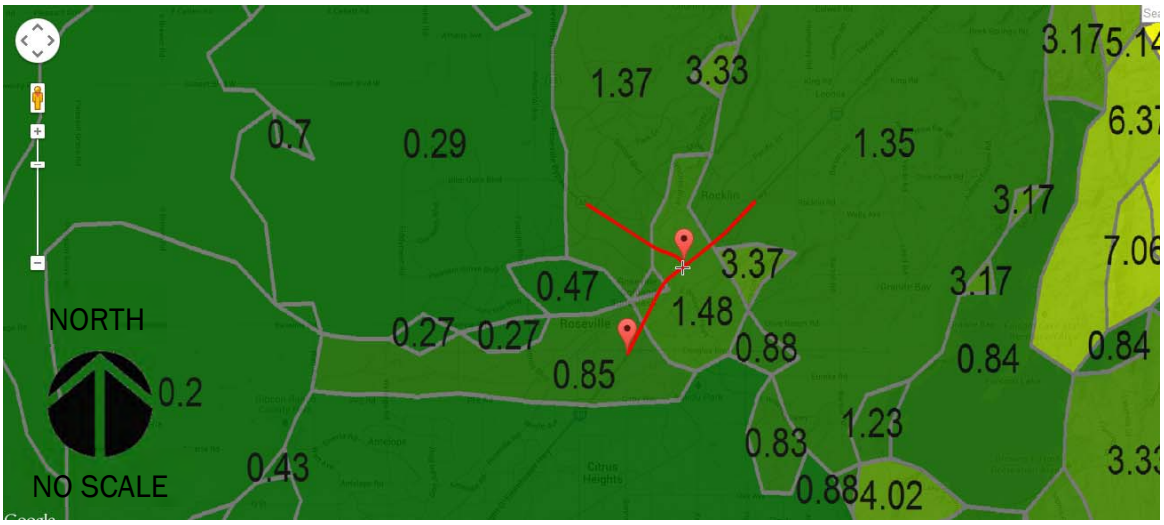

Figure 6. LS Factor

Source: Caltrans

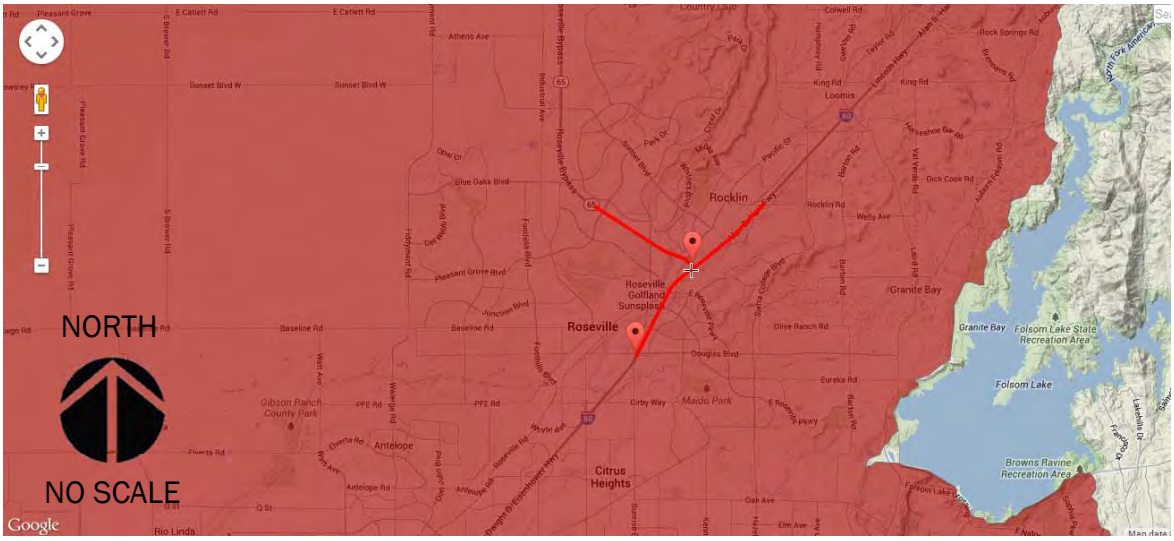

Figure 7. Receiving Water Risk

Source: Caltrans

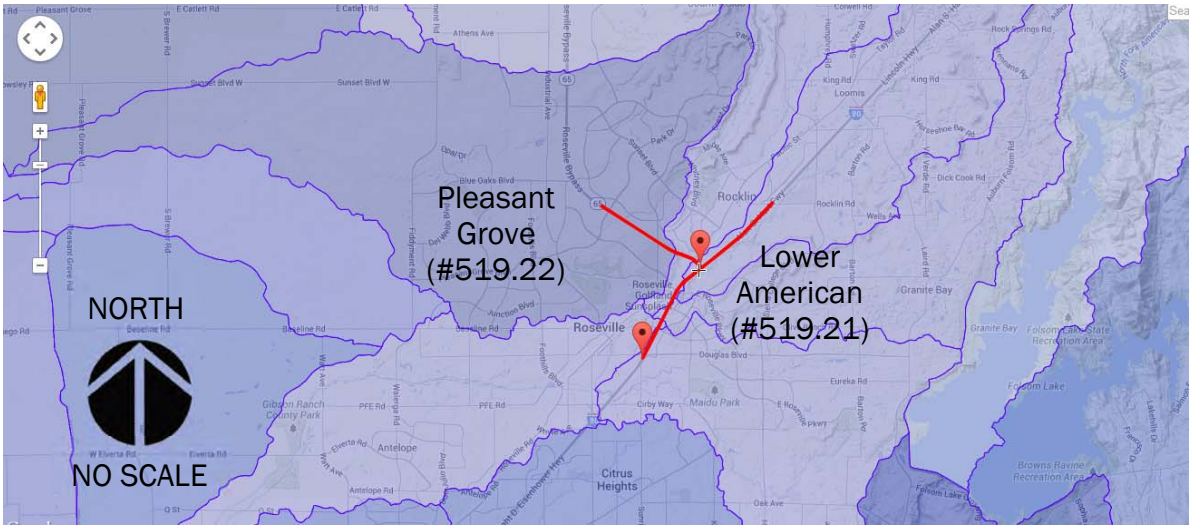

Figure 8. Watershed Boundary Dataset

Source: Caltrans

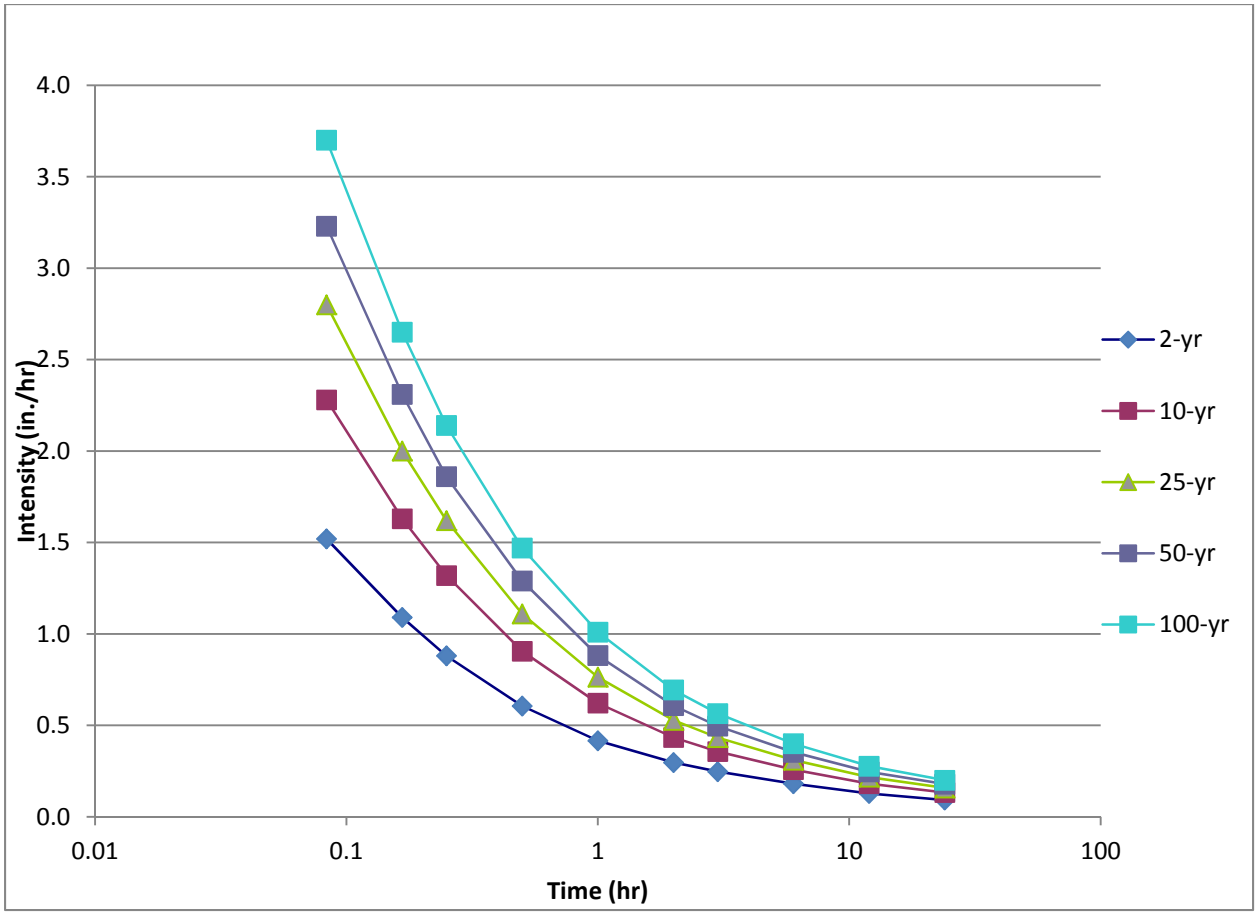

Figure 9. IDF Curves

Source: NOAA

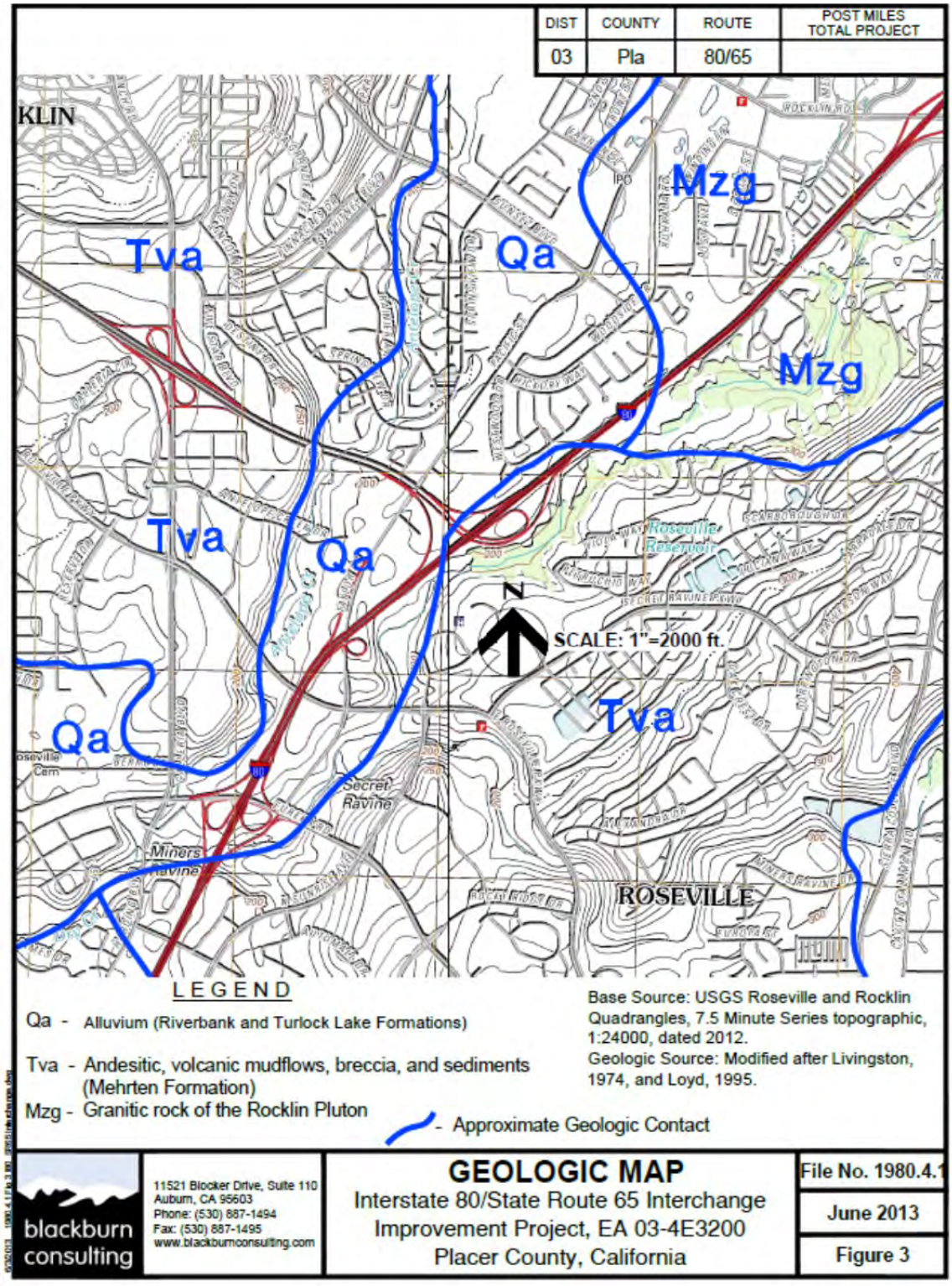

Figure 10. Geologic Map of the Project Area

Source: Blackburn Consulting 2013

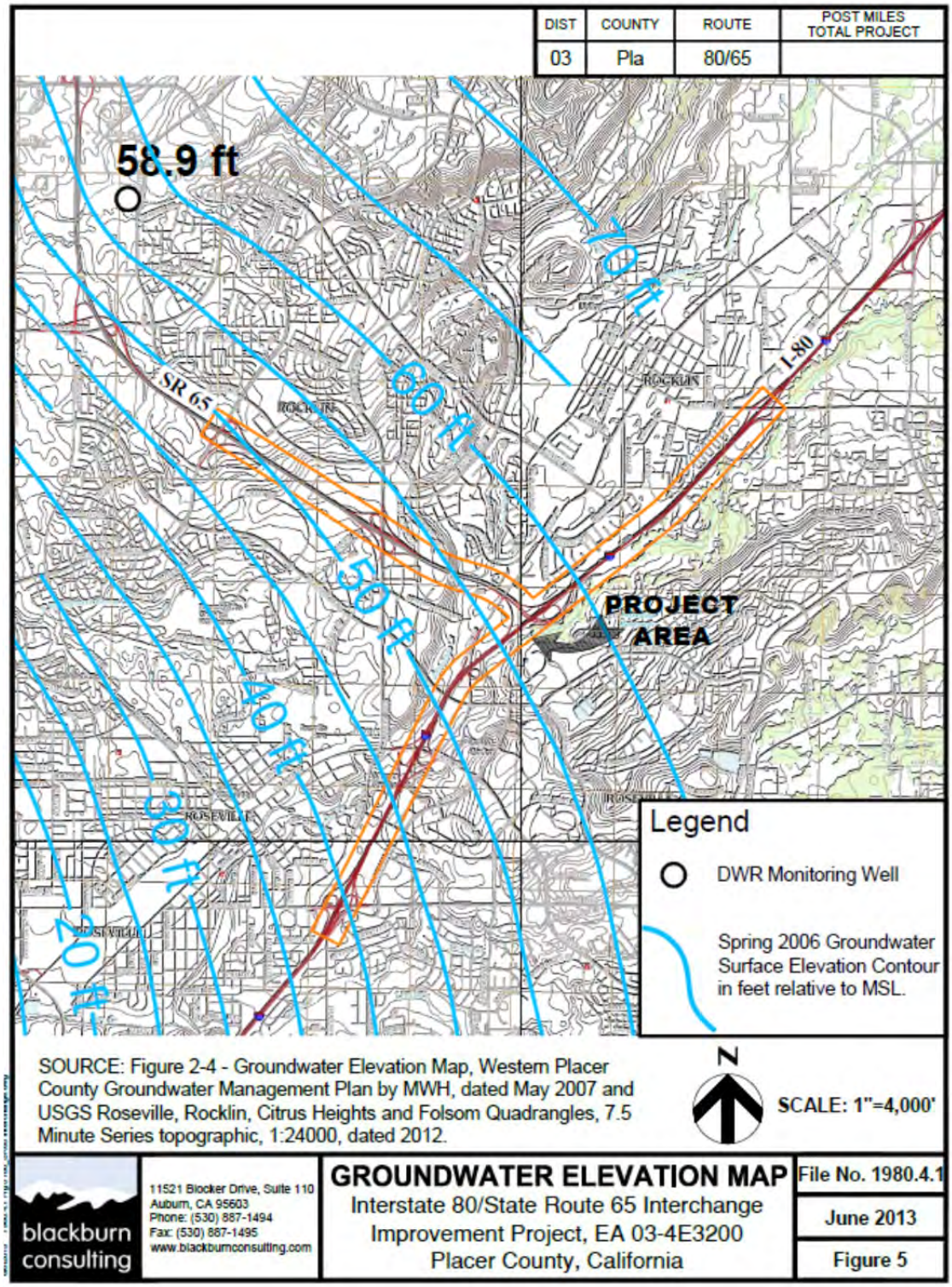

Figure 11. Groundwater Elevation Map

Source: Blackburn Consulting 2013

DATE: _____July 2014__

Project ID (or EA): _____03-4E3200_____

NO.	CRITERIA	YES ✓	NO ✓	SUPPLEMENTAL INFORMATION FOR EVALUATION
1.	Begin Project Evaluation regarding requirement for consideration of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs. Go to 2
2.	Is this an emergency project?		✓	If **Yes**, go to 10. If **No**, continue to 3.
3.	Have TMDLs or other Pollution Control Requirements been established for surface waters within the project limits? Information provided in the water quality assessment or equivalent document.	✓		If **Yes**, contact the District/Regional NPDES Coordinator to discuss the Department's obligations under the TMDL (if Applicable) or Pollution Control Requirements, go to 9 or 4. _____ *(Dist./Reg. SW Coordinator initials)* If **No**, continue to 4.
4.	Is the project located within an area of a local MS4 Permittee?	✓		If **Yes**. *(Phase II MS4 Area)*, go to 5. If **No**, document in SWDR go to 5.
5.	Is the project directly or indirectly discharging to surface waters?	✓		If **Yes**, continue to 6. If **No**, go to 10.
6.	Is it a new facility or major reconstruction?	✓		If **Yes**, continue to 8. If **No**, go to 7.
7.	Will there be a change in line/grade or hydraulic capacity?			If **Yes**, continue to 8. If **No**, go to 10.
8.	Does the project result in a net increase of one acre or more of new impervious surface?	✓		If **Yes**, continue to 9. If **No**, go to 10. *32 ac (Alt 1), 29 ac (Alt 2) and 27 ac (Alt 3) (Net Increase New Impervious Surface)*
9.	Project is required to consider approved Treatment BMPs.	✓		See Sections 2.4 and either Section 5.5or 6.5 for BMP Evaluation and Selection Process. Complete Checklist T-1 in this Appendix E.
10.	Project is not required to consider Treatment BMPs. _____*(Dist./Reg. Design SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*			Document for Project Files by completing this form, and attaching it to the SWDR.

See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs

Storm Water BMP Cost Summary

THIS INFORMATION IS FOR **CALTRANS INTERNAL USE ONLY**

Project Na	**I-80/SR 65 Interchange Improvements Project**
District:	**3**
County:	**Pla**
Route:	**I-80/ SR 65**
Limits:	**(I-80) PM 1.9-6.1; (SR-65) PM R4.8-R7.3**
Project ID	**(EA) 4E3200**

Alternative 1

1.0 DPP BMPs

Total Construction Cost	Assumed Cost			
$162,610,000	1.00%	**SUBTOTAL**	$	1,626,100

2.0 Treatment BMPs

Total Construction Cost	Assumed Cost			
$162,610,000	1.50%	**SUBTOTAL**	$	2,439,150

3.0 Prepare SWPPP (or WCPC)

Total Construction Cost	Cost per Table F-6			
$162,610,000	$71,000	**SUBTOTAL**	$	71,000

Routine Quarterly Monitoring Value: $65,000

4.0 Construction Site BMPs

Total Construction Cost	1.25% per Table F-3			
$162,610,000	1.25%	**SUBTOTAL**	$	2,032,625

5.0 ROW Acquisition

Length of ROW	Unit Cost per Length			
		SUBTOTAL	$	-

5.0 Rain Event Action Plan

Each	Unit Cost			
647	$500	**SUBTOTAL**	$	323,500

6.0 Stormwater Monitoring

Project Risk Level	SWM Cost (PPDG Append F)			
2	$738,400	**SUBTOTAL**	$	738,400

7.0 Storm Water Annual Report

Each	Unit Cost			
18	$2,000	**SUBTOTAL**	$	36,000

TOTAL COST FOR STORM WATER BMPs	$	7,266,775

Note: This cost summary would cover the entire construction period that spans from 2020 to 2036.

