State Route 65 Capacity and Operational Improvements Project

PLACER COUNTY, CALIFORNIA
DISTRICT 3 – PLA – 65 (PM 6.5/12.8)
EA 03-1F170

Initial Study with Proposed Mitigated Negative Declaration

Prepared by the
State of California Department of Transportation
and
Placer County Transportation Planning Agency

Caltrans

PLACER COUNTY TRANSPORTATION PLANNING AGENCY

May 2017

General Information About This Document

What's in this document?

The California Department of Transportation (Caltrans), as California Environmental Quality Act (CEQA) lead agency, has prepared this Initial Study with Proposed Mitigated Negative Declaration (IS/MND), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in the Cities of Roseville, Rocklin, and Lincoln, in Placer County, California. The document tells you why the project is being proposed, how the existing environment could be affected by the project, the potential impacts of the project, and the proposed avoidance, minimization, and/or mitigation measures.

What should you do?

- Please read the document. Additional copies of this document, as well as the related technical studies, are available for review at the Placer County Transportation Planning Agency's offices at 299 Nevada Street, Auburn, CA 95603, Caltrans' District 3 offices located at 703 B Street, Marysville, CA 95901 and at the library locations listed below.

Rocklin Library	Martha Riley Library	Lincoln Library	Auburn Library
4890 Granite Drive	1501 Pleasant Grove Blvd.	485 Twelve Bridges Dr.	350 Nevada Street
Rocklin, CA 95677	Roseville, CA 95747	Lincoln, CA 95648	Auburn, CA 95603

  The document can also be accessed electronically at the following website: http://pctpa.net/projects/sr65widening/

- We'd like to hear your thoughts. If you have any comments regarding the proposed project, please send your written comments to Caltrans by the deadline stated below.
- Submit comments via postal mail to: Thaleena Bhattal, Associate Environmental Planner Caltrans District 3, 703 B Street, Marysville, CA 95901
- Submit comments via email to: Thaleena.Bhattal@dot.ca.gov.
- Be sure to submit comments by the deadline: June 14, 2017.
- Attend the public hearing. A public hearing will be held to present the project and solicit comments on the IS/MND. The hearing will be on Wednesday, May 24, 2017 at 9:00 a.m., or as soon as possibly thereafter, at Placer County Board of Supervisors Chambers located at 175 Fulweiler Avenue, Auburn, CA 95603.

What happens next?

After comments are received from the public and reviewing agencies, Caltrans may 1) give environmental approval to the proposed project, 2) conduct additional environmental studies, or 3) abandon the project. If the project is given environmental approval and funding is appropriated, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Gilbert Mohtes-Chan, Public Information Office, California Department of Transportation, 703 B St., Marysville, CA 95901; (530) 741-4572 (Voice), or use the California Relay Service TTY number, 711.

03-PLA-65-PM 6.5/12.8
EA 03-1F170

State Route 65 Capacity and Operational Improvements Project

Widen State Route 65 north of Galleria Boulevard/Stanford Ranch Road to Lincoln Boulevard (postmile 6.5 to postmile 12.8) in the cities of Roseville, Rocklin, and Lincoln, in Placer County, California.

INTIAL STUDY
with
Proposed Mitigated Negative Declaration

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation
and
Placer County Transportation Planning Agency

5/8/17
Date of Approval

Suzanne Melim, Chief
North Region Environmental Services
California Department of Transportation, CEQA Lead Agency

Proposed Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

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 widen State Route (SR) 65 from north of Galleria Boulevard/Stanford Ranch Road to Lincoln Boulevard.

The project proposes to relieve existing mainline congestion by adding capacity to improve traffic operations and safety. The additional capacity would help planned and anticipated growth along the corridor and would help achieve the mobility and economic development goals of PCTPA.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans' intent to adopt an MND for this project. This does not mean that Caltrans' decision regarding the project is final. This MND is subject to change based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project, and pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons: The project would have no impact on agricultural resources, geology/soils, land use and planning, mineral resources, population and housing, public services, recreation, and utilities and service systems.

In addition, the project would have a less-than-significant impact on aesthetics, air quality, cultural resources, hazardous waste, hydrology and water quality, noise, and Tribal cultural resources.

With the following mitigation measures incorporated, the project would have less than significant impacts to biological resources, and transportation/traffic.

- Mitigation Measure 1: Compensate for the Placement of Fill into Wetlands
- Mitigation Measure 2: Compensate for the Placement of Fill into Other Waters
- Mitigation Measure 3: Provide Escape Ramps for Wildlife and Inspect Pits and Trenches Daily
- Mitigation Measure 4: Conduct a Pre-Construction Survey for Northern Western Pond Turtle and Exclude Turtles from the Work Area
- Mitigation Measure 5: Conduct Pre-Construction Surveys for Burrowing Owl and Establish Exclusion Zones, if Necessary

- Mitigation Measure 6: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Nesting Migratory Birds and Raptors
- Mitigation Measure 7: Modify Existing Structures during the Non-Breeding Season for Purple Martin and Other Structure-Nesting Migratory Birds or Implement Exclusion Measures to Deter Nesting
- Mitigation Measure 8: Conduct Pre-Construction Surveys for Roosting Bats and Implement Protection Measures
- Mitigation Measure 9: Compensate for Direct and Indirect Impacts on Vernal Pool Branchiopod Habitat
- Mitigation Measure 10: Conduct Occupancy Surveys for California Black Rail and Implement Avoidance Measures, if Necessary
- Mitigation Measure 11: Regional Coordination for Transportation Improvements

Suzanne Melim, Chief
North Region Environmental Services
California Department of Transportation, CEQA Lead Agency

Date

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List of Abbreviated Terms

°	degrees
AADT	annual average daily traffic
AB	Assembly Bill
ABIH	American Board of Industrial Hygiene
ACM	asbestos-containing materials
ADL	Aerially deposited lead
APE	Area of Potential Effects
ARB	California Air Resources Board
ASR	Archaeological Survey Report
BA	Biological Assessment
BAU	business-as-usual
BMPs	best management practices
BP	Business Professional
BP EC	Business Professional/Employment Center
BSA	biological study area
C	Celsius
C G-C NC VC C/PD	Commercial
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
Cal/EPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plants Council
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CC	Community Commercial
CCV	California Central Valley
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CEQ	Council on Environmental Quality
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CH_4	methane
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CTP	California Transportation Plan
CV	Central Valley
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels

DDT	dichlorodiphenyltrichloroethane
DP-30	Caltrans Director's Policy 30
DPM	Diesel Particulate Matter
DPS	distinct population segment
EO	Executive Order
EPACT92	Energy Policy Act of 1992
ESAs	Environmentally Sensitive Areas
F	Fahrenheit
Farmland	Farmland of Statewide Importance
FESA	federal Endangered Species Act
FHWA	Federal Highway Administration
GHG	greenhouse gas
H_2S	Hydrogen Sulfide
HFC-23	fluoroform
HFC-134a	s, s, s, 2-tetrafluoroethane
HFC-152a	difluoroethane
HOV	high-occupancy vehicle
HPSR	Historic Property Survey Report
I-80	Interstate 80
IPCC	Intergovernmental Panel on Climate Change
IS/MND	initial study/proposed Mitigated Negative Declaration
LBP	lead-based paint
LCFS	low carbon fuel standard
LOS	Level of service
MBGR	metal beam guardrail
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MMTCO2e	million metric tons of carbon dioxide equivalent
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MS4s	municipal separate storm sewer systems
MSA	Magnuson-Stevens Fishery Management and Conservation Act
MSAT	Mobile source air toxics
MTIP	Metropolitan Transportation Improvement Program
MTP/SCS	Metropolitan Transportation Plan/Sustainable Community Strategy
N_2O	nitrous oxide
NO_2	Nitrous Dioxide
NAAWS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO_X	Nitrogen oxides
O_2	Ozone
OHWM	ordinary high-water mark
OPR	Office of Planning and Research
OS	Open Space
OSTP	Office of Science and Technology Policy
PA	Programmatic Agreement