Storm Water BMP Cost Summary

THIS INFORMATION IS FOR **CALTRANS INTERNAL USE ONLY**

Project Na	I-80/SR 65 Interchange Improvements Project
District:	3
County:	Pla
Route:	I-80/ SR 65
Limits:	(I-80) PM 1.9-6.1; (SR-65) PM R4.8-R7.3
Project ID	(EA) 4E3200

Alternative 2

1.0 DPP BMPs

Total Construction Cost	Assumed Cost			
$151,560,000	1.00%	**SUBTOTAL**	$	1,515,600

2.0 Treatment BMPs

Total Construction Cost	Assumed Cost			
$151,560,000	1.50%	**SUBTOTAL**	$	2,273,400

3.0 Prepare SWPPP (or WCPC)

Total Construction Cost	Cost per Table F-6			
$151,560,000	$71,000	**SUBTOTAL**	$	71,000

Routine Quarterly Monitoring Value: $65,000

4.0 Construction Site BMPs

Total Construction Cost	1.25% per Table F-3			
$151,560,000	1.25%	**SUBTOTAL**	$	1,894,500

5.0 ROW Acquisition

Length of ROW	Unit Cost per Length			
		SUBTOTAL	$	-

5.0 Rain Event Action Plan

Each	Unit Cost			
647	$500	**SUBTOTAL**	$	323,500

6.0 Stormwater Monitoring

Project Risk Level	SWM Cost (PPDG Append F)			
2	$738,400	**SUBTOTAL**	$	738,400

7.0 Storm Water Annual Report

Each	Unit Cost			
18	$2,000	**SUBTOTAL**	$	36,000

TOTAL COST FOR STORM WATER BMPs	$	6,852,400

Note: This cost summary would cover the entire construction period that spans from 2020 to 2036.

Storm Water BMP Cost Summary

THIS INFORMATION IS FOR **CALTRANS INTERNAL USE ONLY**

Project Na	**I-80/SR 65 Interchange Improvements Project**
District:	**3**
County:	**Pla**
Route:	**I-80/ SR 65**
Limits:	**(I-80) PM 1.9-6.1; (SR-65) PM R4.8-R7.3**
Project ID	**(EA) 4E3200**

Alternative 3

1.0 DPP BMPs

Total Construction Cost	Assumed Cost			
$150,740,000	1.00%	**SUBTOTAL**	$	1,507,400

2.0 Treatment BMPs

Total Construction Cost	Assumed Cost			
$150,740,000	1.50%	**SUBTOTAL**	$	2,261,100

3.0 Prepare SWPPP (or WCPC)

Total Construction Cost	Cost per Table F-6			
$150,740,000	$71,000	**SUBTOTAL**	$	71,000

Routine Quarterly Monitoring Value: $65,000

4.0 Construction Site BMPs

Total Construction Cost	1.25% per Table F-3			
$150,740,000	1.25%	**SUBTOTAL**	$	1,884,250

5.0 ROW Acquisition

Length of ROW	Unit Cost per Length			
		SUBTOTAL	$	-

5.0 Rain Event Action Plan

Each	Unit Cost			
647	$500	**SUBTOTAL**	$	323,500

6.0 Stormwater Monitoring

Project Risk Level	SWM Cost (PPDG Append F)			
2	$738,400	**SUBTOTAL**	$	738,400

7.0 Storm Water Annual Report

Each	Unit Cost			
18	$2,000	**SUBTOTAL**	$	36,000

TOTAL COST FOR STORM WATER BMPs	$	6,821,650

Note: This cost summary would cover the entire construction period that spans from 2020 to 2036.

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

Project Description: I-80/SR 65 SYSTEM INTERCHANGE IMPROVEMENTS

Limits: I-80 FROM DOUGLAS BLVD TO ROCKLIN ROAD AND
SR 65 FROM I-80 TO PLEASANT GROVE BLVD

Alternative: ALTERNATIVE 1 - FULL TAYLOR

Proposed Improvement (Scope): UPGRADE THE I-80/SR 65 INTERCHANGE AND ADJACENT TRANSPORTATION FACILITIES TO REDUCE TRAFFIC CONDITIONS COMPLY WITH CURRENT DESIGN STANDARDS. ALTERNATIVE 1 PROPOSES A FULL ACCESS INTERCHANGE WITHIN THE I-80/SR 65 INTERCHANGE FOOTPRINT TO PROVIDE ACCESS TO TAYLOR ROAD

TOTAL ROADWAY ITEMS	**$ 162,610,000**
TOTAL STRUCTURE ITEMS	**$ 182,250,000**
SUBTOTAL CONSTRUCTION COSTS	**$ 344,860,000**
TOTAL RIGHT OF WAY ITEMS	**$ 3,450,000**
TOTAL PROJECT CAPITAL OUTLAY COST	**$ 348,310,000**
3% COMPOUNDED TO 2027	**$ 511,505,000**

Prepared by Lauren Proctor, PE 916-286-0332 7-16-2014
Name *Phone No.* *Date*

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

CALTRANS IMPROVEMENTS

I. ROADWAY ITEMS:

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost	Section Cost
Roadway Excavation	608,130	CY	$ 25.00	$ 15,203,250	
Imported Borrow	474,700	CY	$ 15.00	$ 7,120,500	
Clearing & Grubbing	1	LS	$ 300,000.00	$ 300,000	
Existing Pavement Excavation	553,200	CY	$ 25.00	$ 13,830,000	
				Subtotal Earthwork	$ 36,453,750

Section 2 Structural Section					
HMA (Type A)	146,900	TON	$ 85.00	$ 12,486,500	
Aggregate Base Class II	149,000	CY	$ 50.00	$ 7,450,000	
Pavement Reinforcing Fabric	337,600	SQYD	$ 1.50	$ 506,400	
Minor Concrete (Curb, Gutter, Sidewalk)	600	CY	$ 485.00	$ 291,000	
Cold Plane AC Pavement	499,700	SQYD	$ 2.00	$ 999,400	
				Subtotal Structural Section	$ 21,733,300

Section 3 Drainage					
Remove Existing Drainage Facilities	1	LS	$ 300,000.00	$ 300,000	
Project Drainage	1	LS	$ 19,177,500.00	$ 19,177,500	
(X-Drains, overside, etc.)					
Ditch Excavation	1	LS	$ 200,000.00	$ 200,000	
				Subtotal Drainage	$ 19,677,500

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

Section 4 Specialty Items	Quantity	Unit	Unit Price	Item Cost	Section Cost
Retaining Walls	12,070	SF	$ 65.00	$ 784,550	
Noise Barriers	155,700	SF	$ 20.00	$ 3,114,000	
Barriers and Guardrails	10,740	LF	$ 45.00	$ 483,300	
Highway Planting	1	LS	$ 5,000,000.00	$ 5,000,000	
Replacement Planting	1	LS	$ 2,000,000.00	$ 2,000,000	
Erosion Control	1	LS	$ 335,000.00	$ 335,000	
Water Pollution Control	1	LS	$ 100,000.00	$ 100,000	
Hazardous Waste Mitigation Work	1	LS	$ 2,322,478.00	$ 2,322,478	
Storm Water Treatment BMPs	1	LS	$ 3,500,000.00	$ 3,500,000	
Prepare SWPPP	1	LS	$ 30,000.00	$ 30,000	
Storm Water Construction BMPs	1	LS	$ 1,500,000.00	$ 1,500,000	
Environmental Mitigation	1	LS	$ 250,000.00	$ 250,000	
Resident Engineer Office Space	1	LS	$ 250,000.00	$ 250,000	
				Subtotal Specialty Items	$ 19,669,328

Section 5 Traffic Items					
Lighting	1	LS	$ 5,500,000.00	$ 5,500,000	
Traffic Striping	228,300	LF	$ 5.00	$ 1,141,500	
Traffic Signs	1	LS	$ 40,000.00	$ 40,000	
Traffic Signals	1	EA	$ 300,000.00	$ 300,000	
COZEEP/FSP	780	DAYS	$ 4,000.00	$ 3,120,000	
Traffic Control	780	DAYS	$ 3,000.00	$ 2,340,000	
Public Information	1	LS	$ 100,000.00	$ 100,000	
New Ramp Meter Installation	1	LS	$ 250,000.00	$ 250,000	
Temporary Railing (Type K)	66,800	LF	$ 18.00	$ 1,202,400	
				Subtotal Traffic Items	$ 13,993,900

TOTAL SECTIONS 1 thru 5	$ 111,527,778

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

			Item Cost	Section Cost
Section 6 Minor Item				
Subtotal Sections 1-5	$ 111,527,778	x 8%	$ 8,922,200	
		Total Minor Items		$ 8,922,200
Section 7 Roadway Mobilization				
	$ 120,449,978 (Subtotal Sections 1 thru 6)	x 10%	$ 12,045,000	
		Total Roadway Mobilization		$ 12,045,000
Section 8 Roadway Additions				
Supplemental Work	$ 120,449,978 (Subtotal Sections 1 thru 6)	x 5%	$ 6,022,500	
Contingencies*	$ 120,449,978 (Subtotal Sections 1 thru 6)	x 20%	$ 24,090,000	
		Total Roadway Additions		$ 30,112,500
		TOTAL ROADWAY ITEMS (Total of Sections 1-8)		$ 162,607,478

Estimate Prepared By:	Lauren Proctor, PE	916-286-0332	7-16-2014
	(Print Name)	Phone#	Date
Estimate Checked By:	John O'Reilly	916-563-2598	7-23-2014
	(Print Name)	Phone#	Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

II. STRUCTURE ITEMS

Bridge Name	Area (Sq-Ft)	Cost/Sq-Ft	Demolition Cost	Total Cost
E80/N65 Connector	108,918	$ 275	$ 190,500	$ 30,143,000
80/65 HOV Connector	91,541	$ 275	$ -	$ 25,173,800
Miners Ravine Bridge (Widen)	1,694	$ 350	$ 7,900	$ 600,800
S65/E80 Connector	135,807	$ 275	$ 138,330	$ 37,485,300
S65/W80 Connector	11,558	$ 300	$ -	$ 3,467,400
"T" Undercrossing (Left)	11,875	$ 300	$ -	$ 3,562,500
"T" Undercrossing (Right)	14,007	$ 300	$ -	$ 4,202,100
Taylor Road OC (Replace)	35,880	$ 300	$ 338,600	$ 11,102,600
E. Roseville Viaduct	258,416	$ 250	$ 553,395	$ 65,157,400
Roseville PKWY Tieback Wall	1,184	$ 125	$ -	$ 148,000
Galleria BLVD Tieback Wall	3,694	$ 125	$ -	$ 461,700

SUBTOTAL STRUCTURES ITEMS (Sum of Total Cost for Structures)	$ 181,504,600

Railroad Related Costs:

Flagging (Day): 250 Days @ $1000/Day	$ 250,000.00	$ 250,000
Flagging (Night): 250 Nights @ $2000/Night	$ 500,000.00	$ 500,000
SUBTOTAL RAILROAD ITEMS		$ 750,000

TOTAL STRUCTURES ITEMS (Sum of Structures Items plus Railroad Items)	$ 182,254,600

Estimate Prepared By	Jennifer Elwood, PE	916-286-0267	7-16-2014
	(Print Name)	Phone #	Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

III. RIGHT OF WAY ITEMS

A.	Acquisition, including excess lands, damage to remainder(s) and Goodwill	$ 3,246,573	
B.	Project Permit Fees		
C.	Utility Relocation (Agency Share)	$ 150,000	
D.	Relocation Assistance	$ 20,000	
E.	Clearance/Demolition	$ 15,000	
F.	Title and Escrow Fees	$ 16,500	
	TOTAL RIGHT OF WAY ITEMS (Escalated Value)		**$ 3,449,000**

Anticipated Date of Right of Way Certification (Date to which values are escalated) _____

H. Construction Contract Work

Brief Description of Work:

_____

_____

_____

_____

_____

Right of Way Branch Cost Estimate for Work* _____

*This dollar amount is to be included in the Roadway and/or Structure Items of Work, as appropriate. DO NOT include in Right of Way Items.

Estimate Prepared By Lauren Proctor, PE (Print Name) 916-286-0332 Phone # 7-16-2014 Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

Project Description: I-80/SR 65 SYSTEM INTERCHANGE IMPROVEMENTS

Limits: I-80 FROM DOUGLAS BLVD TO ROCKLIN ROAD AND
Alternative: SR 65 FROM I-80 TO PLEASANT GROVE BLVD
ALTERNATIVE 2 - COLLECTOR DISTRIBUTOR RAMPS

Proposed Improvement (Scope): UPGRADE THE I-80/SR 65 INTERCHANGE AND ADJACENT TRANSPORTATION FACILITIES TO REDUCE TRAFFIC CONDITIONS COMPLY WITH CURRENT DESIGN STANDARDS. ALTERNATIVE 2 PROPOSES AN EASTBOUND COLLECTOR-DISTRIBUTOR SYSTEM TO PROVIDE ACCESS TO TAYLOR ROAD

TOTAL ROADWAY ITEMS	**$ 151,560,000**
TOTAL STRUCTURE ITEMS	**$ 194,600,000**
SUBTOTAL CONSTRUCTION COSTS	**$ 346,160,000**
TOTAL RIGHT OF WAY ITEMS	**$ 5,400,000**
TOTAL PROJECT CAPITAL OUTLAY COST	**$ 351,560,000**
3% COMPOUNDED TO 2027	**$ 516,278,000**

Prepared by	Lauren Proctor, PE	916-286-0332	7-16-2014
	Name	*Phone No.*	*Date*

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

CALTRANS IMPROVEMENTS

I. ROADWAY ITEMS:

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost	Section Cost
Roadway Excavation	188,400	CY	$ 25.00	$ 4,710,000	
Imported Borrow	847,200	CY	$ 15.00	$ 12,708,000	
Clearing & Grubbing	1	LS	$ 300,000.00	$ 300,000	
Existing Pavement Excavation	190,700	CY	$ 25.00	$ 4,767,500	
				Subtotal Earthwork	$ 22,485,500

Section 2 Structural Section					
HMA (Type A)	158,100	TON	$ 85.00	$ 13,438,500	
Aggregate Base	154,900	CY	$ 50.00	$ 7,745,000	
Pavement Reinforcing Fabric	309,700	SQYD	$ 1.50	$ 464,550	
Concrete (Curb, Gutter, Sidewalk)	540	CY	$ 485.00	$ 261,972	
Cold Plane AC Pavement	106,500	SQYD	$ 2.00	$ 213,000	
				Subtotal Structural Section	$ 22,123,022

Section 3 Drainage					
Remove Existing Drainage Facilities	1	LS	$ 300,000.00	$ 300,000	
Project Drainage (X-Drains, overside, etc.)	1	LS	$ 17,559,500.00	$ 17,559,500	
Ditch Excavation	1	LS	$ 200,000.00	$ 200,000	
				Subtotal Drainage	$ 18,059,500

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

Section 4 Specialty Items	Quantity	Unit	Unit Price	Item Cost	Section Cost
Retaining Walls	109,000	SF	$ 65.00	$ 7,085,000	
Noise Barriers	155,700	SF	$ 20.00	$ 3,114,000	
Barriers and Guardrails	29,100	LF	$ 45.00	$ 1,309,500	
Highway Planting	1	LS	$ 5,000,000.00	$ 5,000,000	
Replacement Planting	1	LS	$ 2,000,000.00	$ 2,000,000	
Erosion Control	1	LS	$ 335,000.00	$ 335,000	
Water Pollution Control	1	LS	$ 100,000.00	$ 100,000	
Hazardous Waste Mitigation Work	1	LS	$ 947,537.00	$ 947,537	
Storm Water Treatment BMPs	1	LS	$ 2,500,000.00	$ 2,500,000	
Prepare SWPPP	1	LS	$ 30,000.00	$ 30,000	
Storm Water Construction BMPs	1	LS	$ 1,500,000.00	$ 1,500,000	
Environmental Mitigation	1	LS	$ 300,000.00	$ 300,000	
Resident Engineer Office Space	1	LS	$ 250,000.00	$ 250,000	
				Subtotal Specialty Items	$ 24,471,037

Section 5 Traffic Items					
Lighting	1	LS	$ 5,500,000.00	$ 5,500,000	
Traffic Striping	737,500	LF	$ 5.00	$ 3,687,500	
Traffic Signs	1	LS	$ 40,000.00	$ 40,000	
COZEEP/FSP	780	DAYS	$ 4,000.00	$ 3,120,000	
Traffic Control	780	DAYS	$ 3,000.00	$ 2,340,000	
Public Information	1	LS	$ 100,000.00	$ 100,000	
New Ramp Meter Installation	1	LS	$ 200,000.00	$ 200,000	
Temporary Railing (Type K)	101,200	LF	$ 18.00	$ 1,821,600	
				Subtotal Traffic Items	$ 16,809,100

TOTAL SECTIONS 1 thru 5	$ 103,948,159

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

			Item Cost	Section Cost
Section 6 Minor Item				
Subtotal Sections 1-5	$ 103,948,159	x 8%	$ 8,315,900	
		Total Minor Items		$ 8,315,900
Section 7 Roadway Mobilization				
	$ 112,264,059 (Subtotal Sections 1 thru 6)	x 10%	$ 11,226,400	
		Total Roadway Mobilization		$ 11,226,400
Section 8 Roadway Additions				
Supplemental Work	$ 112,264,059 (Subtotal Sections 1 thru 6)	x 5%	$ 5,613,200	
Contingencies*	$ 112,264,059 (Subtotal Sections 1 thru 6)	x 20%	$ 22,452,800	
		Total Roadway Additions		$ 28,066,000
		TOTAL ROADWAY ITEMS (Total of Sections 1-8)		$ 151,556,459

Estimate Prepared By:	Lauren Proctor, PE	916-286-0267	7-16-2014
	(Print Name)	Phone#	Date
Estimate Checked By:	John O'Reilly	916-563-2598	7-23-2014
	(Print Name)	Phone#	Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

II. STRUCTURE ITEMS

Bridge Name	Area (Sq-Ft)	Cost/Sq-Ft	Demolition Cost	Total Cost
NB SR-65 On Ramp ("CD3")	8,736	$ 300	$ -	$ 2,620,800
EB I-80 On Ramp ("CD4")	35,867	$ 300	$ -	$ 10,760,100
E80/N65 Connector ("EN")	115,185	$ 275	$ 190,500	$ 31,866,400
80/65 HOV Connector ("HOV")	90,888	$ 275	$ -	$ 24,994,200
Miners Ravine Bridge ("CD1")	9,547	$ 300	$ -	$ 2,864,100
S65/E80 Connector ("SE")	130,581	$ 275	$ 138,300	$ 36,048,100
Taylor Road OC (Replace) "TR"	41,177	$ 300	$ 338,600	$ 12,691,700
Eureka Road On Ramp UC	17,820	$ 350	$ -	$ 6,237,000
E. Roseville Viaduct	258,416	$ 250	$ 553,395	$ 65,157,400
Roseville PKWY Tieback Wall	1,184	$ 125	$ -	$ 148,000
Galleria BLVD Tieback Wall	3,694	$ 125	$ -	$ 461,700

SUBTOTAL STRUCTURES ITEMS (Sum of Total Cost for Structures)		$ 193,849,500
Railroad Related Costs:		$ -
Flagging (Day): 250 Days @ $1000/Day	$ 250,000.00	$ 250,000
Flagging (Night): 250 Nights @ $2000/Night	$ 500,000.00	$ 500,000
SUBTOTAL RAILROAD ITEMS		$ 750,000
TOTAL STRUCTURES ITEMS (Sum of Structures Items plus Railroad Items)		$ 194,599,500

Estimate Prepared By Jennifer Elwood, PE (Print Name) 916-286-0267 Phone # 7-16-2014 Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

III. RIGHT OF WAY ITEMS

		2008 VALUE
A.	Acquisition, including excess lands, damage to remainder(s) and Goodwill	$ 2,750,252
B.	Project Permit Fees	
C.	Utility Relocation (Agency Share)	$ 2,300,000
D.	Relocation Assistance	$ 20,000
E.	Clearance/Demolition	$ 150,000
F.	Title and Escrow Fees	$ 180,000

TOTAL RIGHT OF WAY ITEMS **$ 5,400,260**
(Escalated Value)

Anticipated Date of Right of Way Certification
(Date to which values are escalated)

F. Construction Contract Work

Brief Description of Work:

Right of Way Branch Cost Estimate for Work*

*This dollar amount is to be included in the Roadway and/or Structure Items of Work, as appropriate. DO NOT include in Right of Way Items.

Estimate Prepared By Lauren Proctor, PE '916-286-0332 7-16-2014
(Print Name) Phone # Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

Project Description: I-80/SR 65 SYSTEM INTERCHANGE IMPROVEMENTS

Limits: I-80 FROM DOUGLAS BLVD TO ROCKLIN ROAD AND
Alternative: SR 65 FROM I-80 TO PLEASANT GROVE BLVD
ALTERNATIVE 3 - TAYLOR ROAD INTERCHANGE ELIMINATED

Proposed Improvement (Scope): UPGRADE THE I-80/SR 65 INTERCHANGE AND ADJACENT TRANSPORTATION FACILITIES TO REDUCE TRAFFIC CONDITIONS COMPLY WITH CURRENT DESIGN STANDARDS. ALTERNATIVE 3 REMOVES THE EXISITNG TAYLOR ROAD INTERCHANGE. TAYLOR ROAD WOULD BE ACCESSED FROM THE ADJACENT INTERCHANGES

TOTAL ROADWAY ITEMS	**$ 150,740,000**
TOTAL STRUCTURE ITEMS	**$ 185,910,000**
SUBTOTAL CONSTRUCTION COSTS	**$ 336,650,000**
TOTAL RIGHT OF WAY ITEMS	**$ 5,400,000**
TOTAL PROJECT CAPITAL OUTLAY COST	**$ 342,050,000**
3% COMPOUNDED TO 2027	**$ 502,312,000**

Prepared by	Dave Melis, PE	916-363-4210	7-16-2014
	Name	*Phone No.*	*Date*

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

CALTRANS IMPROVEMENTS

I. ROADWAY ITEMS:

Section 1 Earthwork	Quantity	Unit	Unit Price	Item Cost	Section Cost
Roadway Excavation	206,300	CY	$ 25.00	$ 5,157,500	
Imported Borrow	476,800	CY	$ 15.00	$ 7,152,000	
Clearing & Grubbing	1	LS	$ 300,000.00	$ 300,000	
Existing Pavement Excavation	513,100	CY	$ 25.00	$ 12,827,500	
				Subtotal Earthwork	$ 25,437,000
Section 2 Structural Section					
HMA (Type A)	162,800	TON	$ 85.00	$ 13,838,000	
Aggregate Base	163,800	CY	$ 50.00	$ 8,190,000	
Pavement Reinforcing Fabric	325,300	SQYD	$ 1.50	$ 487,950	
Minor Concrete (Curb, Gutter, Sidewalk)	1,290	CY	$ 485.00	$ 625,650	
Cold Plane AC Pavement	106,500	SQYD	$ 2.00	$ 213,000	
				Subtotal Structural Section	$ 23,354,600
Section 3 Drainage					
Remove Existing Drainage Facilities	1	LS	$ 300,000.00	$ 300,000	
Project Drainage	1	LS	$ 16,809,000.00	$ 16,809,000	
(X-Drains, overside, etc.)			.		
Ditch Excavation	1	LS	$ 200,000.00	$ 200,000	
				Subtotal Drainage	$ 17,309,000

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

Section 4 Specialty Items	Quantity	Unit	Unit Price	Item Cost	Section Cost
Retaining Walls	109,000	SF	$ 65.00	$ 7,085,000	
Noise Barriers	155,700	SF	$ 20.00	$ 3,114,000	
Barriers and Guardrails	34,000	LF	$ 45.00	$ 1,530,000	
Highway Planting	1	LS	$ 5,000,000.00	$ 5,000,000	
Replacement Planting	1	LS	$ 2,000,000.00	$ 2,000,000	
Erosion Control	1	LS	$ 335,000.00	$ 335,000	
Water Pollution Control	1	LS	$ 100,000.00	$ 100,000	
Hazardous Waste Mitigation Work	1	LS	$ 1,438,600.00	$ 1,438,600	
Storm Water Treatment BMPs	1	LS	$ 3,500,000.00	$ 3,500,000	
Prepare SWPPP	1	LS	$ 30,000.00	$ 30,000	
Storm Water Construction BMPs	1	LS	$ 1,500,000.00	$ 1,500,000	
Environmental Mitigation	1	LS	$ 25,000.00	$ 25,000	
Resident Engineer Office Space	1	LS	$ 250,000.00	$ 250,000	
				Subtotal Specialty Items	$ 25,907,600

Section 5 Traffic Items					
Lighting	1	LS	$ 5,500,000.00	$ 5,500,000	
Traffic Striping	268,600	LF	$ 5.00	$ 1,343,000	
Traffic Signs	1	LS	$ 40,000.00	$ 40,000	
COZEEP/FSP	1	LS	$ 4,000.00	$ 4,000	
Traffic Control	780	DAYS	$ 3,000.00	$ 2,340,000	
Public Information	1	LS	$ 100,000.00	$ 100,000	
New Ramp Meter Installation	1	LS	$ 200,000.00	$ 200,000	
Temporary Railing (Type K)	103,100	LF	$ 18.00	$ 1,855,800	
				Subtotal Traffic Items	$ 11,382,800

TOTAL SECTIONS 1 thru 5	$ 103,391,000

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

I. ROADWAY ITEMS (Cont'n)

			Item Cost	Section Cost
Section 6 Minor Item				
Subtotal Sections 1-5	$ 103,391,000	x 8%	$ 8,271,300	
		Total Minor Items		$ 8,271,300
Section 7 Roadway Mobilization				
	$ 111,662,300 (Subtotal Sections 1 thru 6)	x 10%	$ 11,166,200	
		Total Roadway Mobilization		$ 11,166,200
Section 8 Roadway Additions				
Supplemental Work	$ 111,662,300 (Subtotal Sections 1 thru 6)	x 5%	$ 5,583,100	
Contingencies*	$ 111,662,300 (Subtotal Sections 1 thru 6)	x 20%	$ 22,332,500	
		Total Roadway Additions		$ 27,915,600
		TOTAL ROADWAY ITEMS (Total of Sections 1-8)		$ 150,744,100

Note: Import/Export quantities do no account for shrinkage or swell.

Estimate Prepared By:	Dave Melis, PE	916-286-0267	7-16-2014
	(Print Name)	Phone#	Date
Estimate Checked By:	John O'Reilly	916-563-25922-3954	7-23-2014
	(Print Name)	Phone#	Date

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

II. STRUCTURE ITEMS

Bridge Name	Area (Sq-Ft)	Cost/Sq-Ft	Demolition Cost	Total Cost
NB SR-65 On Ramp ("CD3")	8,736	$ 300	$ -	$ 2,620,800
EB I-80 On Ramp ("CD4")	35,867	$ 300	$ -	$ 10,760,100
E80/N65 Connector ("EN")	115,185	$ 275	$ 190,500	$ 31,866,400
80/65 HOV Connector ("HOV")	90,888	$ 275	$ -	$ 24,994,200
S65/E80 Connector ("SE")	130,581	$ 275	$ 138,300	$ 36,048,100
Taylor Road OC (Replace) ("TR")	35,840	$ 300	$ 338,600	$ 11,090,600
E. Roseville Viaduct	258,416	$ 250	$ 553,395	$ 65,157,400
Miners Ravine Bridge (Widen) ("E5")	6,665	$ 300	$ 14,085	$ 2,013,600
Roseville PKWY Tieback Wall	1,184	$ 125	$ -	$ 148,000
Galleria BLVD Tieback Wall	3,694	$ 125	$ -	$ 461,700

SUBTOTAL STRUCTURES ITEMS (Sum of Total Cost for Structures)	$185,160,900

Railroad Related Costs:

Flagging (Day): 250 Days @ $1000/Day	$ 250,000.00	$ 250,000
Flagging (Night): 250 Nights @ $2000/Night	$ 500,000.00	$ 500,000
SUBTOTAL RAILROAD ITEMS		$ 750,000

TOTAL STRUCTURES ITEMS (Sum of Structures Items plus Railroad Items)	$185,910,900

Estimate Prepared By	Jennifer Elwood, PE	916-286-0267	7-16-2014
	(Print Name)	Phone #	Date

NOTE: If appropriate, attach additional pages and backup.

COST ESTIMATE SUMMARY

District-County-Route	03-PLA-80, 03-PLA-65
PM	80: 1.9-6.1/65: R4.8-R7.3
Type of Estimate	Draft PR
EA	03-4E3200

III. RIGHT OF WAY ITEMS

A.	Acquisition, including excess lands, damage to remainder(s) and Goodwill	$ 2,750,252	
B.	Project Permit Fees		
C.	Utility Relocation (Agency Share)	$ 2,300,000	
D.	Relocation Assistance	$ 20,000	
E.	Clearance/Demolition	$ 150,000	
F.	Title and Escrow Fees	$ 180,000	
	TOTAL RIGHT OF WAY ITEMS (Escalated Value)		**$ 5,400,260**

Anticipated Date of Right of Way Certification (Date to which values are escalated) _____

F. Construction Contract Work

Brief Description of Work:

_____

_____

_____

_____

_____

Right of Way Branch Cost Estimate for Work* _____

*This dollar amount is to be included in the Roadway and/or Structure Items of Work, as appropriate. DO NOT include in Right of Way Items.

Estimate Prepared By	Lauren Proctor, PE	916-286-0332	7-16-2014
	(Print Name)	Phone #	Date

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	PLA	80/65	80 1.9-6.1 65 R4.8-R7.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA

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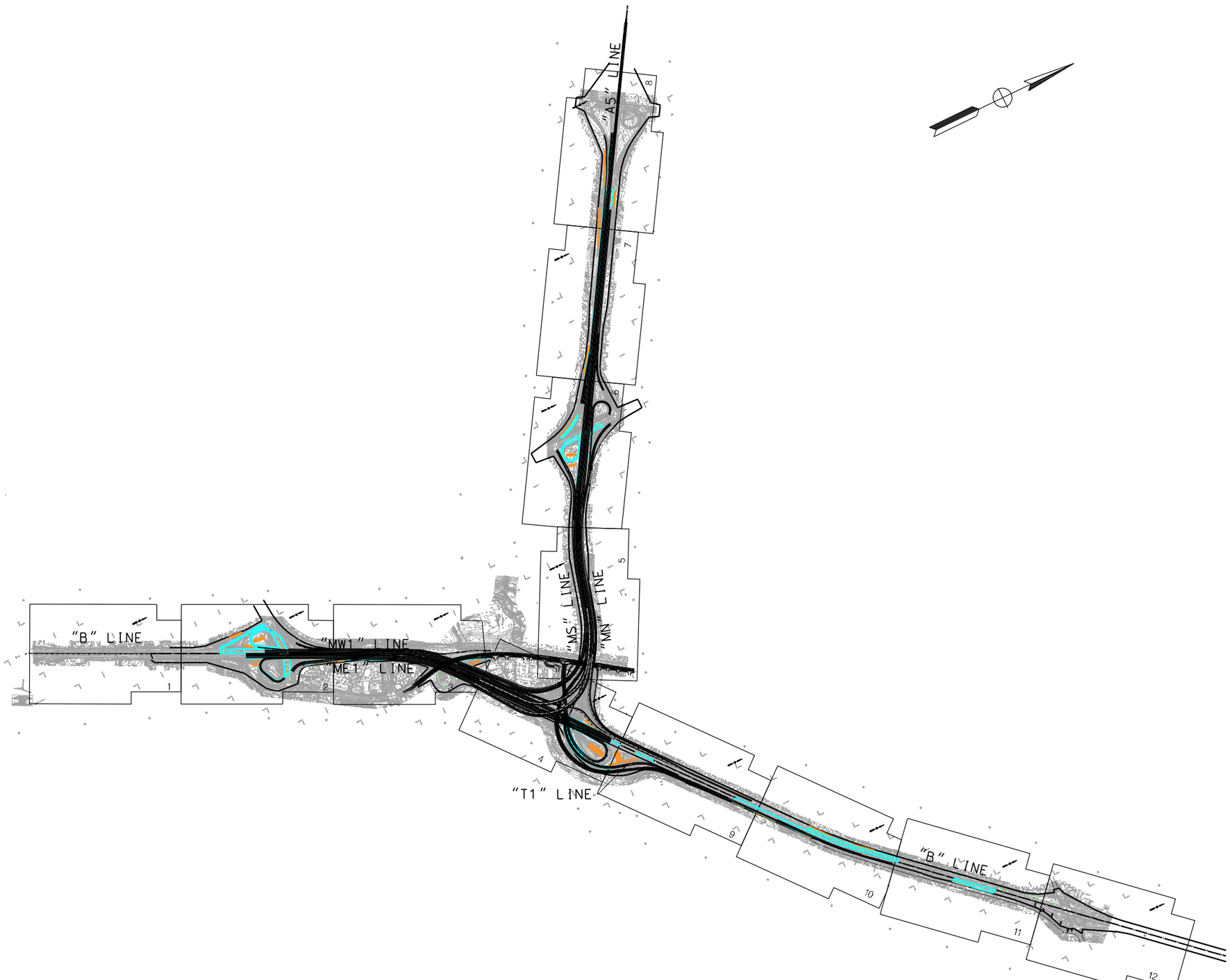

TBMP LOCATION KEY PLAN

SCALE: 1"= 1000'

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 03-27-12 | DATE PLOTTED =¢$DATE | TIME PLOTTED =¢$TIME

BORDER LAST REVISED 7/2/2010 | USERNAME =¢$USER | DGN FILE =¢$REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0714 | PROJECT NUMBER & PHASE 04120001951

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND:

POTENTIAL BMP LOCATION

APPROX TREATED IMPERVIOUS AREA

FLOW DIRECTION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	PLA	80/65	80 1.9-6.1 65 R4.8-R7.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. ____
Exp. ____
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STATE OF CALIFORNIA

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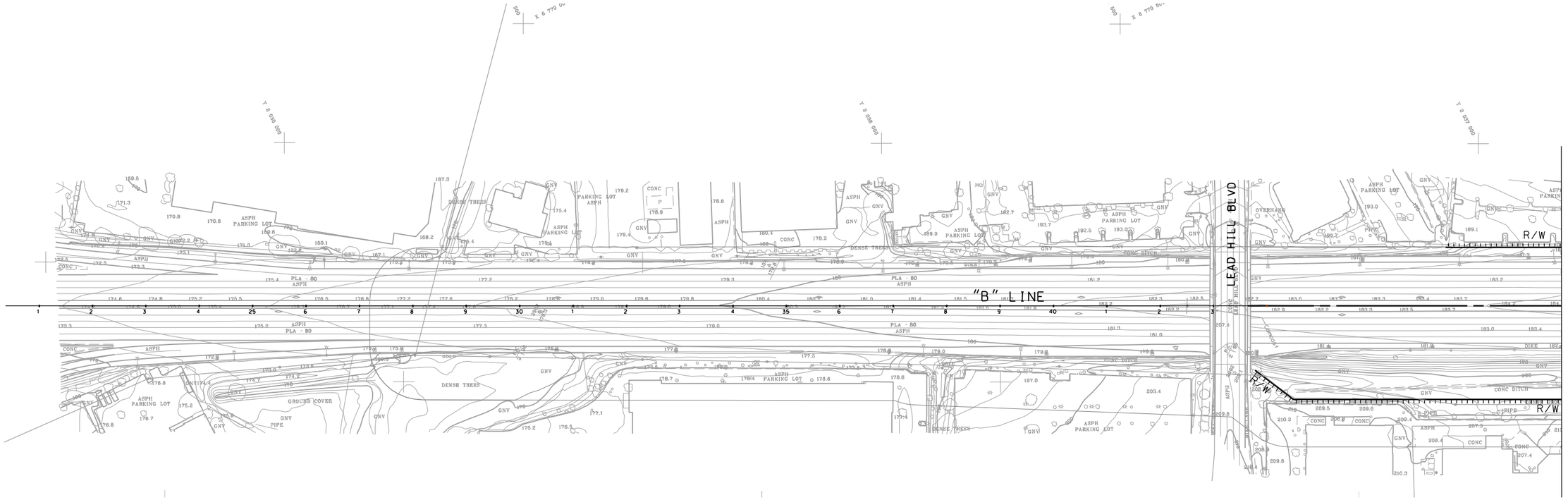

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-1

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION 03-27-12 | DATE PLOTTED ₵$DATE | TIME PLOTTED ₵$TIME

BORDER LAST REVISED 7/2/2010 | USERNAME =₵$USER | DGN FILE =₵$REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0714 | PROJECT NUMBER & PHASE 04120001951

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	PLA	80/65	80 1.9-6.1 65 R4.8-R7.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. ____
Exp. ____
CIVIL
STATE OF CALIFORNIA

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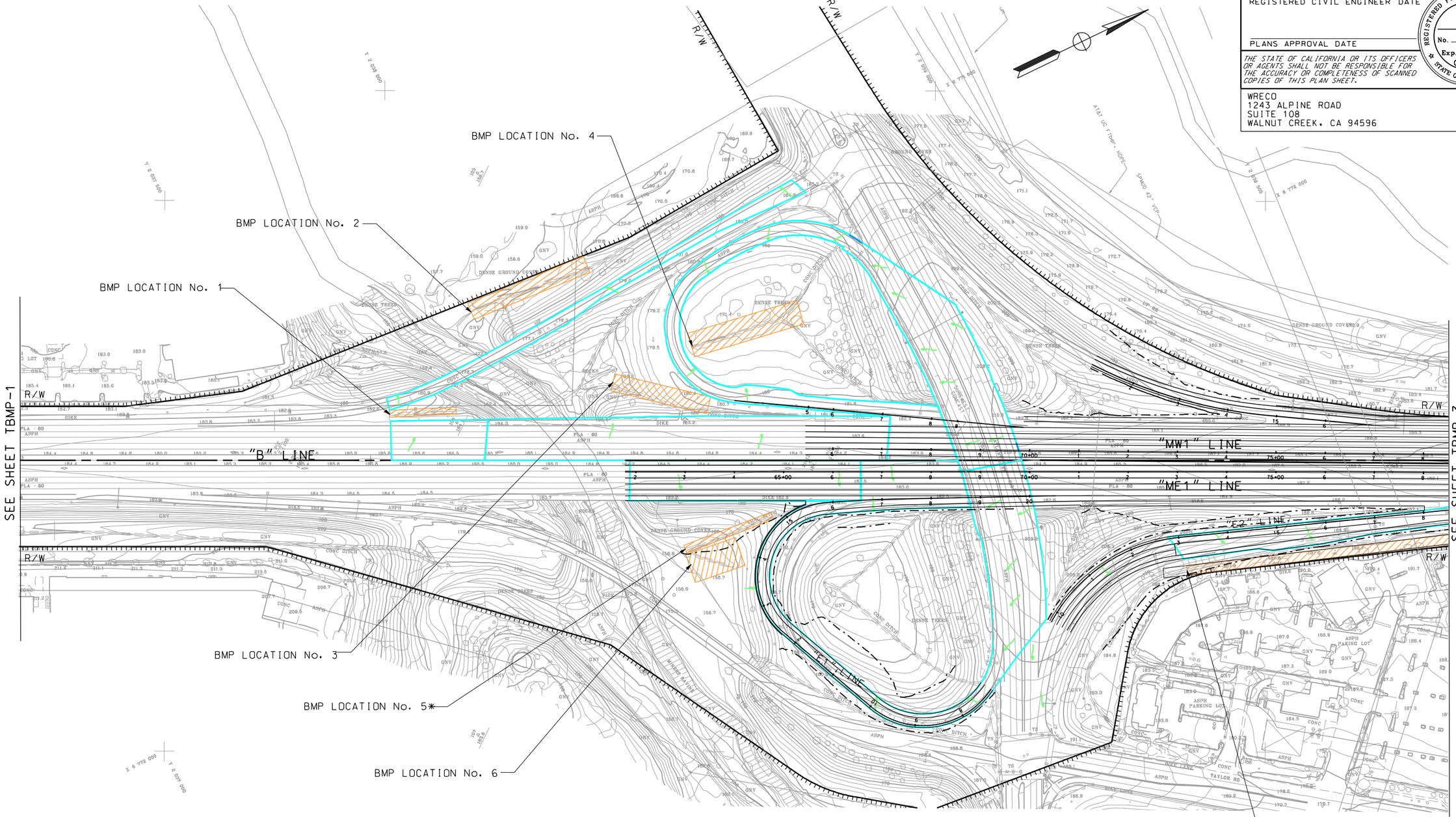

NOTE: * BMP LOCATION No. 5 AND 7 ARE PROPOSED FOR ALTERNATIVES 1 AND 3, BUT NOT FOR ALTERNATIVE 2.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-2

REVISED BY | DATE REVISED

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SUPERVISOR

CONSULTANT FUNCTIONAL

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

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NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	PLA	80/65	80 1.9-6.1 65 R4.8-R7.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA

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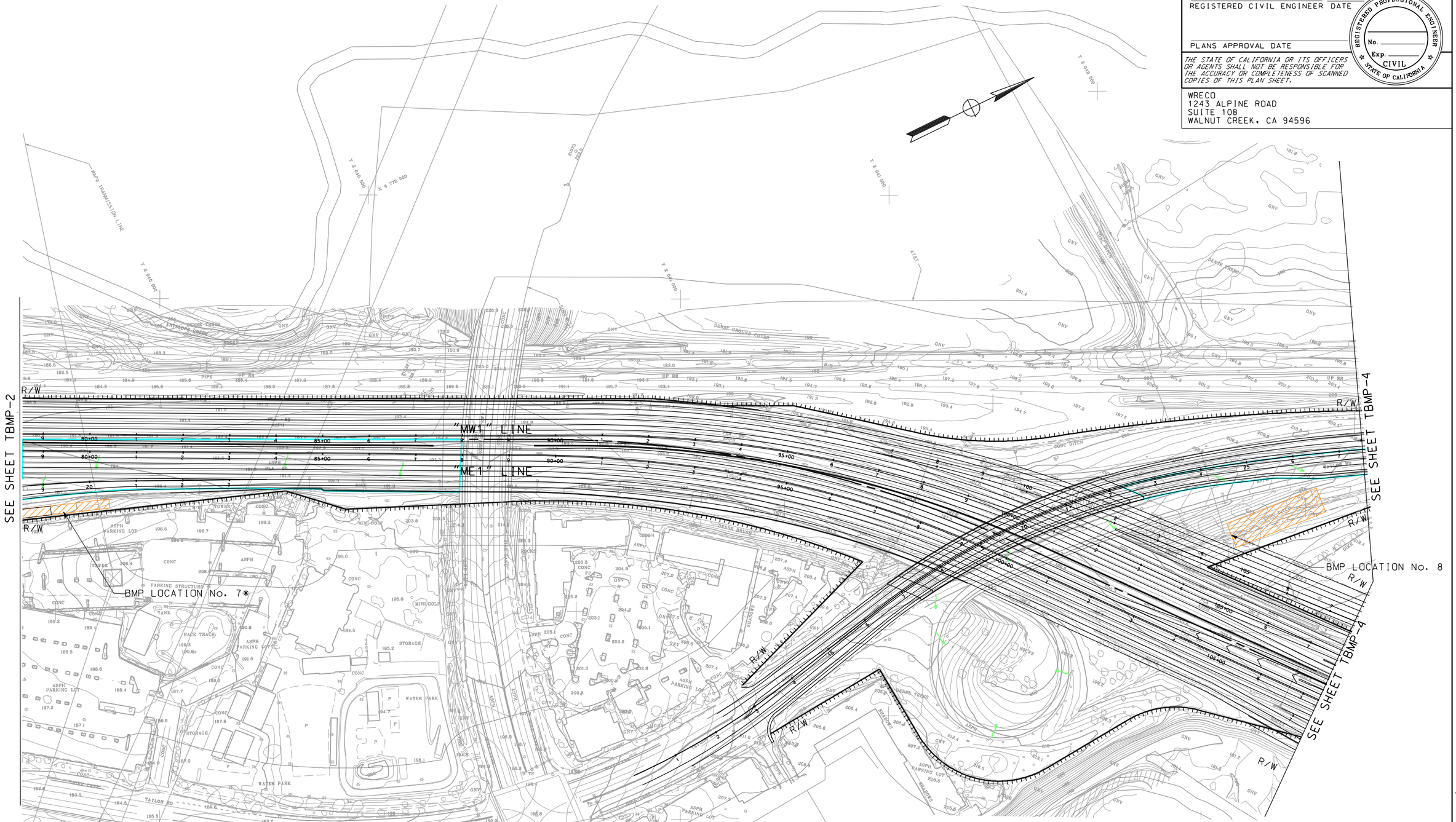

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

TBMP-3

REVISED BY | DATE REVISED

CALCULATED-
DESIGNED BY

CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION | DATE PLOTTED = $DATE
03-27-12 | TIME PLOTTED = $TIME

BORDER LAST REVISED 7/2/2010

USERNAME =$USER
DGN FILE =$REQUEST

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0714

PROJECT NUMBER & PHASE 04120001951

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	PLA	80/65	80 1.9-6.1 65 R4.8-R7.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. ____
Exp. ____
CIVIL
STATE OF CALIFORNIA

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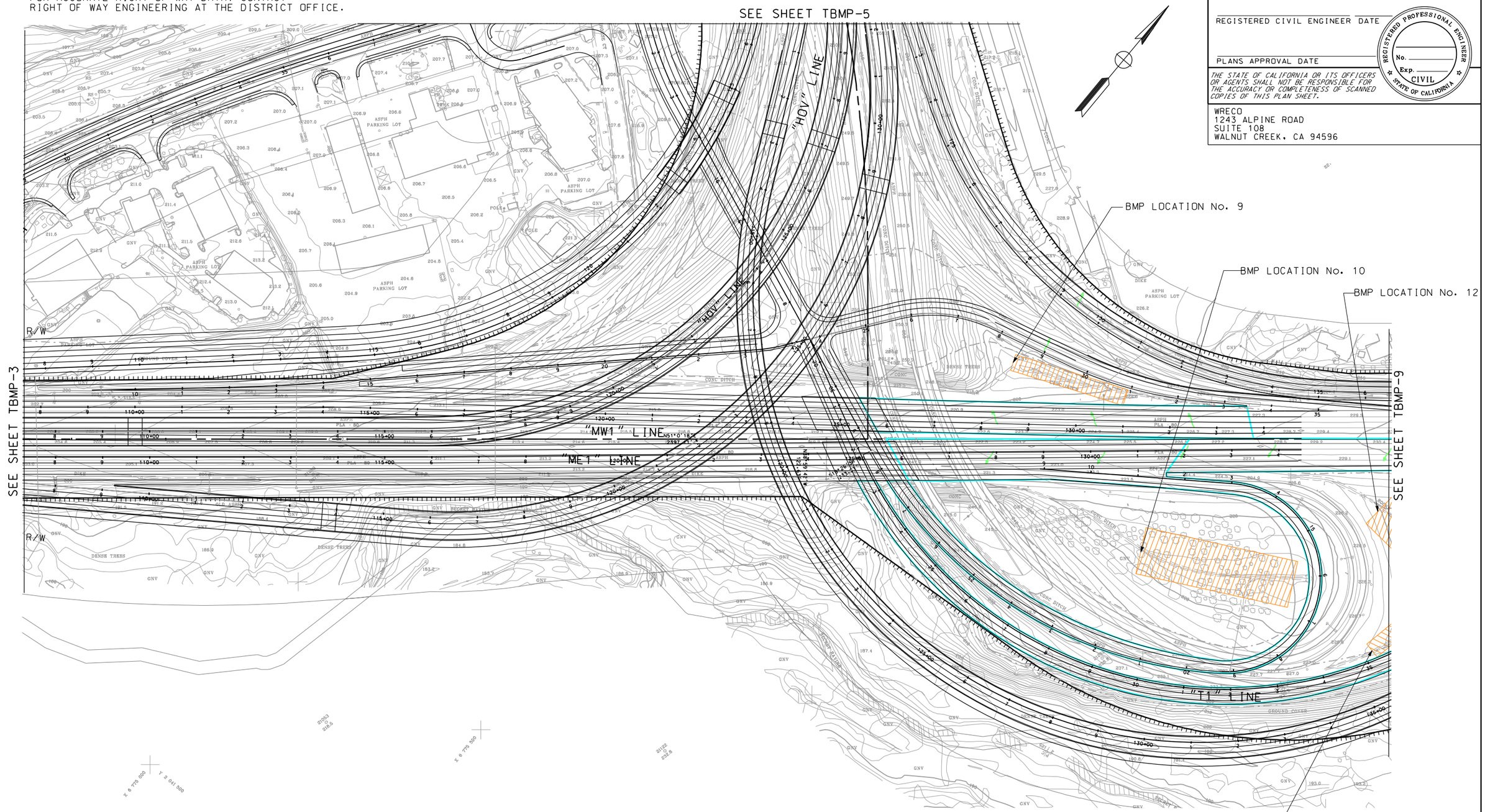

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

TBMP-4

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

CONSULTANT FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

LAST REVISION DATE PLOTTED =℄$DATE
03-27-12 TIME PLOTTED =℄$TIME

BORDER LAST REVISED 7/2/2010 | USERNAME =℄$USER | DGN FILE =℄$REQUEST | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0714 | PROJECT NUMBER & PHASE 04120001951

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	PLA	80/65	80 1.9-6.1 65 R4.8-R7.3		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

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FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CONSULTANT FUNCTIONAL SUPERVISOR
CALCULATED-DESIGNED BY
CHECKED BY
REVISED BY
DATE REVISED

LAST REVISION DATE PLOTTED =¢$DATE
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	PLA	80/65	80 1.9-6.1 65 R4.8-R7.3		

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BMP LOCATION No. 14

BMP LOCATION No. 13

BMP LOCATION No. 15

"MS" LINE

"MN" LINE

SEE SHEET TBMP-5

SEE SHEET TBMP-7

R/W

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-6

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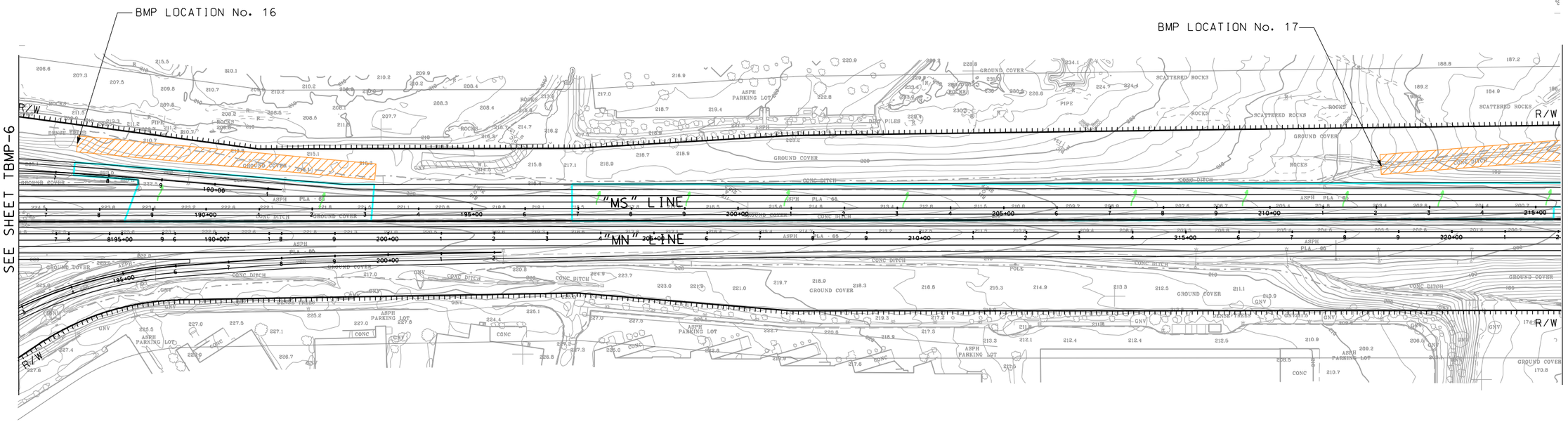

POTENTIAL TREATMENT
BMP PLAN

SCALE: 1"= 100'

TBMP-7

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

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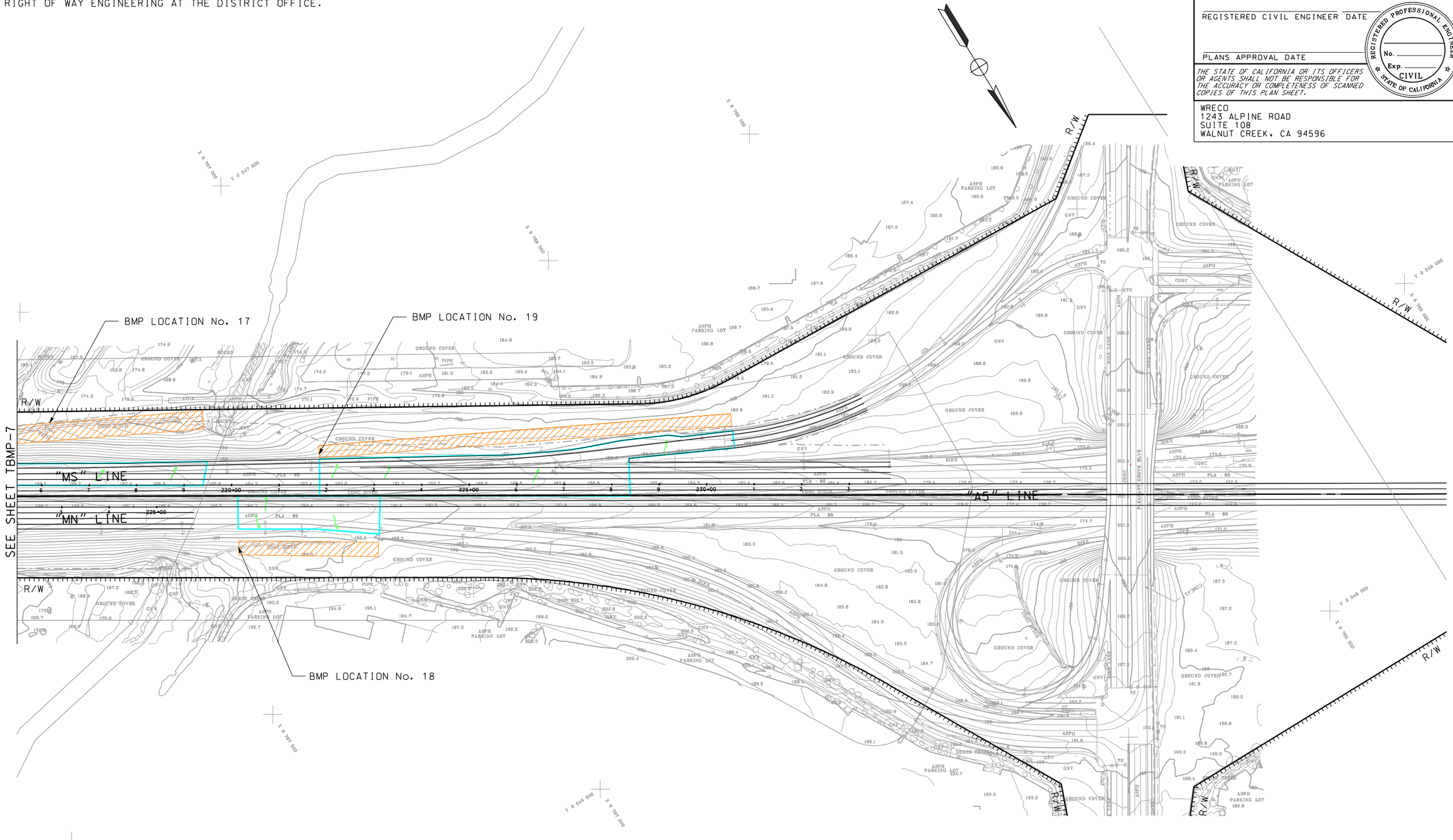

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-8

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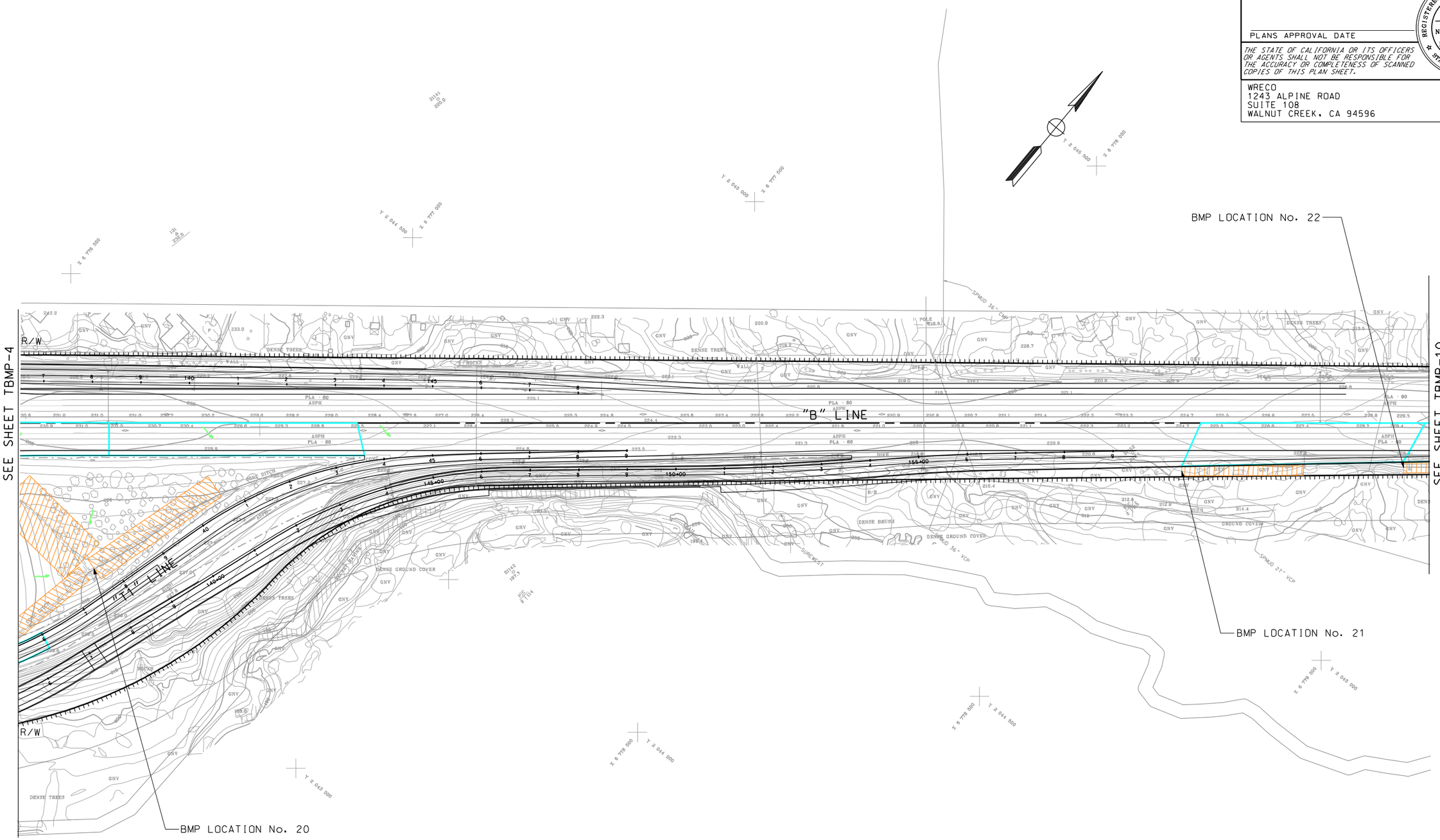

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-9

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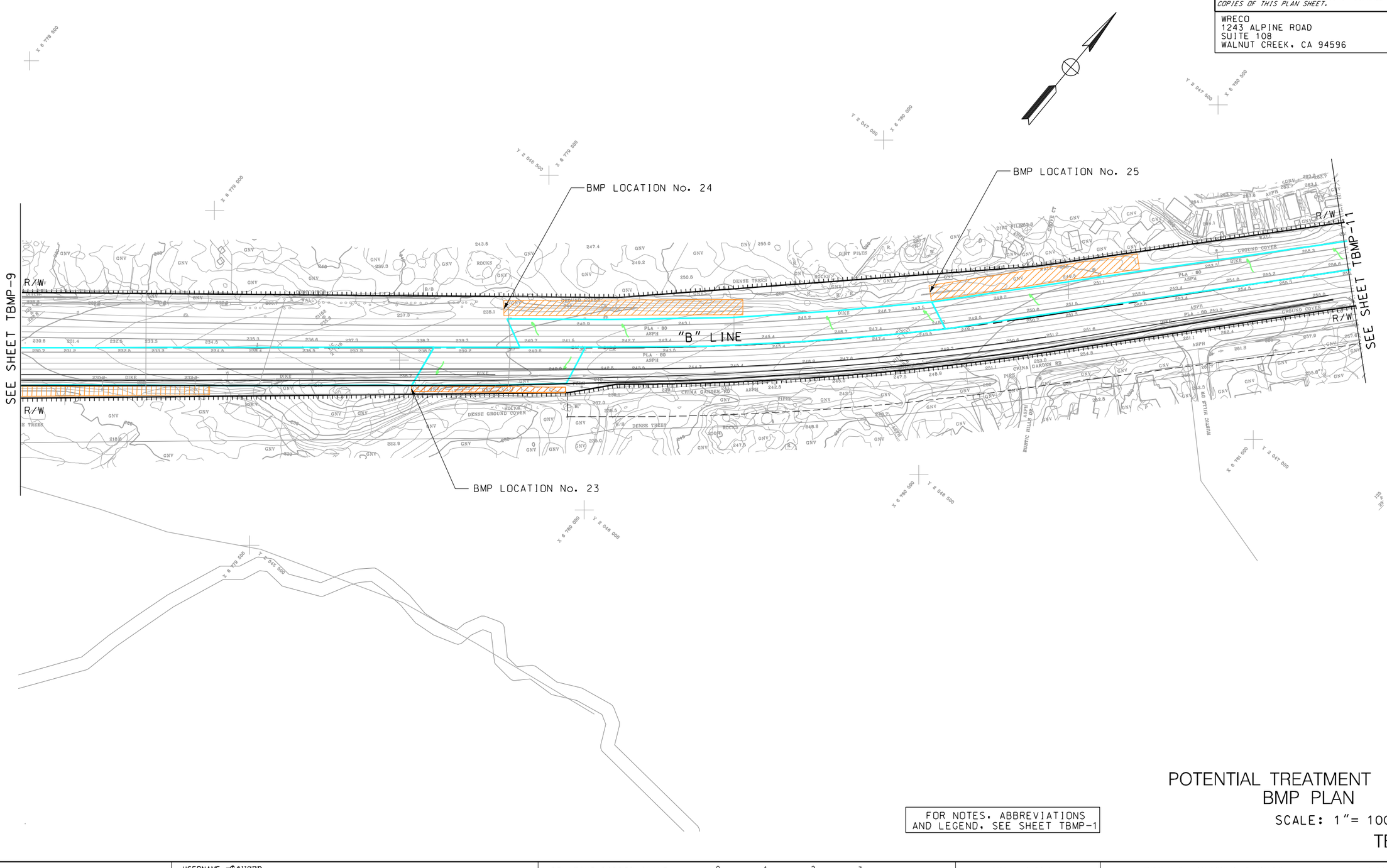