PAHs	polycyclic aromatic hydrocarbons
Pb	Lead
PCBs	polychlorinated biphenyls
PCTPA	Placer County Transportation Planning Agency
PCWA	Placer County Water Agency
PD-BP	Planned Development Business Professional
PD-C	Planned Development Commercial
PD-LI	Planned Development Light Industrial
PM	Particulate matter
PM2.5	Particles of 2.5 micrometers and smaller
PM10	Particles of 10 micrometers or smaller
POAQC	Project of Air Quality Concern
POM	polycyclic organic matter
PRC	Public Resources Code
RC	Regional Commercial
RCRA	Resource Conservation and Recovery Act of 1976
ROG	Reactive organic gases
RSP	Rock Slope Protection
RTP	Regional Transportation Plan
RWQCBs	Regional Water Quality Control Boards
SAA	Streambed Alteration Agreement
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SCS	Sustainable Community Strategy
sec/veh	seconds per vehicle
SIP	Site Implementation Plan
SLR	sea level rise
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur dioxide
SR 65	State Route 65
STLC	Soluble Threshold Limit Concentration
SVAB	Sacramento Valley Air Basin
SWMP	Storm Water Management Plan
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
SF_6	sulfur hexafluoride
TASAS	Traffic Accident Surveillance and Analysis System
THPO	Tribal Historic Preservation Officer
TIP	Transportation Improvement Program
TMDLs	Total Maximum Daily Loads
TMP	Transportation Management Plan
TNM	Traffic Noise Model
TTLC	Total Threshold Limit Concentration
TWW	treated wood waste
UAIC	United Auburn Indian Community of the Auburn Rancheria
US 50	U.S. Highway 50
USACE	U.S. Army Corps of Engineers
U.S. EPA	U.S. Environmental Protection Agency
USC	United States Code
USDA	U.S. Department of Agriculture

USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
UST	underground storage tank
VA	Value Analysis
VIA	Visual Impact Assessment
VMT	vehicle miles traveled
Vplpm	vehicles per lane per mile
WDRs	Waste Discharge Requirements
WQAR	Water Quality Assessment Report

Initial Study

Project Title

State Route 65 Capacity and Operational Improvements Project

Lead Agency Name, Address and Contact Person

California Department of Transportation
Liza Walker, E-M2 Branch Chief
703 B Street
Marysville CA 95901
(530) 741-4139

Project Location

The project is located in Placer County in the cities of Roseville, Rocklin, and Lincoln (Figure 1). The project limits consist of SR 65 north of Galleria Boulevard/Stanford Ranch Road to Lincoln Boulevard (PM R6.5 to R12.8). The total length of the project is 6.3 miles.

Project Sponsor's Name and Address

Placer County Transportation Planning Agency
Luke McNeel-Caird
299 Nevada Street
Auburn, CA 95603

Purpose and Need

Purpose

The primary purpose of the proposed project is to relieve existing mainline congestion by adding additional mainline capacity. Adding additional capacity would help planned and anticipated growth along the corridor and would help achieve the mobility and economic development goals of the Placer County Transportation Planning Agency (PCTPA).

The project will improve traffic operations and safety in this segment of the highway.

Need

Recurring morning and evening peak-period demand exceeds the current design capacity along SR 65, creating traffic operations and safety issues. These issues result in high delays and wasted fuel, all of which will be exacerbated by traffic from future population and employment growth.

Projected growth along the SR 65 corridor in Roseville, Lincoln, Rocklin, and South Placer County will result in additional mainline congestion. SR 65 connects major regional routes and must operate efficiently in order to serve commuter traffic, goods movement, and regional traffic in south Placer County.

Description of Project

Two build alternatives and a no-build alternative are being considered for this project. The assessment of alternatives is based on 2040 design-year conditions. No decision on a preferred alternative will be made until all alternatives have been fully evaluated.

Build Alternatives

Both build alternatives described in this section would allow for inside highway widening as future projects along SR 65 from north of the Blue Oaks Boulevard interchange to Lincoln Boulevard. Both alternatives would accommodate the Interstate (I) 80/SR 65 Interchange Improvements Project (I-80/SR 65 interchange project) and consider the carpool/high-occupancy vehicle (HOV) lane restrictions and weaving volumes from the carpool/HOV lanes proposed by the I-80/SR 65 interchange project. Detailed engineering drawings are included in Attachment A.

Alternative 1—Carpool Lane Alternative

This alternative adds a 12-foot carpool/HOV lane in the southbound direction of SR 65 in the median from the Blue Oaks Boulevard interchange to north of Galleria Boulevard/Stanford Ranch Road. The carpool/HOV lane would connect to the carpool/HOV lanes proposed as part of the I-80/SR 65 interchange project.

The separate I-80/SR 65 interchange project will add a third lane in each direction of SR 65 from I-80 to Pleasant Grove Boulevard. This SR 65 Capacity and Operational Improvements project alternative would also add one 12-foot general purpose lane through the Pleasant Grove Boulevard Interchange, to create a third lane on SR 65 in both directions from I-80 to Blue Oaks Boulevard. This alternative would also add an auxiliary lane in each direction of SR 65 from the Galleria Boulevard interchange to the Pleasant Grove Boulevard interchange, from the Blue Oaks Boulevard interchange to the Sunset Boulevard interchange, and from the Whitney Ranch Parkway interchange to the Twelve Bridges Drive interchange.