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-10

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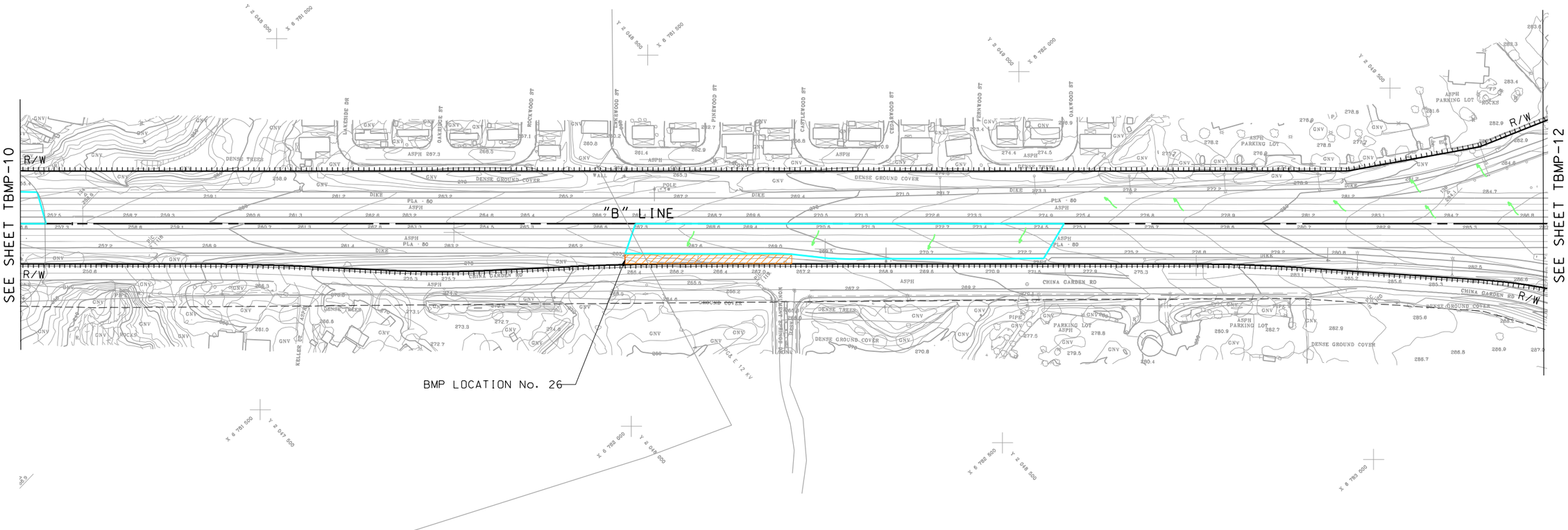

POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-11

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TBMP-1

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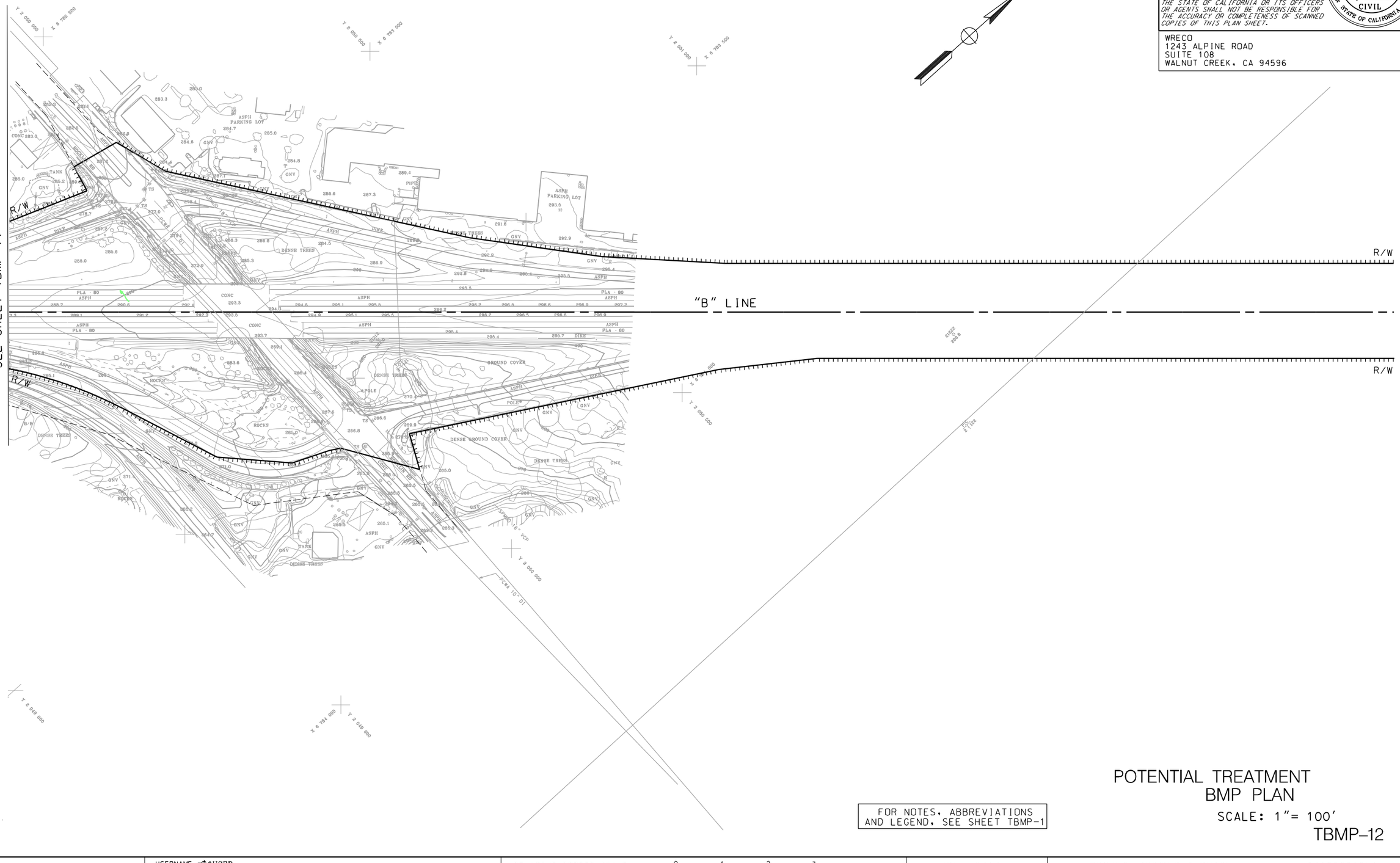

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POTENTIAL TREATMENT BMP PLAN

SCALE: 1"= 100'

TBMP-12

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RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0714

PROJECT NUMBER & PHASE 04120001951

Strip and Swale Infiltration Tool Results

Version 3.01.034

PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 1
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	15752	15752
Total impervious area	ft^2	0	15752	15752
Net new impervious (NNI) area	ft^2	0	15752	15752
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	1288	1288
WQV	ft^3	0	1288	1288
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	1350	1350
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	1350	1350
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.88	0.88
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.66	0.66
Volume of total runoff infiltrated, ft^3	ft^3	N/A	268	268
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**21%**	21%

Strip and Swale Infiltration Tool Results

Version 3.01.034

PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 2
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	21734	21734
Total impervious area	ft^2	0	21734	21734
Net new impervious (NNI) area	ft^2	0	21734	21734
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	1777	1777
WQV	ft^3	0	1777	1777
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	2537	2537
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	2537	2537
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.88	0.88
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.58	0.58
Volume of total runoff infiltrated, ft^3	ft^3	N/A	503	503
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**28%**	28%

Strip and Swale Infiltration Tool Results

Version 3.01.034

PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 3
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	71799	71799
Total impervious area	ft^2	0	71799	71799
Net new impervious (NNI) area	ft^2	0	71799	71799
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	5870	5870
WQV	ft^3	0	5870	5870
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	4000	4000
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	4000	4000
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.74	0.74
Volume of total runoff infiltrated, ft^3	ft^3	N/A	793	793
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**14%**	14%

Strip and Swale Infiltration Tool Results

Version 3.01.034

PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 4
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	98075	98075
Total impervious area	ft^2	0	98075	98075
Net new impervious (NNI) area	ft^2	0	98075	98075
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	8018	8018
WQV	ft^3	0	8018	8018
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	5100	5100
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	5100	5100
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.75	0.75
Volume of total runoff infiltrated, ft^3	ft^3	N/A	1011	1011
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**13%**	13%

Strip and Swale Infiltration Tool Results

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 5 (for Alternatives 1 and 3)
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	38676	38676
Total impervious area	ft^2	0	38676	38676
Net new impervious (NNI) area	ft^2	0	38676	38676
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	3162	3162
WQV	ft^3	0	3162	3162
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	2274	2274
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	2274	2274
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.73	0.73
Volume of total runoff infiltrated, ft^3	ft^3	N/A	451	451
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**14%**	14%

Strip and Swale Infiltration Tool Results

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 6
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	91417	91417
Total impervious area	ft^2	0	91417	91417
Net new impervious (NNI) area	ft^2	0	91417	91417
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	7473	7473
WQV	ft^3	0	7473	7473
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	4770	4770
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	4770	4770
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.75	0.75
Volume of total runoff infiltrated, ft^3	ft^3	N/A	946	946
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**13%**	13%

Strip and Swale Infiltration Tool Results

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 7 (for Alternatives 1 and 3)
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	127815	127815
Total impervious area	ft^2	0	127815	127815
Net new impervious (NNI) area	ft^2	0	127815	127815
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	10449	10449
WQV	ft^3	0	10449	10449
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	7270	7270
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	7270	7270
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.73	0.73
Volume of total runoff infiltrated, ft^3	ft^3	N/A	1441	1441
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**14%**	14%

Strip and Swale Infiltration Tool Results

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 8
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	25919	25919
Total impervious area	ft^2	0	25919	25919
Net new impervious (NNI) area	ft^2	0	25919	25919
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	2119	2119
WQV	ft^3	0	2119	2119
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	2065	2065
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	2065	2065
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.88	0.88
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.67	0.67
Volume of total runoff infiltrated, ft^3	ft^3	N/A	409	409
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**19%**	19%

Strip and Swale Infiltration Tool Results

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 9
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	55274	55274
Total impervious area	ft^2	0	55274	55274
Net new impervious (NNI) area	ft^2	0	55274	55274
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	4519	4519
WQV	ft^3	0	4519	4519
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	3750	3750
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	3750	3750
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.70	0.70
Volume of total runoff infiltrated, ft^3	ft^3	N/A	744	744
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**16%**	16%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 10
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	101779	101779
Total impervious area	ft^2	0	101779	101779
Net new impervious (NNI) area	ft^2	0	101779	101779
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	8320	8320
WQV	ft^3	0	8320	8320
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	6600	6600
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	6600	6600
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.71	0.71
Volume of total runoff infiltrated, ft^3	ft^3	N/A	1309	1309
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**16%**	16%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 11
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	48385	48385
Total impervious area	ft^2	0	48385	48385
Net new impervious (NNI) area	ft^2	0	48385	48385
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	3955	3955
WQV	ft^3	0	3955	3955
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	3300	3300
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	3300	3300
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.70	0.70
Volume of total runoff infiltrated, ft^3	ft^3	N/A	654	654
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**17%**	17%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 12
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	44177	44177
Total impervious area	ft^2	0	44177	44177
Net new impervious (NNI) area	ft^2	0	44177	44177
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	3611	3611
WQV	ft^3	0	3611	3611
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	3000	3000
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	3000	3000
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.70	0.70
Volume of total runoff infiltrated, ft^3	ft^3	N/A	595	595
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**16%**	16%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 13
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	38549	38549
Total impervious area	ft^2	0	38549	38549
Net new impervious (NNI) area	ft^2	0	38549	38549
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	3151	3151
WQV	ft^3	0	3151	3151
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	2250	2250
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	2250	2250
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.73	0.73
Volume of total runoff infiltrated, ft^3	ft^3	N/A	446	446
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**14%**	14%

Basin Infiltration Tool Results

Version 3.01.034

PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 14
BMP type	Detention basin

SITE CHARACTERISTICS

Drainage Area Information		
Runoff coefficient for CDA to the basin	0.90	
Contributing drainage area (CDA) to basin	81271	ft²
Basin area to drainage area ratio	0.10	
Total impervious area	81271	ft²
Area upstream of the strip or swale		
Runoff coefficient for CDA	0.90	
CDA	81271	ft²
Runoff volume from CDA	6644	ft³
Water Quality Volume Calculation		
Water quality volume	6644	ft³
Net new impervious area	81271	ft²
Additional impervious area seeking treatment	0	ft²

BASIN CHARACTERISTICS

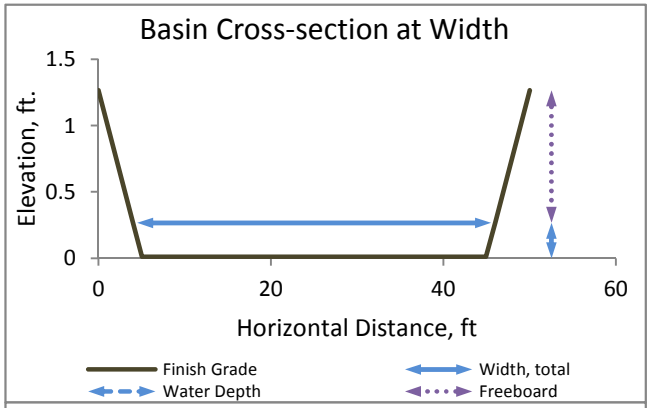
Note: The basin is trapezoidal with a rectangular footprint		
Unit basin storage volume	1.09	in
Drawdown time used in Basin Sizer	72	hr
Target basin capture volume	6644	ft³
Length, basin (at WQV water surface)	190	ft
Width, basin (at WQV water surface)	42	ft
Area, basin (at WQV water surface)	7980	ft²
Side slope	4	: 1
Geometry-based volume	2068	ft³
Maximum water level	0	ft
Length, invert	188	ft
Width, invert	40	ft
Area, invert	7488	ft²

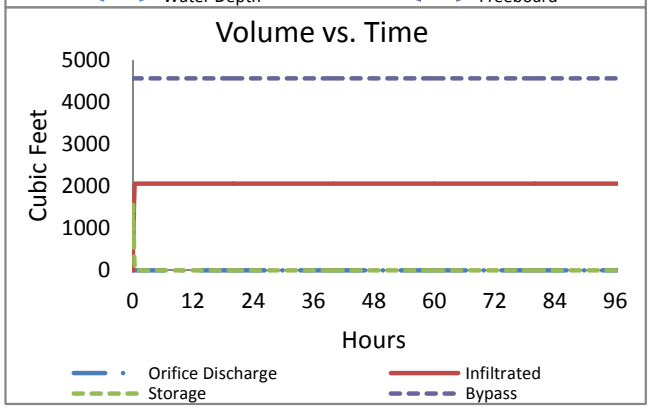
SOIL CHARACTERISTICS

Invert soil infiltration rate	8	in/hr
Side slope soil infiltration rate	8	in/hr

ORIFICE CHARACTERISTICS

Orifice height above the invert	0.00	ft
Orifice coefficient, C	0.6	
Orifice diameter	8/16	in





WATER BALANCE (CUBIC FEET)

Area	Rainfall	Losses prior to the basin	Runoff infiltrated in the basin	Total discharge (including bypass)
Basin CDA	7382	738	2065	4579
Impervious area	7382	738	2065	4579
NNI area	7382	738	2065	4579

WATER QUALITY VOLUME RESULTS

Drawdown time	72 hours
Impervious runoff infiltrated upstream of the basin expressed as a percentage of WQV	0%
Impervious runoff infiltrated in the basin expressed as a percentage of WQV	31%
Total impervious runoff infiltrated expressed as a percentage of WQV (Use for T-1, 7c)	**31%**
% of the WQV treated in the basin only	31%

Strip and Swale Infiltration Tool Results

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 15
BMP type	Biostrip

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	17511	17511
Total impervious area	ft^2	0	17511	17511
Net new impervious (NNI) area	ft^2	0	17511	17511
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	1432	1432
WQV	ft^3	0	1432	1432
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	11973	11973
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	11973	11973
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.81	0.81
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.00	0.00
Volume of total runoff infiltrated, ft^3	ft^3	N/A	1432	1432
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**100%**	100%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 16
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	40703	40703
Total impervious area	ft^2	0	40703	40703
Net new impervious (NNI) area	ft^2	0	40703	40703
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	3327	3327
WQV	ft^3	0	3327	3327
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	5626	5626
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	5626	5626
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.87	0.87
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.53	0.53
Volume of total runoff infiltrated, ft^3	ft^3	N/A	1115	1115
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**34%**	34%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 17
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	146030	146030
Total impervious area	ft^2	0	146030	146030
Net new impervious (NNI) area	ft^2	0	146030	146030
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	11938	11938
WQV	ft^3	0	11938	11938
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	7342	7342
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	7342	7342
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.75	0.75
Volume of total runoff infiltrated, ft^3	ft^3	N/A	1456	1456
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**12%**	12%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 18
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	21513	21513
Total impervious area	ft^2	0	21513	21513
Net new impervious (NNI) area	ft^2	0	21513	21513
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	1759	1759
WQV	ft^3	0	1759	1759
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	2940	2940
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	2940	2940
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.87	0.87
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.53	0.53
Volume of total runoff infiltrated, ft^3	ft^3	N/A	583	583
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**33%**	33%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 19
BMP type	Biostrip

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	66027	66027
Total impervious area	ft^2	0	66027	66027
Net new impervious (NNI) area	ft^2	0	66027	66027
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	5398	5398
WQV	ft^3	0	5398	5398
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	22633	22633
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	22633	22633
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.85	0.85
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.11	0.11
Volume of total runoff infiltrated, ft^3	ft^3	N/A	4487	4487
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**83%**	83%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 20
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	34703	34703
Total impervious area	ft^2	0	34703	34703
Net new impervious (NNI) area	ft^2	0	34703	34703
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	2837	2837
WQV	ft^3	0	2837	2837
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	3000	3000
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	3000	3000
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.88	0.88
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.65	0.65
Volume of total runoff infiltrated, ft^3	ft^3	N/A	595	595
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**21%**	21%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 21
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	38632	38632
Total impervious area	ft^2	0	38632	38632
Net new impervious (NNI) area	ft^2	0	38632	38632
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	3158	3158
WQV	ft^3	0	3158	3158
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	2500	2500
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	2500	2500
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.71	0.71
Volume of total runoff infiltrated, ft^3	ft^3	N/A	496	496
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**16%**	16%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 22
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	69524	69524
Total impervious area	ft^2	0	69524	69524
Net new impervious (NNI) area	ft^2	0	69524	69524
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	5684	5684
WQV	ft^3	0	5684	5684
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	4500	4500
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	4500	4500
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.71	0.71
Volume of total runoff infiltrated, ft^3	ft^3	N/A	892	892
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**16%**	16%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 23
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	25260	25260
Total impervious area	ft^2	0	25260	25260
Net new impervious (NNI) area	ft^2	0	25260	25260
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	2065	2065
WQV	ft^3	0	2065	2065
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	3230	3230
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	3230	3230
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.88	0.88
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.55	0.55
Volume of total runoff infiltrated, ft^3	ft^3	N/A	640	640
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**31%**	31%

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PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 24
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	53065	53065
Total impervious area	ft^2	0	53065	53065
Net new impervious (NNI) area	ft^2	0	53065	53065
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	4338	4338
WQV	ft^3	0	4338	4338
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	5020	5020
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	5020	5020
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.88	0.88
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.63	0.63
Volume of total runoff infiltrated, ft^3	ft^3	N/A	995	995
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**23%**	23%

Strip and Swale Infiltration Tool Results

Version 3.01.034

PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 25
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	54709	54709
Total impervious area	ft^2	0	54709	54709
Net new impervious (NNI) area	ft^2	0	54709	54709
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	4472	4472
WQV	ft^3	0	4472	4472
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	4423	4423
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	4423	4423
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.88	0.88
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.67	0.67
Volume of total runoff infiltrated, ft^3	ft^3	N/A	877	877
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**20%**	20%

Strip and Swale Infiltration Tool Results

Version 3.01.034

PROJECT INFORMATION

Project	I-80/ SR 65 Interchange Improvements Project
Sub-watershed	BMP 26
BMP type	Bioswale