Alternative 2—General Purpose Lane Alternative

This alternative would add a 12-foot general purpose lane in the southbound direction of SR 65 from the Blue Oaks Boulevard interchange to the Galleria Boulevard/Stanford Ranch Road off-ramp. The separate I-80/SR 65 interchange project will add a third lane in each direction of SR 65 from I-80 to Pleasant Grove Boulevard. For added capacity on southbound SR 65, as recommended by the Value Analysis (VA) study, this alternative also includes an additional general purpose lane from the Blue Oaks Boulevard slip on-ramp to the Pleasant Grove Boulevard loop on-ramp. On northbound SR 65, a 12-foot general purpose lane would be added through the Pleasant Grove Boulevard interchange. These improvements would result in a third lane in both directions of SR 65 from I-80 to Blue Oaks Boulevard.

This alternative would also add an auxiliary lane on northbound SR 65 from the Galleria Boulevard interchange to the Pleasant Grove Boulevard interchange; in both directions of SR 65 from the Blue Oaks Boulevard interchange to the Sunset Boulevard interchange; and from Whitney Ranch Parkway interchange to the Twelve Bridges Drive interchange.

Common Design Details

The two build alternatives have common design details that include the following components.

Highway Widening

Median widening for additional general purpose or carpool lanes consists of removing existing inside shoulders and paving the median and giving it a standard cross slope. From Galleria Boulevard to Blue Oaks Boulevard, median widening includes removing the existing thrie-beam barrier, paving the entire median, and installing concrete barrier at the center divide. The existing drainage systems, which currently collect runoff within the median and carry it into the existing cross culverts, would be abandoned, removed, or modified.

Paving the median would generate new impervious area for runoff to sheet flow across the travel way to the outside shoulder. On areas with fill material, runoff would be collected by the toe ditch or gutter and carried to the existing channel or waterway. On cut material, runoff would be channelized by the asphalt concrete dike on the edge of the roadway shoulder and discharged to the ditch or toe gutter through an overside drain. At shoulder cut locations, the water spread would be checked to see if drainage inlets are needed to avoid water spread encroaching into the freeway edge of traveled way. The new roadway drainage system would connect the inlets and pipe down the ditch or toe gutter. Most of the existing ditch or toe gutter would remain to collect runoff, except for segments affected by outside widening for auxiliary lanes; those segments would be replaced or reconstructed. To minimize downstream effects, the project would maintain the existing drainage pattern, which ultimately drains toward two waterways—Pleasant Grove Creek and Orchard Creek.

The median widening along southbound SR 65 would provide standard 10-foot inside shoulders. Along northbound SR 65, the inside paving is limited to a hot mix asphalt overlay for roadway cross-slope correction. The inside shoulder on northbound SR 65 would retain its nonstandard

width of 5 feet. Justification for the nonstandard inside shoulder width would be documented in the exceptions to Caltrans' mandatory design standards.

Auxiliary lanes would be constructed by widening the existing pavement to the outside, including the replacement of existing outside shoulder with standard cross slope and side slopes of 4:1 or flatter for the fill for most of the corridor, to meet the minimum requirements specified in the Caltrans Highway Design Manual (California Department of Transportation 2015). Segments along the corridor between Stanford Ranch Road and Pleasant Grove Boulevard and between the Whitney Ranch Parkway and Twelve Bridges Drive interchanges would require side slopes of 3:1 or steeper, with a 30-foot clear recovery zone to avoid encroaching beyond existing right-of-way and wetlands or overfilling existing drainage ways. These areas along the corridor would require exceptions to Caltrans advisory design standards.

A tie-back wall would be needed at the Pleasant Grove Boulevard interchange to accommodate the highway and ramp widening. A segment on southbound SR 65 between the Whitney Ranch Parkway and Twelve Bridges Drive interchanges would require a cut slope of 3:1 to avoid encroaching outside existing right-of-way; slopes at 3:1 or flatter are considered traversable but would need approval from Caltrans Landscape.

Pleasant Grove Creek Bridge Widening

Both the northbound and southbound bridges over Pleasant Grove Creek would be widened by approximately 12 feet each to the outside of the highway and approximately 17 feet each to the inside of the highway. The widened bridge structures would be similar structure types to the existing bridges, which are reinforced concrete slab bridges with piles. Sixteen pier columns (four at each of the four bents), plus four piles per abutment would be installed for each new bridge. New piers would be constructed using driven concrete piles. The pile driving rig would be mobilized and the piles would be driven prior to constructing the temporary falsework necessary to construct the concrete slab bridges. Impact pile driving within the creek bed is anticipated. At each bridge, pile driving would occur within a 1-week period. Sixteen Class 90 piles (40 feet long and 16 inches in diameter) and thirty-two Class 140 piles (40 feet long and 16 inches in diameter) would be installed. If sheet piles are needed to stabilize work areas, they would be installed with a vibratory pile driver.