USER INPUT AND INTERMEDIATE CALCULATIONS	Units	Existing	Proposed Design	Isolated NNI
Input from Basin Sizer				
Unit basin storage volume from Basin Sizer, where C = 1.0	in	1.09	1.09	1.09
Drawdown time used in Basin Sizer	hr	72	72	72
Rainfall rate from Basin Sizer "Caltrans Water Quality Flows"	in/hr	0.16	0.16	0.16
Drainage and Runoff to the Strip or Swale				
Contributing drainage area (CDA), including all impervious area	ft^2	0	50509	50509
Total impervious area	ft^2	0	50509	50509
Net new impervious (NNI) area	ft^2	0	50509	50509
Additional impervious area seeking treatment credit	ft^2	0	0	0
CDA runoff volume (including WQV)	ft^3	0	4129	4129
WQV	ft^3	0	4129	4129
Native Soil				
Pervious area for non-amended infiltration	ft^2	0	3170	3170
Native or fill (underlying) HSG soil type	-	D	D	D
Bulk density of native soil or fill	g/cm^3	1.6	1.6	1.6
Specific gravity of soil particles	-	2.65	2.65	2.65
Infiltration rate of native soil or fill	in/hr	0.05	0.05	0.05
Amended Soil				
BMP amendment area	ft^2	0	3170	3170
Depth of amendment placement	in	0	4	4
Depth of incorporation	in	0	11	11
Specific gravity of amendment particles	-	0.80	0.80	0.80
Bulk density of amendment	g/cm^3	0.50	0.50	0.50
Final bulk density of amended soil	g/cm^3	N/A	1.25	1.25
Infiltration rate of amended soil	in/hr	N/A	3.08	3.08

RESULTS: Native Soil or Fill (rate-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP with no amendment	-	N/A	0.89	0.89
Volume of total runoff from CDA infiltrated	ft^3	0	0	0
Percentage of WQV from net new impervious area that is infiltrated with native soil or fill (use for T-1, 5b)	**-**	N/A	**0%**	0%

RESULTS: Amended Soil (volume-based calculation)	Units	Existing	Proposed Design	Isolated NNI
Runoff coefficient for downstream BMP after amendment	-	N/A	0.72	0.72
Volume of total runoff infiltrated, ft^3	ft^3	N/A	629	629
Percentage of WQV from net new impervious area that is infiltrated with amended soil (use for T-1, 5d)	**-**	N/A	**15%**	15%

Checklist SW-1, Site Data Sources

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 5.5 of this document. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Topographic	
• USGS Topo	Access Date: May 2013
Hydraulic	
• Federal Management Emergency Agency. Flood Insurance Study.	2009
Soils	
• USDA-NRCS. Soil Survey.	Access Date: May 2013
• Blackburn Consulting. Structures Preliminary Geotechnical Report.	June 2013
Climatic	
• Caltrans. Caltrans Storm Water Quality Handbooks, Construction Site Best Management Practices Manual.	2009
• National Oceanic and Atmospheric Administration Atlas Precipitation Frequency Data Server.	Access Date: May 2013
Water Quality	
• Central Coast Regional Water Quality Control Board. 2010 CWA Section 303(d) List.	2010
• Central Valley Regional Water Quality Control Plan (Basin Plan).	October 2011
Other Data Categories	
• Caltrans. CT Water Quality Planning Tool.	Access Date: August 2014
• ICF International. Delineation of Potential Waters of the United States, Including Wetlands for the I80/SR 65 Interchange Improvement Project.	May 2014
• Baker, Chad. Project Study Report for I-80/SR 65 Interchange Modification.	June 2009
• Blackburn Consulting. Draft Initial Site Assessment Update.	August 2014
• City of Rocklin. General Plan.	October 2012
• City of Roseville. General Plan 2025.	April 2014

Checklist SW-2, Storm Water Quality Issues Summary

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Complete responses to applicable questions, consulting other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Storm Water Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR. **To be completed during the PS&E phase

1.	Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).	☒Complete	☐NA
2.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	☒Complete	☐NA
3.	Determine if there are any municipal or domestic water supply reservoirs or groundwater percolation facilities within the project limits. Consider appropriate spill contamination and spill prevention control measures for these new areas.	☒Complete	☐NA
4.	Determine the RWQCB special requirements, including TMDLs, effluent limits, etc.	☒Complete	☐NA
5.	Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies.	☒Complete	☐NA
6.	Determine if a 401 certification will be required.	☒Complete	☐NA
7.	List rainy season dates.	☒Complete	☐NA
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	☒Complete	☐NA
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	☒Complete	☐NA
10.	Determine contaminated soils within the project area.	☒Complete	☐NA
11.	Determine the total disturbed soil area of the project.	☒Complete	☐NA
12.	Describe the topography of the project site.	☒Complete	☐NA
13.	List any areas outside of the Caltrans right-of-way that will be included in the project (e.g. contractor's staging yard, work from barges, easements for staging, etc.). TBD	☒Complete	☐NA
14.	Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction and maintenance of BMPs. If so, how much?	☒Complete	☐NA
15.	Determine if a right-of-way certification is required.	☒Complete	☐NA
16.	Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches. TBD	☐Complete	☐NA
17.	Determine if project area has any slope stabilization concerns.	☒Complete	☐NA
18.	Describe the local land use within the project area and adjacent areas.	☒Complete	☐NA
19.	Evaluate the presence of dry weather flow.	☐Complete	☒NA

Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water Impacts

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

The PE must confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR. **To be completed during the PS&E phase

Options for avoiding or reducing potential impacts during project planning include the following:

1.	Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?	☒Yes	☐No	☐NA
2.	Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?	☒Yes	☐No	☐NA
3.	Can any of the following methods be utilized to minimize erosion from slopes:			
	a. Disturbing existing slopes only when necessary?	☒Yes	☐No	☐NA
	b. Minimizing cut and fill areas to reduce slope lengths?	☒Yes	☐No	☐NA
	c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	☒Yes	☐No	☐NA
	d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes?	☒Yes	☐No	☐NA
	e. Avoiding soils or formations that will be particularly difficult to re-stabilize?	☒Yes	☐No	☐NA
	f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates?	☒Yes	☐No	☐NA
	g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	☐Yes	☐No	☒NA
	h. Rounding and shaping slopes to reduce concentrated flow?	☒Yes	☐No	☐NA
	i. Collecting concentrated flows in stabilized drains and channels?	☒Yes	☐No	☐NA
4.	Does the project design allow for the ease of maintaining all BMPs?	☒Yes	☐No	
5.	Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season?	☒Yes	☐No	
6.	Can permanent storm water pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction storm water impacts?	☒Yes	☐No	☐NA

Design Pollution Prevention BMPs

Checklist DPP-1, Part 1

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Consideration of Design Pollution Prevention BMPs **To be completed during the PS&E phase

Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]

Will project increase velocity or volume of downstream flow?	☒Yes	☐No	☐NA
Will the project discharge to unlined channels?	☒Yes	☐No	☐NA
Will project increase potential sediment load of downstream flow?	☒Yes	☐No	☐NA
Will project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?	☒Yes	☐No	☐NA

If Yes was answered to any of the above questions, consider ***Downstream Effects Related to Potentially Increased Flow***, complete the DPP-1, Part 2 checklist.

Slope/Surface Protection Systems

Will project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA

If Yes was answered to the above question, consider ***Slope/Surface Protection Systems***, complete the DPP-1, Part 3 checklist.

Concentrated Flow Conveyance Systems

Will the project create or modify ditches, dikes, berms, or swales?	☒Yes	☐No	☐NA
Will project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA
Will it be necessary to direct or intercept surface runoff?	☒Yes	☐No	☐NA
Will cross drains be modified?	☒Yes	☐No	☐NA

If Yes was answered to any of the above questions, consider ***Concentrated Flow Conveyance Systems***; complete the DPP-1, Part 4 checklist.

Preservation of Existing Vegetation

It is the goal of the Storm Water Program to maximize the protection of desirable existing vegetation to provide erosion and sediment control benefits on all projects. ☒Complete

Consider ***Preservation of Existing Vegetation***, complete the DPP-1, Part 5 checklist.

Design Pollution Prevention BMPs

Checklist DPP-1, Part 2

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Downstream Effects Related to Potentially Increased Flow

**To be completed during the PS&E phase

1.	Review total paved area and reduce to the maximum extent practicable.	☒Complete
2.	Review channel lining materials and design for stream bank erosion control.	☐Complete
	(a) See Chapters 860 and 870 of the HDM.	☐Complete
	(b) Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.	☐Complete
3.	Include, where appropriate, energy dissipation devices at culvert outlets.	☐Complete
4.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	☐Complete
5.	Include, if appropriate, peak flow attenuation basins or devices to reduce peak discharges.	
6.	Calculate the water quality volume infiltrated by DPP BMPs within the project limits. Include the percentage of the water quality volume for each BMP and subwatershed, as appropriate, for site conditions. These calculations will be used later in the T-1 checklist.	☐Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 3

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Slope / Surface Protection Systems **To be completed during the PS&E phase

1.	What are the proposed areas of cut and fill? (attach plan or map)	☒Complete	
2.	Were benches or terraces provided on high cut and fill slopes to reduce concentration of flows? NA	☐Yes	☐No
3.	Were slopes rounded and/or shaped to reduce concentrated flow?	☒Yes	☐No
4.	Were concentrated flows collected in stabilized drains or channels?	☒Yes	☐No
5.	Are new or disturbed slopes > 4:1 horizontal:vertical (h:v)?	☒Yes	☐No
	If Yes, District Landscape Architect must prepare or approve an erosion control plan, at the District's discretion.		
6.	Are new or disturbed slopes > 2:1 (h:v)?	☒Yes	☐No
	If Yes, Geotechnical Services must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Storm Water Coordinator for slopes steeper than 2:1 (h:v).		
7.	Estimate the net new impervious area that will result from this project. Alt 1:32, Alt 2: 29, and Alt 3: 27 acres	☒Complete	

VEGETATED SURFACES

1.	Identify existing vegetation.	☒Complete
2.	Evaluate site to determine soil types, appropriate vegetation and planting strategies.	☒Complete
3.	How long will it take for permanent vegetation to establish?	☐Complete
4.	Minimize overland and concentrated flow depths and velocities.	☐Complete

HARD SURFACES

1.	Are hard surfaces required?	☒Yes	☐No
	If Yes, document purpose (safety, maintenance, soil stabilization, etc.), types, and general locations of the installations.	☐Complete	

Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems. ☐Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 4

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Concentrated Flow Conveyance Systems **To be completed during the PS&E phase

Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Topics 813, 834.3, and 835, and Chapter 860 of the HDM. ☒Complete
2. Evaluate risks due to erosion, overtopping, flow backups or washout. ☐Complete
3. Consider outlet protection where localized scour is anticipated. ☒Complete
4. Examine the site for run-on from off-site sources. ☐Complete
5. Consider channel lining when velocities exceed scour velocity for soil. ☒Complete

Overside Drains

1. Consider downdrains, as per Index 834.4 of the HDM. ☒Complete
2. Consider paved spillways for side slopes flatter than 4:1 h:v. ☒Complete

Flared Culvert End Sections

1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM. ☒Complete

Outlet Protection/Velocity Dissipation Devices

1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM. ☒Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems. ☐Complete

Design Pollution Prevention BMPs

Checklist DPP-1, Part 5

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Preservation of Existing Vegetation **To be completed during the PS&E phase

1. Review Preservation of Property, (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation. ☐ Complete
2. Has all vegetation to be retained been coordinated with Environmental, and identified and defined in the contract plans? ☐ Yes ☐ No
3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling? ☒ Complete
4. Have impacts to preserved vegetation been considered while work is occurring in disturbed areas? ☒ Yes ☐ No
5. Are all areas to be preserved delineated on the plans? ☐ Yes ☐ No

Treatment BMPs

Checklist T-1, Part 1

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Consideration of Treatment BMPs –**To be completed during the PS&E phase

This checklist is used for projects that require the consideration of Approved Treatment BMPs, as determined from the process described in Section 4 (Project Treatment Consideration) and the Evaluation Documentation Form (EDF). This checklist will be used to determine which Treatment BMPs should be considered for each watershed and sub-watershed within the project. Supplemental data will be needed to verify siting and design applicability for final incorporation into a project.

Complete this checklist for each phase of the project, when considering Treatment BMPs. Use the responses to the questions as the basis when developing the narrative in Section 5 of the Storm Water Data Report to document that Treatment BMPs have been appropriately considered.

Answer all questions, unless otherwise directed. Questions 14 through 16 should be answered after all subwatershed (drainages) are considered using this checklist.

1. Is the project in a watershed with prescriptive TMDL treatment BMP requirements in an adopted TMDL implementation plan or does the project have a dual purpose facility requirement (e.g. flood control and water quality treatment or Design Pollution Prevention BMPs that provide infiltration and treatment)? ☐Yes ☒No

   If Yes, consult the District/Regional Storm Water Coordinator to determine whether the T-1 checklist should be used to propose alternative BMPs because the prescribed BMPs may not be feasible or other BMPs may be more cost-effective. Special documentation and regulatory response may be necessary.

2. Dry Weather Flow Diversion

   (a) Are dry weather flows generated by Caltrans anticipated to be persistent? ☐Yes ☒No

   (b) Is a sanitary sewer located on or near the site? ☒Yes ☐No

   If Yes to both 2 (a) and (b), continue to (c). If No to either, skip to question 3.

   (c) Is connection to the sanitary sewer possible without extraordinary plumbing, features or construction practices? ☐Yes ☐No

   (d) Is the domestic wastewater treatment authority willing to accept flow? ☐Yes ☐No

   If Yes was answered to all of these questions consider ***Dry Weather Flow Diversion***, complete and attach **Part 3** of this checklist.

3. Is the receiving water on the 303(d) list for litter/trash or has a TMDL been issued for litter/trash? ☐Yes ☒No

If Yes, consider ***Gross Solids Removal Devices (GSRDs)***. Complete and attach **Part 6** of this checklist. Note: Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins also can capture litter. Before considering GSRDs for stand-alone installation or in sequence with other BMPs, consult with District/Regional NPDES Storm Water Coordinator to determine whether Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins should be considered instead of GSRDs to meet litter/trash TMDL.

4. Is the project located in an area (e.g., mountain regions) where traction sand is applied more than twice a year? ☐Yes ☒No

   If Yes, consider ***Traction Sand Traps*** Complete and attach **Part 7** of this checklist.

5. Maximizing Biofiltration Strips and Swales

   Objectives:

   1) Quantify infiltration from biofiltration alone

   2) Identify highly infiltrating biofiltration (i.e. > 90%) and skip further BMP consideration.

   3) Identify whether amendments can substantially improve infiltration.

   (a) Have biofiltration strips and swales been designed for runoff from all project areas, including sheet flow and concentrated flow conveyance? If no, document justification in Section 5 of the SWDR. ☒Yes ☐No

   (b) Based on existing site conditions, estimate what percentage of the WQV[1] can be infiltrated. When calculating the WQV, use a drawdown time appropriate for the site conditions.

   _X_ < 20%
   ___20 % - 50%
   ___ 50% - 90%
   ___ > 90%

   ☒Complete

   (c) Is infiltration greater than 90 percent? If Yes, skip to question 13. ☐Yes ☒No

   If No, Continue to 5 (d).

[1] A complete methodology for determining WQV infiltration is available at: http://www.dot.ca.gov/hq/oppd/stormwtr/index.htm

(d) Can the infiltration ranking in question 5(b) above be increased by using soil amendments?. ☒Yes ☐No

If Yes, consider including soil amendments (increasing the infiltration ranking of strips and swales shows performance comparable to other BMPs). Record the new infiltration estimate below. If No, continue to 5 (e).

___ < 20% (skip to 6)
_X_ 20 % - 50% (skip to 6)
___ 50% - 90% (skip to 6)
___ >90%

☐Complete

(e) Is infiltration greater than 90 percent? If Yes, skip to question 13. If No, continue to 5 (f). ☐Yes ☒No

(f) Is infiltration greater than 50 percent and is biofiltration preferred? If yes to both, skip to question 13. ☐Yes ☒No

6. Biofiltration in Rural Areas

Is the project in a rural area (outside of urban areas that is covered under an NPDES Municipal Stormwater Permit[2])? If Yes, proceed to question 13. ☐Yes ☒No

7. Estimating Infiltration for BMP Combinations

Objectives:

1) Identify high-infiltration biofiltration or biofiltration and infiltration BMP combinations and skip further BMP consideration.

2) If high infiltration is infeasible, then identify the infiltration level of all feasible BMP combinations for use in the subsequent BMP selection matrices.

(a) Has concentrated infiltration (i.e., via earthen basins) been prohibited? Consult your District/Regional Storm Water Coordinator and/or environmental documents. ☐Yes ☒No

If No, continue to 7 (b); if Yes, skip to question 8 and do not consider earthen basin-type BMPs

[2] See pages 39 and 40 of the Fact Sheets for the CGP.
http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_factsheet.pdf

(b) Can the infiltration ranking be increased by infiltrating the un-infiltrated remaining WQV from question 5, with an infiltration BMP[1]? If yes, record the new infiltration estimate below. If no, proceed to 7(c). ☐Yes ☒No

___ < 20% (do not consider this BMP combination)
___ 20% - 50%
___ 50% - 90%
___ >90%

Is at least 90 percent infiltration estimated? If Yes, proceed to 13. If No, proceed to 7(c). ☐Yes ☐No

(c) Assess infiltration of biofiltration combined with an approved earthen BMP. This assessment will be used in subsequent BMP selection matrices.

Earthen Detention Basin

___ < 20% ☐Complete
___ 20% - 50%
___ > 50%

Continue to Question 8

8. Identifying BMPs based on the Target Design Constituents

(a) Does the project discharge to a 303(d) impaired water body or a water body that has a TMDL adopted? If "No," use Matrix A to select BMPs, consider designing to treat 100% of the WQV, then skip to question 12. ☒Yes ☐No

If Yes, is the identified pollutant(s) considered a Targeted Design Constituent (TDC) (check all that apply below)? **No TDC.**

☐ sediments
☐ phosphorus
☐ nitrogen
☐ copper (dissolved or total)
☐ lead (dissolved or total)
☐ zinc (dissolved or total)
☐ general metals (dissolved or total)[2]

(b) Treating Sediment. Is sediment a TDC? If Yes, use Matrix A to select BMPs, then skip to question 12. Otherwise, proceed to question 9. ☐Yes ☒No

[1] Assess the combined infiltration of the WQV by both biofiltration and infiltration BMPs. As site constraints allow, size the infiltration BMP up to the un-infiltrated WQV remaining after the biofiltration BMP.

[2] General metals is a designation used by Regional Water Boards when specific metals have not yet been identified as causing the impairment.

BMP Selection Matrix A: General Purpose Pollutant Removal			
Consider approaches to treat the remaining WQV with combinations of the BMPs in this table. The PE should select at least one BMP for the project; preference is for Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs are chosen based on the infiltration category determined in question 7. BMPs in other categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Strip: HRT > 5 Austin filter (concrete) Austin filter (earthen) Delaware filter MCTT Wet basin	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip Biofiltration Swale
Tier 2	Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Swale MCTT Wet basin	Austin filter (concrete) Delaware filter MCTT Wet basin
HRT = hydraulic residence time (min) *Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

9. Treating both Metals and Nutrients.

   Is copper, lead, zinc, or general metals *AND* nitrogen or phosphorous a TDC? If Yes, use Matrix D to select BMPs, then skip to question 12. Otherwise, proceed to question 10. ☐Yes ☒No

10. Treating Only Metals.

    Are copper, lead, zinc, or general metals listed TDCs? If Yes, use Matrix B below to select BMPs, and skip to question 12. Otherwise, proceed to question 11. ☐Yes ☒No

BMP Selection Matrix B: Any metal is the TDC, but not nitrogen or phosphorous			
Consider approaches to treat the remaining WQV with combinations of the BMPs in this table. The PE should select at least one BMP for the project; preference is for Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs are chosen based on the infiltration category determined in question 7. BMPs in other categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	MCTT Wet basin Austin filter (earthen) Austin filter (concrete) Delaware filter	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* MCTT Wet basin	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* MCTT Biofiltration Strip Biofiltration Swale Wet basin
Tier 2	Strip: HRT > 5 Strip: HRT < 5 Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
HRT = hydraulic residence time (min) *Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

11. Treating Only Nutrients.

Are nitrogen and/or phosphorus listed TDCs? If "Yes," use Matrix C to select BMPs. If "No", please check your answer to 8(a). At this point one of the matrices should have been used for BMP selection for the TDC in question, unless no BMPs are feasible. ☐ Yes ☒ No

BMP Selection Matrix C: Phosphorous and / or nitrogen is the TDC, but no metals are the TDC			
Consider approaches to treat the remaining WQV with combinations of the BMPs in this table. The PE should select at least one BMP for the project; preference is for Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs are chosen based on the infiltration category determined in question 7. BMPs in other categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Austin filter (earthen) Austin filter (concrete) Delaware filter**	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches*	Austin filter (earthen) Detention (unlined) Infiltration basins* Infiltration trenches* Biofiltration Strip Biofiltration Swale
Tier 2	Wet basin Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale Wet basin	Austin filter (concrete) Delaware filter Wet basin
* Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			
** Delaware filters would be ranked in Tier 2 if the TDC is nitrogen only, as opposed to phosphorous only or both nitrogen and phosphorous.			