At each bridge abutment, approximately 3,200 square feet (approximately 400 cubic yards [600 square feet above the ordinary high water mark, and 2,600 square feet below]) of rock slope protection (RSP) would be installed to prevent scour and erosion at the abutments. The RSP would be made up of primarily 23-inch diameter rocks. Large gaps in the RSP would be filled with soil to reduce potential for creating habitat for predators.

In order to remove water from the construction work area prior to bridge widening, a temporary water diversion is proposed using K-rail, sandbags, or other appropriate means. An open channel would be maintained at all times to allow water and fish passage during construction. The temporary water diversion would be consistent with best management practices (BMPs) described in Caltrans' Construction Site BMPs Manual (Caltrans 2003). In the unlikely event that pumping would be needed to dewater the construction site, pumps would be properly

screened to prevent fish entrainment, and pumped water would be treated/disposed according to permit requirements.

Widening the bridges would take one construction season each. Construction would occur sequentially over two construction seasons, with the construction methodology described above repeated at each bridge. All in-water work, including installation of materials needed for dewatering, would be limited to the period between June 1 and October 15.

Several culverts cross the SR 65 corridor. Most of the cross culverts would not be affected by the project because they are of adequate length. Three culverts are short and would need to be extended to accommodate the proposed auxiliary lanes along the corridor.

Orchard Creek Tributary 2-1 Culvert Extension

The culvert at Orchard Creek Tributary 2-1, located between Whitney Ranch Parkway and Twelve Bridges Drive, is a 7-foot by 5-foot at-grade reinforced concrete box. The box culvert would be extended 6 feet upstream and 6 feet downstream, and would maintain the slope of the existing culvert. The inlet and outlet of the culvert extensions would be at the existing grade of the channel. Construction would be conducted in one season and limited to the dry season when minimal to no water is flowing through the culvert. Excavation around the existing structure would occur first, followed by the casting of the box extension, then backfilling around the extended culvert. If water is present at the time of construction, dewatering or a water diversion would be implemented following Caltrans' *Standard Specifications* (Caltrans 2015).

Other Cross Culvert Extensions

Two additional culverts would need to be extended to accommodate the proposed auxiliary lanes along the corridor.

- Double 72" Reinforced Concrete Pipe between Galleria Boulevard and Pleasant Grove Boulevard
- Double 10'x5' Reinforced Concrete Box between Blue Oaks Boulevard and Sunset Boulevard

Widening of the inlet and outlet side of the culverts would take one construction season and would be limited to the period between June 1 and October. If water is present at the time of construction, dewatering or a temporary water diversion would be implemented following Caltrans *Standard Specifications* (Caltrans 2015).

Ramp Metering

Ramp meter modifications would occur for the slip on-ramps to a 2+1 configuration (2 metered lanes plus 1 carpool preferential lane) and a 1+1 (1 metered lane plus 1 carpool preferential lane) for the loop on-ramps. The southbound Pleasant Grove Boulevard slip and loop on-ramps, Blue Oaks Boulevard slip and loop on-ramps, and Lincoln Boulevard slip on-ramp would be modified to include these ramp metering changes.

Utility Relocation

Overhead electric facilities run parallel along northbound SR 65 outside of State right-of-way. At Pleasant Grove Creek, the overhead line turns east-west and crosses over SR 65. The overhead electric hangs over both the Pleasant Grove Creek bridges that are proposed for widening. The proximity of the overhead line may conflict with bridge foundation activities during construction. The overhead line may therefore need to be temporarily relocated outside of the creek area to accommodate widening the Pleasant Grove Creek bridges. Any relocation of transmission towers or power lines would be conducted consistent with Public Utilities Commission General Order 131-D.

Construction Equipment and Techniques

Equipment that would be used for construction includes graders, excavators, drilling rigs, cranes, pavers, compactors, and various types of construction vehicles. Project design and construction would incorporate the following standard construction measures.