BMP Selection Matrix D: Any metal, plus phosphorous and / or nitrogen are the TDCs			
Consider approaches to treat the remaining WQV with combinations of the BMPs in this table. The PE should select at least one BMP for the project; preference is for Tier 1 BMPs, followed by Tier 2 BMPs when Tier 1 BMPs are not feasible. Within each Tier, BMP selection will be determined by the site-specific determination of feasibility (Section 2.4.2.1). BMPs are chosen based on the infiltration category determined in question 7. BMPs in other categories should be ignored.			
	BMP ranking for infiltration category:		
	Infiltration < 20%	Infiltration 20% - 50%	Infiltration > 50%
Tier 1	Wet basin* Austin filter (earthen) Austin filter (concrete) Delaware filter**	Wet basin* Austin filter (earthen) Detention (unlined) Infiltration basins*** Infiltration trenches***	Wet basin* Austin filter (earthen) Detention (unlined) Infiltration basins*** Infiltration trenches*** Biofiltration Strip Biofiltration Swale
Tier 2	Biofiltration Strip Biofiltration Swale Detention (unlined)	Austin filter (concrete) Delaware filter Biofiltration Strip Biofiltration Swale	Austin filter (concrete) Delaware filter
* The wet basin should only be considered for phosphorus			
** In cases where earthen BMPs can infiltrate, Delaware filters are ranked in Tier 2 if the TDC is nitrogen only, but they are Tier 1 for phosphorous only or both nitrogen and phosphorous.			
*** Infiltration BMPs that infiltrate the water quality volume were considered previously, so only undersized infiltration BMPs or hybrid designs are considered where infiltration is less than 90% of the water quality volume.			

12. Does the project discharge to a 303(d) waterbody that is listed for mercury or low dissolved oxygen? ☐Yes ☒No

    If Yes, contact the District/Regional NPDES Storm Water Coordinator to determine if standing water in a Delaware filter, wet basin, or MCTT would be a risk to downstream water quality.

13. After completing the above, identify and attach the checklists shown below for every Treatment BMP under consideration. (use one checklist every time the BMP is considered for a different drainage within the project) ☒Complete

    __X__ Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 2
    ____ Dry Weather Diversion: Checklist T-1, Part 3
    __X__ Infiltration Devices: Checklist T-1, Part 4
    __X__ Detention Devices: Checklist T-1, Part 5
    ____ GSRDs: Checklist T-1, Part 6
    ____ Traction Sand Traps: Checklist T-1, Part 7
    __X__ Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8
    __X__ Multi-Chambered Treatment Train: Checklist T-1, Part 9
    __X__ Wet Basins: Checklist T-1, Part 10

14. Estimate what percentage of the net WQV (for all new impervious surfaces within the project) or WQF (depending upon the Treatment BMP selected) will be treated by the preferred Treatment BMP(s): See Table 7%* ☐Complete

15. Estimate what percentage of the net WQV (for all new impervious surfaces within the project) that will be infiltrated by the preferred treatment BMP(s): 22.7 (for Alternative 1) %** ☒Complete

16. Prepare cost estimate, including right-of-way, and site specific determination of feasibility (Section 2.4.2.1) for selected Treatment BMPs and include as supplemental information for SWDR approval. TBD ☐Complete

*Note: The amount of treatment should be calculated for each BMP and each subwatershed, unless all BMPs within a project are the same. Document in SWDR.

**Note: The Water Quality Volume infiltrated should be documented for the entire project and also for each subwatershed. Document in SWDR.

Treatment BMPs

Checklist T-1, Part 2

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Biofiltration Swales / Biofiltration Strips **To be completed during the PS&E phase

Feasibility

1. Do the climate and site conditions allow vegetation to be established? ☒Yes ☐No

2. Are flow velocities from a peak drainage facility design event < 4 fps (i.e. low enough to prevent scour of the vegetated biofiltration swale as per HDM Table 873.3E)? ☐Yes ☐No

   If "No" to either question above, Biofiltration Swales and Biofiltration Strips are not feasible.

3. Are Biofiltration Swales proposed at sites where known contaminated soils or groundwater plumes exist? ☐Yes ☒No
   If "Yes", consult with District/Regional NPDES Coordinator about how to proceed.

4. Does adequate area exist within the right-of-way to place Biofiltration device(s)? ☒Yes ☐No
   If "Yes", continue to Design Elements section. If "No", continue to Question 5.

5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Biofiltration devices and how much right-of-way would be needed to treat WQF? _____ acres ☐Yes ☐No
   If "Yes", continue to Design Elements section. If "No", continue to Question 6.

6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of these Treatment BMPs into the project. ☐Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Has the District Landscape Architect provided vegetation mixes appropriate for climate and location? * ☐Yes ☐No

2.	Can the biofiltration swale be designed as a conveyance system under any expected flows > the WQF event, as per HDM Chapter 800? * (e.g. freeboard, minimum slope, etc.)	☐Yes	☐No
3.	Can the biofiltration swale be designed as a water quality treatment device under the WQF while meeting the required HRT, depth, and velocity criteria? (Reference Appendix B, Section B.2.3.1)*	☐Yes	☐No
4.	Is the maximum length of a biofiltration strip ≤ 100 ft? Strips > 100 ft. may still be considered as long as potential erosion issues have been addressed.**	☐Yes	☒No
5.	Has the minimum width (perpendicular to flow) of the invert of the biofiltration swale received the concurrence of Maintenance? *	☐Yes	☐No
6.	Can biofiltration swales be located in natural or low cut sections to reduce maintenance problems caused by animals burrowing through the berm of the swale? **	☐Yes	☐No
7.	Has the infiltration rate of the bio-filtration device been calculated and maximized through amendments where appropriate. **	☒Yes	☐No
8.	Have Biofiltration Systems been considered for locations upstream of other Treatment BMPs, as part of a treatment train? **	☐Yes	☐No

Treatment BMPs

Checklist T-1, Part 4

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Infiltration Devices **To be completed during the PS&E phase

Feasibility

1.	Does local Basin Plan or other local ordinance provide influent limits on quality of water that can be infiltrated, and would infiltration pose a threat to groundwater quality?	☐Yes	☐No
2.	Does infiltration at the site compromise the integrity of any slopes in the area?	☐Yes	☐No
3.	Per survey data or U.S. Geological Survey (USGS) Quad Map, are existing slopes at the proposed device site >15%?	☐Yes	☐No
4.	At the invert, does the soil type classify as NRCS Hydrologic Soil Group (HSG) D, or does the soil have an infiltration rate < 0.5 inches/hr? For Design Pollution Prevention BMPs, can the soil be amended to provide an adequate infiltration rate and void space.	☐Yes	☐No
5.	Is site located over a previously identified contaminated groundwater plume?	☐Yes	☒No
	If "Yes" to any question above, Infiltration Devices are not feasible; stop here and consider other approved Treatment BMPs.		
6.	(a) Does site have groundwater within 10 ft of basin invert?	☒Yes	☐No
	(b) Does site investigation indicate that the infiltration rate is significantly greater than 2.5 inches/hr?	☐Yes	☐No
	If "Yes" to either part of Question 6, the RWQCB must be consulted, and the RWQCB must conclude that the groundwater quality will not be compromised, before approving the site for infiltration.		
7.	Does adequate area exist within the right-of-way to place Infiltration Device(s)? If "Yes", continue to Design Elements sections. If "No", continue to Question 8.	☐Yes	☐No
8.	If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Infiltration Devices and how much right-of-way would be needed to treat WQV? _____ acres If Yes, continue to Design Elements section. If No, continue to Question 9.	☐Yes	☐No
9.	If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project.	☐Complete	

Design Elements – Infiltration Basin

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Has a detailed investigation been conducted, including subsurface soil investigation, in-hole conductivity testing and groundwater elevation determination? (This report must be completed for PS&E level design.) *	☐Yes	☐No
2.	Has an overflow spillway with scour protection been provided? *	☐Yes	☐No
3.	Is the Infiltration Basin size sufficient to capture the WQV while maintaining a 40-48 hour drawdown time? If the BMP is used in series with a biofiltration device, then does the total upstream infiltration plus the Infiltration Basin volume at least equal the WQV. *	☐Yes	☐No
4.	Can access be placed to the invert of the Infiltration Basin? *	☐Yes	☐No
5.	Can the Infiltration Basin accommodate the freeboard above the overflow event elevation (reference Appendix B.1.3.1)? *	☐Yes	☐No
6.	Can the Infiltration Basin be designed with interior side slopes no steeper than 4:1 (h:v) (may be 3:1 [h:v] with approval by District Maintenance)? *	☐Yes	☐No
7.	Can vegetation be established in the Infiltration Basin? **	☐Yes	☐No
8.	Can diversion be designed, constructed, and maintained to bypass flows exceeding the WQV? **	☐Yes	☐No
9.	Can a gravity-fed Maintenance Drain be placed? **	☐Yes	☐No

Design Elements – Infiltration Trench

1.	Has a detailed investigation been conducted, including subsurface soil investigation, in-hole conductivity testing and groundwater elevation determination? (This report must be completed for PS&E level design.) *	☐Yes	☐No
2.	Is the surrounding soil within Hydrologic Soil Groups (HSG) Types A or B? **	☐Yes	☐No
3.	Since this BMP is used in series with a pretreatment (see No. 7 below), then does the total upstream infiltration by the pretreatment plus the void space volume of the Infiltration Trench at least equal the WQV, while maintaining a drawdown time of ≤ 72 hours? **	☐Yes	☐No
4.	Is the depth of the Infiltration Trench ≤ 13 ft? *	☐Yes	☐No
5.	Can an observation well be placed in the trench? **	☐Yes	☐No
6.	Can access be provided to the Infiltration Trench? *	☐Yes	☐No
7.	Can pretreatment be provided to capture sediment in the runoff (such as using vegetation)? *	☐Yes	☐No
8.	Can flow diversion be designed, constructed, and maintained to bypass flows exceeding the Water Quality event? **	☐Yes	☐No

9. Can a perimeter curb or similar device be provided (to limit wheel loads upon the trench)? ** ☐Yes ☐No

Design Elements and Feasibility – Infiltration-DPP BMPs

* **Required** Design Element – (see definition above)

** **Recommended** Design Element – (see definition above)

1. Has a detailed soil investigation been conducted, to assure stability of the slope? ** ☐Yes ☐No
2. Does the soil have adequate infiltration rates or can the soil be amended to increase its infiltrating properties? ** ☐Yes ☐No
3. Are flow velocities from a peak drainage facility design event < 4 fps (i.e. low enough to prevent scour or erosion of DPP (swale or conveyance) as per HDM Table 873.3E)? Or has the BMP been designed to prevent scour or erosion for higher velocities (e.g. rock lined ditch). * ☐Yes ☐No

Treatment BMPs

Checklist T-1, Part 5

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Detention Devices **To be completed during the PS&E phase

Feasibility

1. Is there sufficient head to prevent objectionable backwater conditions in the upstream drainage systems? ☒Yes ☐No

2. 2a) Is the volume of the Detention Device equal to at least the WQV? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet]). If the BMP is used in series with a biofiltration device, then does the total upstream infiltration plus the Detention Device volume at least equal the WQV?. ☒Yes ☐No

   Only answer (b) if the Detention Device is being used also to capture traction sand.

   2b) Is the total volume of the Detention Device at least equal to the WQV plus the anticipated volume of traction sand, while maintaining a minimum 12 inch freeboard (1 ft)? ☐Yes ☐No

3. Is basin invert ≥ 10 ft above seasonally high groundwater or can it be designed with an impermeable liner? (Note: If an impermeable liner is used, the seasonally high groundwater elevation must not encroach within 12 inches of the invert.) ☒Yes ☐No

If No to any question above, then Detention Devices are not feasible.

4. Does adequate area exist within the right-of-way to place Detention Device(s)? ☒Yes ☐No
   If Yes, continue to the Design Elements section. If No, continue to Question 5.

5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Detention Device(s) and how much right-of way would be needed to treat WQV? _____ acres ☐Yes ☐No
   If Yes, continue to the Design Elements section. If No, continue to Question 6.

6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Has the geotechnical integrity of the site been evaluated to determine potential impacts to surrounding slopes due to incidental infiltration? If incidental infiltration through the invert of an unlined Detention Device is a concern, consider using an impermeable liner. *	☐Yes	☐No
2.	Has the location of the Detention Device been evaluated for any effects to the adjacent roadway and subgrade? *	☐Yes	☐No
3.	Can a minimum freeboard of 12 inches be provided above the overflow event elevation? *	☐Yes	☐No
4.	Is an overflow outlet provided? *	☐Yes	☐No
5.	Is the drawdown time of the Detention Device within 24 to 72 hours? *	☒Yes	☐No
6.	Is the basin outlet designed to minimize clogging (minimum outlet orifice diameter of 0.5 inches)? *	☒Yes	☐No
7.	Are the inlet and outlet structures designed to prevent scour and re-suspension of settled materials, and to enhance quiescent conditions? *	☐Yes	☐No
8.	Can vegetation be established in an earthen basin at the invert and on the side slopes for erosion control and to minimize re-suspension? Note: Detention Basins may be lined, in which case no vegetation would be required for lined areas.*	☐Yes	☐No
9.	Has sufficient access for Maintenance been provided? *	☐Yes	☐No
10.	Is the side slope 4:1 (h:v) or flatter for interior slopes? ** (Note: Side slopes up to 3:1 (h:v) allowed with approval by District Maintenance.)	☐Yes	☐No
11.	If significant sediment is expected from nearby slopes, can the Detention Device be designed with additional volume equal to the expected annual loading? **	☐Yes	☐No
12.	Is flow path as long as possible (≥ 2:1 length to width ratio at WQV elevation is recommended)? **	☒Yes	☐No

Treatment BMPs

Checklist T-1, Part 8

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Media Filters **To be completed during the PS&E phase

Caltrans has approved two types of Media Filter: Austin Sand Filters and Delaware Filters. Austin Sand filters are typically designed for larger drainage areas, while Delaware Filters are typically designed for smaller drainage areas. The Austin Sand Filter is constructed with an open top and may have a concrete or earthen invert, while the Delaware is always constructed as a vault. See Appendix B, Media Filters, for a further description of Media Filters.

Feasibility – Austin Sand Filter

1. Is the volume of the Austin Sand Filter equal to at least the WQV using a 24 hour drawdown? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet]) ☐Yes ☐No
2. Is there sufficient hydraulic head to operate the device (minimum 3 ft between the inflow and outflow chambers)? ☐Yes ☐No
3. If initial chamber has an earthen bottom, is initial chamber invert ≥ 3 ft above seasonally high groundwater? ☒Yes ☐No
4. If a vault is used for either chamber, is the level of the concrete base of the vault above seasonally high groundwater or is a special design provided? ☒Yes ☐No

   If No to any question above, then an Austin Sand Filter is not feasible.
5. Does adequate area exist within the right-of-way to place an Austin Sand Filter(s)? ☐Yes ☐No

   If Yes, continue to Design Elements sections. If No, continue to Question 6.
6. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site the device and how much right-of way would be needed to treat WQV? _____ acres ☐Yes ☐No

   If Yes, continue to the Design Elements section.

   If No, continue to Question 7.
7. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

If an Austin Sand Filter meets these feasibility requirements, continue to the Design Elements – Austin Sand Filter below.

Feasibility- Delaware Filter

1. Is the volume of the Delaware Filter equal to at least the WQV using a 48 hour drawdown? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet], consult with District/Regional Design Storm Water Coordinator if a lesser volume is under consideration.) ☐Yes ☐No

2. Is there sufficient hydraulic head to operate the device (minimum 3 ft between the inflow and outflow chambers)? ☐Yes ☐No

3. Would a permanent pool of water be allowed by the local vector control agency? Confirm that check valves and vector proof lid as shown on standard detail sheets will be allowed, is used. ☐Yes ☐No

If No to any question, then a Delaware Filter is not feasible

4. Does adequate area exist within the right-of-way to place a Delaware Filter(s)? ☐Yes ☐No
   If Yes, continue to Design Elements sections. If No, continue to Question 5.

5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site the device and how much right-of way would be needed to treat WQV? _____ acres ☐Yes ☐No
   If Yes, continue to the Design Elements section. If No, continue to Question 6.

6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

7. Does the project discharge to a water body that has been placed on the 303-d list or has had a TMDL adopted for bacteria, mercury, sulfides, or low dissolved oxygen? ☐Yes ☒No

   If yes, contact the Regional/District NPDES Storm Water Coordinator to determine if standing water in this treatment BMP would be a risk to downstream water quality. If standing water is a potential issue, consider use of another treatment BMP.

   If a Delaware Filter is still under consideration, continue to the Design Elements – Delaware Filter section.

Design Elements – Austin Sand Filter

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Is the drawdown time of the 2nd chamber 24 hours? *	☐Yes	☐No
2.	Is access for Maintenance vehicles provided to the Austin Sand Filter? *	☐Yes	☐No
3.	Is a bypass/overflow provided for storms > WQV? *	☐Yes	☐No
4.	Is the flow path length to width ratio for the sedimentation chamber of the "full" Austin Sand Filter ≥ 2:1? **	☐Yes	☐No
5.	Can pretreatment be provided to capture sediment and litter in the runoff (such as using vegetation)? **	☐Yes	☐No
6.	Can the Austin Sand Filter be placed using an earthen configuration? ** If No, go to Question 9.	☐Yes	☐No
7.	Is the Austin Sand Filter invert separated from the seasonally high groundwater table by ≥ 10 ft)? * If No, design with an impermeable liner.	☐Yes	☐No
8.	Are side slopes of the earthen chamber 3:1 (h:v) or flatter? *	☐Yes	☐No
9.	Is maximum depth ≤ 13 ft below ground surface? *	☐Yes	☐No
10.	Can the Austin Sand Filter be placed in an offline configuration? **	☐Yes	☐No

Design Elements – Delaware Filter

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Is the drawdown time of the 2nd chamber between 40 and 48 hours, typically 40-hrs? *	☐Yes ☐No
2.	Is access for Maintenance vehicles provided to the Delaware Filter? *	☐Yes ☐No
3.	Is a bypass/overflow provided for storms > WQV? **	☐Yes ☐No
4.	Can pretreatment be provided to capture sediment and litter in the runoff (such as using vegetation)? **	☐Yes ☐No
5.	Is maximum depth ≤ 13 ft below ground surface? *	☐Yes ☐No

Treatment BMPs

Checklist T-1, Part 9

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

MCTT (Multi-chambered Treatment Train) –**To be completed during the PS&E phase

Feasibility

1. Is the proposed location for the MCTT located to serve a "critical source area" (i.e. vehicle service facility, parking area, paved storage area, or fueling station)? ☐Yes ☐No

2. Is the WQV ≥ 4,346 ft³ [0.1 acre-foot]? ☐Yes ☐No

3. Is there sufficient hydraulic head (typically ≥ 6 feet) to operate the device? ☐Yes ☐No

4. Would a permanent pool of water be allowed by the local vector control agency? Confirm that check valves and vector proof lid as shown on standard detail sheets be allowed. ☐Yes ☐No

   If No to any question above, then an MCTT is not feasible.

5. Does adequate area exist within the right-of-way to place an MCTT(s)? ☐Yes ☐No
   If Yes, continue to Design Elements sections. If No, continue to Question 6.

6. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site the device and how much right-of way would be needed to treat WQV? _____ acres ☐Yes ☐No
   If Yes, continue to Design Elements section. If No, continue to Question 7.

7. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

8. Does the project discharge to a waterbody that has been placed on the 303-d list or has had a TMDL adopted for bacteria, mercury, sulfides, low dissolved oxygen, or odors? ☐Yes ☒No

   If yes, contact the Regional/District NPDES Storm Water Coordinator to determine if standing water in this treatment BMP would be a risk to downstream water quality. If standing water is a potential issue, consider use of another treatment BMP.

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Is the maximum depth of the 3rd chamber ≤ 13 ft below ground surface and has Maintenance accepted this depth? *	☐Yes	☐No
2.	Is the drawdown time in the 3rd chamber between 24 and 48 hours, typically designed for 24-hrs? *	☐Yes	☐No
3.	Is access for Maintenance vehicles provided to all chambers of the MCTT? *	☐Yes	☐No
4.	Is there sufficient hydraulic head to operate the device? *	☐Yes	☐No
5.	Has a bypass/overflow been provided for storms > WQV? *	☐Yes	☐No
6.	Can pretreatment be provided to capture sediment and litter in the runoff (such as using vegetation)? **	☐Yes	☐No

Treatment BMPs

Checklist T-1, Part 10

Prepared by: WRECO Date: August 2014 District-Co-Route: 03-Pla-65/80

PM : (I-80) PM 1.9-6.1; (SR 65) PM R4.8-R7.3 Project ID (or EA): 03-4E3200 RWQCB: Region 5

Wet Basin –**To be completed during the PS&E phase

Feasibility

1.	Is the volume of the Wet Basin above the permanent pool equal to at least the WQV using a 24 to 96 hour drawdown (40 to 48 hour drawdown preferred)? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet] and the permanent pool must be at least 3x the WQV.)	☐Yes	☐No
2.	Is a permanent source of water available in sufficient quantities to maintain the permanent pool for the Wet Basin?	☐Yes	☐No
3.	Is proposed site in a location where naturally occurring wetlands do not exist?	☒Yes	☐No
	Answer either question 4 or question 5:		
4.	For Wet Basins with a proposed invert above the seasonally high groundwater, Are NRCS Hydrologic Soil Groups [HSG] C and D at the proposed invert elevation, or can an impermeable liner be used? (Note: If an impermeable liner is used, the seasonally high groundwater elevation must not encroach within 12 inches of the invert.)	☐Yes	☐No
5.	For Wet Basins with a proposed invert below the groundwater table: Can written approval from the local Regional Water Quality Control Board be obtained to place the Wet Basin in direct hydraulic connectivity to the groundwater?	☐Yes	☐No
6.	Is freeboard provided ≥ 1 foot?	☐Yes	☐No
7.	Is the maximum impoundment volume < 14.75 acre-feet?	☐Yes	☐No
8.	Would a permanent pool of water be allowed by the local vector control agency?	☐Yes	☐No
	If No to any question above, then a Wet Basin is not feasible.		
9.	Is the maximum basin width ≤ 49 ft as suggested in Section B.10.2?	☐Yes	☐No
	If No, consult with the local vector control agency and District Maintenance.		
10.	Does adequate area exist within the right-of-way to place a Wet Basin? If Yes, continue to Design Elements sections.	☐Yes	☐No
	If No, continue to Question 11.		

11. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site the device and how much right-of way would be needed to treat WQV? _____ acres ☐Yes ☐No

    If Yes, continue to Design Elements section.

    If No, continue to Question 12.

12. Have the appropriate state and federal regulatory agencies been contacted to discuss location and potential to attract and harbor sensitive or endangered species? ☐Yes ☐No

    If No, contact the Regional/District NPDES Coordinator

13. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

14. Does the project discharge to a waterbody that has been placed on the 303-d list or has had a TMDL adopted for bacteria, mercury, sulfides, low dissolved oxygen, or odors? ☐Yes ☒No

    If yes, contact the Regional/District NPDES Storm Water Coordinator to determine if standing water in this treatment BMP would be a risk to downstream water quality. If standing water is a potential issue, consider use of another treatment BMP.

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Can a controlled outlet and an overflow structure be designed for storm events larger than the Water Quality event? *	☐Yes	☐No
2.	Is access for Maintenance vehicles provided? *	☐Yes	☐No
3.	Is the drawdown time for the WQV between 24 and 96 hours? *	☐Yes	☐No
4.	Has appropriate vegetation been selected for each hydrologic zone? *	☐Yes	☐No
5.	Can all design elements required by the local vector control agency be incorporated? *	☐Yes	☐No
6.	Has a minimum flow path length-to-width ration of at least 2:1 been provided? **	☐Yes	☐No
7.	Has an upstream bypass been provided for storms > WQV? **	☐Yes	☐No
8.	Can pretreatment be provided to capture sediment and litter in the runoff (such as using vegetation, or a forebay)? **	☐Yes	☐No
9.	Can public access be restricted using a fence if proposed at locations accessible on foot by the public? **	☐Yes	☐No

NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
03-LAND-0002 (Rev. 4/15)

TO: Lauren Proctor **FROM:** Jeff Pietrzak **Unit/Senior:** 0381/Landscape Architecture **Project Manager:** Wayne Lewis	**DISTRICT:** 03 **DATE:** 04/15/2015 **EA:** 03-4E3200 **EFIS#**0300000696	**CO:** PLA	**RTE:** 80;65	**PM:** 1.9/6.1;R4.8/R7.3

CONTRACT SEPARATION:

☐ Roadside work as part of roadway work EA

☒ Roadside work for roadway project to follow under separate EA

PROJECT: I-80 and SR 65 Between Douglas Blvd and Rocklin Rd And I-80 and Pleasant Grove Blvd.

FUNDING SOURCE: SHOPP, NCIIP, Local Agency (2016)

PROJECT MILESTONE: ☐ PID ☒ Pre-PA&ED ☐ PA&ED ☐ PS&E

PROJECT COST (In thousands):$341.4M-$350.9M

PROJECT DESCRIPTION:

The California Department of Transportation (Caltrans), in cooperation with the Placer County Transportation Planning Agency (PCTA), Placer County, and the Cities of Roseville, Rocklin, and Lincoln, proposes to improve the Interstate 80/ State Route 65 (I-80/SR 65) interchange in Placer County, California, to reduce traffic congestion, improve operations and safety, and comply with current Caltrans and local agency design standards.

The project proposes to widen I-80 to 12 lanes from Eureka Road Interchange to just west of Rocklin Road Interchange, widen SR 65 to 8 lanes from the I-80/SR 65 interchange to Pleasant Grove Blvd interchange, improve the I-80/SR 65 interchange with high speed connector ramps, adding one additional lane to each connector ramp, the addition of an HOV direct connector between I-80 and SR 65, and local interchange ramp improvements and street widening to accomodate these improvements The cost is estimated at $350,827,200 which includes $5,227,200 for right of way and utilities and $345,550,000 for construction. The project will be constructed in phases.

Three viable build alternatives have been considered.

Project Limits	03-PLA-80 and 03-PLA-65 PM 1.9 to 6.1 and PM R4.8 to R7.3
Number of Alternatives	5 (3 Build, TSM, No-Build)
Current Capital Outlay Construction Estimate	$341.4M-$350.9M
Current Capital Outlay Right-of-Way Estimate	$3.7M-$5.3M
Funding Source	SHOPP, NCIIP, Local Agency
Funding Year	2016
Type of Facility	Interstate and freeway
Number of Structures	9-11
Environmental Determination or Document	EIR/ complex EA leading to FONSI
Legal Description	Interchange
Project Development Category	4A

NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
03-LAND-0002 (Rev. 4/15)

SCENIC HIGHWAY STATUS ☐ Officially Designated ☐ Eligible ☒ Not Designated

CONTEXT SENSITIVITY

☒ It is determined that the project may involve consideration of community and local involvement.
☐ No foreseen issues with community and local involvement
http://www.dot.ca.gov/hq/oppd/context/index.htm

A) HIGHWAY PLANTING BACKGROUND INFORMATION

LANDSCAPE FREEWAY STATUS	☒ Yes	☐ No
WARRANTED HIGHWAY PLANTING REQUIRED	☒ Yes	☐ No
REPLACEMENT PLANTING REQUIRED	☒ Yes	☐ No
(E) H2O & POWER AVAILABLE	☒ Yes	☐ No
(E) IRRIGATION IMPACTED	☒ Yes	☐ No
ADJ. TO OUTDOOR ADVERTISING	☒ Yes	☐ No
COOP. MAINT. AGREEMENTS	☐ Yes	☒ No (Unless City wants excessive planting)

AREA (Ft^2/ACRE) FOR HIGHWAY PLANTING: To Be Determined

B) EROSION CONTROL BACKGROUND INFORMATION

SOIL DISTURBANCE	☒ Yes	☐ No
CONCENTRATED FLOW AREAS	☒ Yes	☐ No
SLOPE LOCATIONS	☒ Yes	☐ No
SLOPES > 2:1	☒ Yes	☐ No

AREA (Ft^2/ACRE) FOR EROSION CONTROL: To Be Determined

C) MITIGATION. BACKGROUND INFORMATION

PROJECT BIOLOGIST TBD Contact Date: TBD
APPLICABLE PERMITS TBD

BIOLOGICAL REVEG. REQUIRED	☒ Yes	☐ No	
VISUAL IMPACT AVOID/MIT. REQ	☒ Yes	☐ No	
UNIT TASKED w/ BIO. REVEG	☐ Landscape Architecture		☐ Stewardship

PLANT COUNT FOR MITIGATION PLANTING: To Be Determined

D) DESIGN FOR ROADSIDE MAINTENANCE SAFETY

PAVING	☒ Maintenance Vehicle Pullouts (MVP)		☒ Narrow Areas	☒ Extended Gore Area
ACCESS	☒ Access Road	☒ Drive Gate	☒ Walk Gate	

http://www.dot.ca.gov/hq/LandArch/policy/pdf/design_for_safety.pdf

E) DESIGN FOR ROADSIDE VEGETATION MANAGEMENT TREATMENT

☒ Under Metal Beam Guardrail
☒ Around Sign Posts

F) AESTHETIC TREATMENT

☒ Sound Wall (CMU Block)
☒ Sound Wall (Concrete)
☒ Retaining Wall
☒ Bridge Structure (Bridge Rail, Piers, Abutments)
☒ Slope Paving

NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
03-LAND-0002 (Rev. 4/15)

LANDSCAPE/ REVEGETATION/ EROSION CONTROL RELATED ITEMS- ESTIMATE OF COST – 04/27/15

A) HIGHWAY PLANTING COST INFORMATION:

☒ Highway Planting/ Irrigation (Acre)	$ To Be Determined
☒ 3-year Plant Establishment	$ To Be Determined
☒ Inert Materials	$ To Be Determined
A) SUBTOTAL	**$ $7,000,000***

B) EROSION CONTROL COST INFORMATION:

☒ Soil Stabilization (BFM, Hydroseed, Compost, etc.)	$ To Be Determined
☒ Sediment Control (RECP, Slope Interruptors, etc.)	$ To Be Determined
☒ Soil Building (Incorporate Materials, Duff, etc.)	$ To Be Determined
☒ Steep Slope Applications (Wire Blanket, Cellular Confinement, etc.)	$ To Be Determined
B) SUBTOTAL	**$ 335,000***

C) MITIGATION PLANTING COST INFORMATION:

☒ Landscape Architecture Tasked Biological Reveg.	$ -To Be Determined
☒ Visual Impact Mitigation Planting	$ - Paid as part of Highway Planting
C) SUBTOTAL	**$ -To Be Determined**

D) DESIGN FOR ROADSIDE MAINTENANCE SAFETY:

☒ Paving.	$ -20-125/ Sqyd
☒ Access	$ -1,500 Ea
D) SUBTOTAL	**$ -To Be Determined**

E) DESIGN FOR ROADSIDE VEGETATION MANAGEMENT TREATMENT:

☒ MBGR	$ -25-100/ Sqyd
☒ Signs	$ -25-100/ Sqyd
E) SUBTOTAL	**$ -To Be Determined**

F) AESTHETIC TREATMENT:

☒ Soundwall (CMU Block)	$ -$16.50/Sqft
☒ Soundwall (Concrete)	$ -$3.50/Sqft
☒ Retaining Wall	$ -$ -$3.50/Sqft
☒ Bridge Structure (	$ -$3.50/Sqft
☒ Slope Paving	$ -$600/CuYd
F) SUBTOTAL	**$ -To Be Determined**

TOTAL (A+B) **$ 7,335,000***

*For project initiation purposes, subtotal A+B should target roughly 5% of the project cost of roadway construction items.

NOT INCLUDED IN ESTIMATE

1) Tree removal costs associated with 'Clearing and Grubbing'
2) Temporary erosion control/ water pollution control
3) Contour grading/ benching/ surface roughening

NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
03-LAND-0002 (Rev. 4/15)

PREPARED BY: _____ DATE: 4/30/2015

CONCURRED BY: _____ DATE: 4/30/2015
(Project Manager)

APPROVED BY: _____ DATE: 4-30-2015
(Landscape Architecture or Engineering Services Branch Chief)

Attachment P
Risk Register

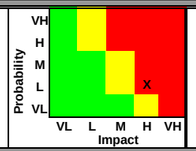
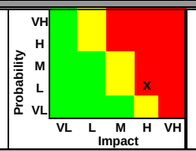
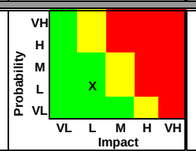
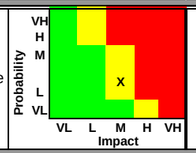
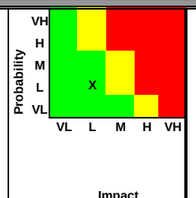
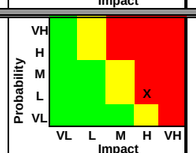
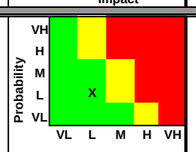
PROJECT RISK MANAGEMENT PLAN

Dist - E.A 03-4E3200

I-80 / SR-65 INTERCHANGE IMPROVEMENTS

Date 10/6/2014
Project Mngr S. Jordan **Telephone Number**
Revised by CH2M HILL 10/6/2014

PROJECT RISK MANAGEMENT PLAN

Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Status	ID #	Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(16)	(17)	(18)	(19)	(20)	(21)
Active	1-	10/6/2014 PA&ED	Design	Traffic Analysis	Traffic analysis may need to be revisited based on VA Study.	The risk occurs if acceptance of a VA alternative requires the traffic analysis be re-opened.	**Cost**	Low	High		Mitigation	Team will have to decide how to proceed with the project if risk occurs. Results may be dropping alternatives, downscoping or rescoping the project.		Traffic / Design	PA/ED	
Active	2-	10/6/2014 PA&ED	Design	Value Analysis	The value analysis may produce alternatives that impact current alternatives.	The risk occurs if a VA alternative is accepted and alternatives are impacted	**Schedule** **Cost**	Low	High		Mitigation	Team will have to decide how to proceed given current status of project from an environmental, traffic, and schedule standpoint.		Design/Project Manager	PA/ED	
Active	3-	10/6/2014 PA&ED	Design	Utility conflicts	The utility towers south of I-80 between Eureka/Atlantic Rd and Taylor Rd willl need to be relocated.	The risk occurs if during survey work to confirm location and clearance requirements from the tower footings require less than a 2 foot shoulder at this location.	**Cost**	Low	Low		Mitigation	Add cost to relocate utility to estimate		Design	PS&E and then R/W/Utilities	
Active	4-	10/6/2014 PA&ED	PM	Staff turnover	The project schedule would be at risk if the current PDT experiences staff turnover	The risk occurs if the PE or other Key PDT members are removed from the PDT	**Schedule**	Low	Moderate		Mitigation	Need to continue project documentation		Project Manager	Ongoing	
Active	5-	10/6/2014 PA&ED	Design	Terminus of HOV Lanes on SR 65	It was assumed that HOV Lanes would be present on SR 65 when this project is constructed.	The risk occurs if the HOV Lanes are not in place.	**Cost** **Scope**	Low	Low		Mitigation	Need to continue working with local partners on the schedule of the HOV lanes project. If HOV lanes are no longer going prior to this project then the design of the termination of the HOV lanes must be completed. May result in expansion of project limits to the north on SR 65.		Design	PA&ED	
Active	6-	10/6/2014 PA&ED	Design	Right-of-way required from UPRR	The project scope and schedule would be at risk if Caltrans does not accept alternatives on WB I-80 between Taylor and Eureka.	The risk occurs if design changes result in UPRR R/W acquisition.	**Schedule**	Low	High		Avoidance	Develop design alternatives that avoid impacts to UPRR R/W.		Project Manager / Design	PA&ED	
Active	7-	10/6/2014 PA&ED	Env/Design	Archaeological resources within the project limits.	There are two known sites in the area that are sensitive.	Field surveys locate sites within APE.	**Schedule** **Cost**	Low	Low		Mitigation	Identify potential sites within the APE as early as possible. Work with Design to avoid archaeological resources where possible. Where avoidance is not possible, mitigation will be required. Additional information will be known as a result of XP1		Env/Design	PA/ED	

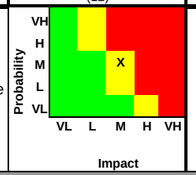
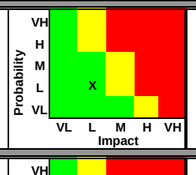
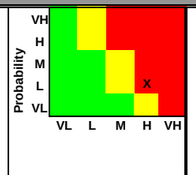
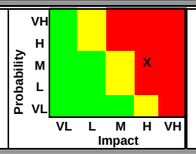
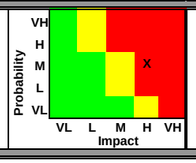
PROJECT RISK MANAGEMENT PLAN

Dist - E.A 03-4E3200

I-80 / SR-65 INTERCHANGE IMPROVEMENTS

Date 10/6/2014
Project Mngr S. Jordan **Telephone Number**
Revised by CH2M HILL 10/6/2014

PROJECT RISK MANAGEMENT PLAN

Identification							Qualitative Analysis				Response Strategy			Monitoring and Control		
Status	ID #	Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(16)	(17)	(18)	(19)	(20)	(21)
Active	8-	10/6/2014 PA&ED	Env	Delays in the completion of environmental technical studies	Unforeseen delays in the completion of technical studies.	Tasks are not completed on schedule.	**Schedule** **Cost**	Moderate	Moderate		Avoidance	Work with entire PDT to ensure that tasks are completed on time. Require the submission of regular progress reports. Ensure that coordination between Caltrans, Regulatory Agencies, and Locals is completed in timely manner.		Env	PA/ED	
Active	9-	10/6/2014 PA&ED	Env/Design	Public Controversy/Opposition	Potential exists for public controversy and or opposition to the project. Removal of soundwalls and mature vegetation is likley to be of concern to residents as is construction related noise impacts.	Public controversy and/or opposition.	**Scope** **Schedule**	Low	Low		Acceptance	Continue to work with public through newsletters and public meetings to share information and solicit feedback on the project.		Env/Design/Project Manager	Continuous	
Active	10-	10/6/2014 PA&ED	Env/Design	Project Scope Changes	Changes to project scope could delay timely completion of the environmental document. The later the changes are made, the more severe the impacts (for example, if the BA must be revised after submittal to USFWS or additional wetland delineations and verification are needed).	Changes to project scope.	**Schedule** **Quality**	Low	High		Mitigation	Work with entire PDT to learn of potential changes as early as possible and work to avoid and mitigate potential effects resulting from such changes. Communicate possible effects to PDT Project Management.		Env/Design	PA/ED	
Active	11-	10/6/2014 PA&ED	Env	Delays in obtaining necessary approvals and/or permits from resource agencies.	Delays in obtaining necessary approvals, such as the Biological Opinion, and/or permits from the resource agencies, could cause schedule delays.	Delays in obtaining approvals and/or permits.	**Schedule** **Cost**	Moderate	High		Mitigation	Work with resource agencies to ensure that all needed information has been provided. Keep in close contact with resource agencies to ensure that approvals and/or permits are on schedule.		Env	PA/ED	
Active	12-	10/6/2014 PA&ED	Env	Change in Section 7 Consultation Approach with resource agencies.	Change in consultation approach could delay timely completion of the environmental document.	Risk occurs when agencies determine that a formal Section 7 consultation is required.	**Schedule** **Cost**	Moderate	High		Mitigation	Work with Caltrans environmental and regulatory agencies to share information and document approach regularly.		Env	PA/ED	

PROJECT RISK MANAGEMENT PLAN

Dist - E.A 03-4E3200

I-80 / SR-65 INTERCHANGE IMPROVEMENTS

Date 10/6/2014
Project Mngr S. Jordan **Telephone Number**
Revised by CH2M HILL 10/6/2014

PROJECT RISK MANAGEMENT PLAN

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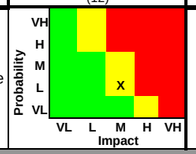
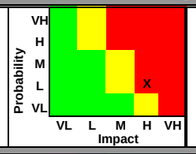
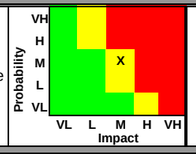
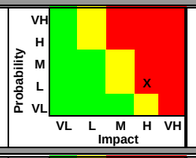
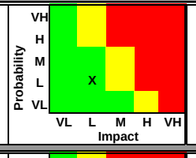
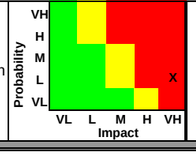
Status	ID #	Identified Project Phase	Functional Assignment	Threat/Opportunity Event	SMART Column	Risk Trigger	Type	Probability	Impact	Risk Matrix	Strategy	Response Actions including advantages and disadvantages	Affected WBS Tasks	Responsibility (Task Manager)	Status Interval or Milestone Check	Date, Status and Review Comments
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(16)	(17)	(18)	(19)	(20)	(21)
Active	13-	10/6/2014 PA&ED	Design	Stormwater requires additional mitigation.	Stormwater requirements may become more stringent, requiring additional mitigation.	Construction of additional detention basins may be required based on regulatory requirements.	**Cost**	Low	Moderate		Acceptance	Work with Stormwater Coordinator to ensure any potential changes in regulation are anticipated and addressed properly.		Design	Continuous	
Active	14-	10/6/2014 PA&ED	Design	Change of Access Report Approval	FHWA approval of the change of access report.	Risk occurs if FHWA does not approve the report.	**Schedule** **Cost**	Low	High		Mitigation	Continue to involve Caltrans/FHWA reviewers to ensure their concurrence on the project.		Design	PA&ED	
Active	15-	10/6/2014 PA&ED	R/W/Design	Condemnation of Property Required	Acquisition of right of way must go through the full condemnation process.	Property owner(s) unwilling to sell to State, resulting in condemnation process.	**Schedule**	Moderate	Moderate		Acceptance	Adjust project schedule to assume full condemnation process is followed.		R/W/Design	R/W	
Active	16-	10/6/2014 PA&ED	Design	Mandatory Design Exceptions not approved in part or in whole.	Multiple design exceptions are required for the project.	HQ Design Coordinator determines project alternative has a fatal flaw or will not approve design exception	**Scope**	Low	High		Avoidance	Continue to involve Caltrans/FHWA and responsible geometric reviewers to ensure their concurrence and alternatives and exceptions within the alternatives.		Design	PA/ED	
Active	17-	10/6/2014 PA&ED	Design	Cost estimate for alternatives is too low	The current state of the economy has resulted in lower construction costs than in the past.	Economy recovers fully before this project goes to construction.	**Cost**	Low	Low		Mitigation	Continue to update the cost estimate at PA&ED and PS&E to reflect the current economic conditions and bidding climate.		Design	Continuous	
Active	18-	10/6/2014 PA&ED	All	PA&ED schedule is not met	The overall PA&ED schedule delays.	Risk occurs when project schedule delays and project funding is sacrificed.	**Cost**	Low	Very High		Mitigation	May need to consider design at risk concurrent with environmental process.		Project Manager	PA&ED	