- A preliminary site-specific geotechnical report and initial site assessment will be prepared and will be incorporated into the project's final design. If contaminated soil or groundwater, or suspected contamination, is encountered during construction, work will be halted in the area and the type and extent of the contamination identified. A qualified professional, in consultation with Caltrans, will then develop an appropriate method to remediate the contamination.
- A site-specific storm water pollution prevention plan (SWPPP) will be prepared for construction.
- Fugitive dust emissions during construction will be minimized by frequently applying water from water trucks. Fugitive dust emissions from wind erosion of inactive areas disturbed by construction activities will also be controlled by applying water. Chemical dust suppressants will not be used unless approved for direct application to surface waters.
- The contractor will be required to install temporary BMPs to control any runoff or erosion from the project site, into the surrounding waterways. These temporary BMPs will be installed prior to any construction operations and will be in place for the duration of the contract. Removing these BMPs will be the final operation, along with the project site cleanup.

Project Phasing and Staging of Construction

Temporary construction easements may be required for the contractor to access construction areas. Access to construction areas would be from the interchanges at Pleasant Grove Boulevard, Blue Oaks Boulevard, Sunset Boulevard, Whitney Ranch Parkway, Twelve Bridges Drive, and Lincoln Boulevard. Two lanes in each direction on SR 65 are anticipated to remain open to traffic for the majority of project's construction.

No specific staging/laydown areas have been identified. However, the contractor may utilize areas within the existing median and areas between the main line and interchange on- and off-ramps for staging or laydown.

Right-of-Way

This project will be constructed within the existing Caltrans right-of-way for SR 65. The build alternatives, including drainage facilities, storm water and treatment components and maintenance access areas, are designed to avoid permanent right-of-way acquisitions.

No Build Alternative

Under the No-Build Alternative, SR 65 within the project limits would maintain the existing lane configuration, and no SR 65 mainline widening would be constructed.

Surrounding Land Uses and Setting

The project area generally consists of open space and scattered industrial, commercial, and residential development along either side of SR 65, with a majority of development concentrated along the southern portions of the project area in the cities of Roseville and Rocklin. The only residential development within the project area is in the city of Lincoln, beyond the northern project limits. At the southern end of the project area, land uses consist of the Roseville Galleria mall to the west of SR 65, and large-scale retail and office developments with associated surface parking along the east side of SR 65. The vacant land along the project area consists primarily of marsh and land that is designated for industrial and commercial use. The project area is also defined by several waterways that meander through the undeveloped open space areas along SR 65. There are no community facilities such as schools or parks immediately adjacent to the project footprint.

Permits and Approvals Needed

Design and construction of the proposed project would be required to follow the provisions and procedures contained in Caltrans *Standard Specifications* (Caltrans 2015), including those listed in Division II, General Construction, under Section 13, Water Pollution Control, and Section 14, Environmental Stewardship. Other agencies have jurisdiction over various aspects of the project. Upon completion of final design, the following agencies will be contacted in order to obtain jurisdictional permits or approvals.

Table 1. Permits and Approvals Needed

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers (USACE)	Section 404 authorization for fill of waters of the United States	Not yet initiated
U.S. Fish and Wildlife Service (USFWS)	Endangered Species Act Section 7: inter-agency consultation and incidental take permit	Biological Assessment submitted to initiate consultation
State Water Resources Control Board (SWRCB)	Clean Water Act Section 402: Construction General Permit for Stormwater Discharges	To be obtained prior to construction for 1 or more acres of land disturbance
Central Valley Regional Water Quality Control Board (CVRWQCB)	Clean Water Act Section 401 and Clean Water Act Section 402 coverage under the existing Caltrans National Pollutant Discharge Elimination System Permit (Order No. 2012-0011-DWQ)	Not yet initiated
California Department of Fish and Wildlife (CDFW)	California Fish and Game Code Section 1602	Not yet initiated
Placer County Air Pollution Control District	Formal notification prior to construction	To be obtained during final design

Zoning

The project is located within the cities of Roseville, Rocklin, and Lincoln. According to the local zoning maps, the project area is primarily zoned as Community Commercial (CC), Business Professional (BP), Regional Commercial (RC), and Open Space (OS) in the city of Roseville; Open Space (OS), Planned Development Commercial (PD-C), Planned Development Light Industrial (PD-LI), Planned Development Business Professional (PD-BP) in the city of Rocklin; Open Space (OS), Commercial (C, G-C, NC, VC, C/PD), and Business Professional/Employment Center (BP, EC) in the city of Lincoln (City of Roseville 2014, City of Rocklin 2015, City of Lincoln 2012).

Figure 1. Project Vicinity and Proposed Project

(Note: This figure depicts the project's limits in terms of potential ground disturbance)

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Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry	☐	Air Quality
☐	Biological Resources	☐	Cultural Resources	☐	Geology/Soils
☐	Greenhouse Gas Emissions	☐	Hazards and Hazardous Materials	☐	Hydrology/Water Quality
☐	Land Use/Planning	☐	Mineral Resources	☐	Noise
☐	Population/Housing	☐	Public Services	☐	Recreation
☐	Transportation/Traffic	☐	Utilities/Service Systems	☐	Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

☐	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☒	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required

Signature:	**Date:**
Printed Name:	**For:**

Impacts Checklist

The impacts checklist starting on the next page identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act (CEQA) impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.” A brief explanation of each CEQA checklist determination follows each resource topic. The checklist is followed by a more detailed discussion of the checklist items marked as “less than significant impact” or “less than significant impact with mitigation.” The responses to checklist questions apply to both build alternatives unless otherwise specified.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

"No impact" determinations in this section are based on review of the project area and the results in the *Visual Impact Assessment* (ICF International 2016a). A more detailed discussion of topics checked "less than significant" follows this checklist.

II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the *Community Impact Technical Memorandum* (ICF International 2016b). No farmland or forest resources are located in the project area or adjacent to the proposed project.

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

"No impact" determinations in this section are based on the *Air Quality Study Report* (ICF International 2016c), and the proposed project does not involve an odor generating facility. A more detailed discussion of topics checked "less than significant impact" follows this checklist.

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

"No impact" determinations in this section are based on the *Natural Environment Study* (ICF International 2016d). A more detailed discussion of topics checked "less than significant impact" or "less than significant with mitigation" follows this checklist.

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the Historic Property Survey Report (Caltrans 2016). A more detailed discussion of the topic checked "less than significant impact" follows this checklist.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the *Draft District Preliminary Geotechnical Report* (Blackburn Consulting 2016).

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this project. The analysis included in the climate change section of this document provides the public and decision-makers as much information about the project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the "Greenhouse Gas Emissions and Climate Change" section later in this document.			
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

"No impact" determinations in this section are based on the hazardous materials reports by Blackburn Consulting (2014a, 2014b). A more detailed discussion of topics checked "less than significant impact" follows this checklist.

IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒

"No impact" determinations in this section are based on the *Water Quality Assessment Report* (ICF International 2016e). A more detailed discussion of topics checked "less than significant impact" follows this checklist.

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the *Community Impact Technical Memorandum* (ICF International 2016b).

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the *Community Impact Technical Memorandum* (ICF International 2016b). No mineral resource zones are located within the project area (City of Roseville 2014, City of Rocklin 2015, City of Lincoln 2012).

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

"No impact" determinations in this section are based on the *Noise Study Report* (ICF International 2015f). A more detailed discussion of topics checked "less than significant impact" follows this checklist.

XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

"No Impact" determinations in this section are based on the *Community Impact Technical Memorandum* (ICF International 2016b).

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒
"No Impact" determinations in this section are based on the *Community Impact Technical Memorandum* (ICF International 2016b). The project does not include impacts associated with the provision of new or altered governmental facilities.				
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
"No Impact" determinations in this section are based on the *Community Impact Technical Memorandum* (ICF International 2016b). The project does not involve park land or any increased use or construction or expansion of parks or other recreational facilities.				
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

"No impact" determinations in this section are based on the *Transportation Analysis Report* (Fehr & Peers 2015) and the *Community Impact Technical Memorandum* (ICF International 2016b). The project is within a state highway corridor and would not affect pedestrian or bicycle facilities. A more detailed discussion of the topic checked "Less Than Significant with Mitigation" and "Less Than Significant Impact" follows this checklist.

XVII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Determinations in this section are based on the *Historic Property Survey Report* (Caltrans 2016) prepared for the proposed project. A more detailed discussion of the topics checked "Less Than Significant Impact" follows this checklist.

XVIII. UTILITIES AND SERVICE SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Project does not include impacts associated with wastewater or potable water conveyance or treatment facilities. Stormwater determinations in this section are based on the *Water Quality Assessment Report* (ICF International 2016e). Project would not create a new source of solid waste.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Affected Environment, Environmental Consequences and Mitigation Measures

The following is a discussion of the resource topics for checklist items marked as "less than significant impact" or "less than significant impact with mitigation."

Aesthetics

The affected environment and subsequent analysis for aesthetics resources is based on the Visual Impact Assessment (VIA) prepared for the proposed project in February 2016 (ICF International 2016a).

Regulatory Setting

CEQA establishes the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities" (Public Resources Code (PRC) Section 21001[b]).

Affected Environment

The VIA assesses potential visual impacts of the proposed project based on guidance outlined in the *Visual Impact Assessment for Highway Projects* published by the FHWA. The following key terms describe visual resources in a project area. The terms are used as descriptors and as part of a rating system to assess a landscape's visual quality.

- Visual character includes attributes such as form, line, color, and texture and is used to describe, not evaluate visual resources.
- Visual quality is evaluated by identifying the vividness, intactness, and unity present in the project area.
- Vividness is the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements.
- Intactness is the integrity of visual features in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions.
- Unity is the extent to which all visual elements combine to form a coherent, harmonious visual pattern.

Resource change is one of the two major variables that determine visual impacts. *Resource change* refers to the evaluation of the visual character and the visual quality of the visual resources that comprise the project corridor before and after construction of a proposed project. The other major variable is *viewer response*, the response of viewers to changes in their visual environment.

Project Location and Setting

The project location and setting provides the context for determining the type and severity of changes to the existing visual environment. The project setting is also referred to as the project corridor, which is defined as the area of land that is visible from, adjacent to, and outside the highway right-of-way. The project corridor is determined by topography, vegetation, and viewing distance and consequently is larger than the project area.

The proposed project is located on SR 65 north of Galleria Boulevard/Stanford Ranch Road to Lincoln Boulevard (PM R6.5 to R12.8) (Figure 1). The project region is in the Sacramento Valley, in the transition zone between the flats of the Sacramento Valley and the Sierra Nevada and Lake Tahoe regions. The rolling Sierra Nevada foothills make up most of the eastern portion of the region. The western portion of the region consists of primarily agriculture and suburban land uses, with the urban core of Sacramento in the southwestern portion of the region. The landscape pattern is influenced by development occurring outward of existing city cores and the major roadways, including SR 65, SR 70, I-80, U.S. Highway 50 (US 50), SR 99 and I-5. This portion of the county supports agricultural, open space, and developed land uses at the base of the foothills. In addition to numerous creeks and streams, major water bodies in the region include Dry Creek, Auburn Ravine, Folsom Lake, and the American River.

The project area lies within the cities of Roseville, Rocklin, and Lincoln, and in unincorporated area of Placer County. The land uses within the project corridor are primarily commercial (business parks, retail, and hospitality), institutional (hospital and medical facilities, churches, educational facilities), industrial, and residential, intermixed with open space and recreation.

Open space, agriculture, transportation infrastructure, and developed land uses comprise the areas immediately surrounding the project corridor near the cities of Roseville, Rocklin, and Lincoln. The immediate project area is characterized by flat to gently sloping terrain with distant scenic vista views of the Sutter Buttes to the northwest and views of the Sierra Nevada to the east where gaps in development allow for such vista views and where there are no berms or terrain along the freeway to block those views. The project site is not located near a state scenic highway or other designated scenic corridor. Water bodies in and near the project area include Pleasant Grove and Orchard Creeks, and smaller streams and drainages.

The proposed project is within Segment 1 of the *SR 65 Aesthetic Corridor Master Plan.* The master plan classifies SR 65 in Segment 1 as urban freeway and calls for revegetation planting treatments using native or a combination of native and ornamental plants and other measures to improve urban freeway aesthetics with hardscape treatments (i.e., stained or painted finishes, concrete formliners, lighting).

Viewers and Viewer Response

Two major types of viewer groups are of primary concern for highway projects: highway neighbors and highway users. Each viewer group has its own particular level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group that help to predict their responses to visual changes.

Highway Neighbors (Views to the Road)

Highway neighbors are people living in or using residences, grazing lands, businesses, and commercial development who have views to the road. Highway neighbors constitute viewers who would have longer term, stationary views (residents and businesses) and viewers who would have shorter term, transient views (recreationists and roadway users on nearby local roadways) as they pass by the proposed project. Highway neighbors' views of the project vary based on their location within the landscape and distance from the project area. Most highway neighbors in the project corridor do not have immediate and direct views of the project area because views are limited by development, vegetation, and topography. Highway neighbors would have moderate visual sensitivity because they are accustomed to views of the existing roadway and passing traffic.

Highway Users (Views from the Road)

Highway users are people who have views from the road—local commuters traveling to and from work, shoppers, recreational travelers, agricultural transporters, and truck drivers. Depending on travel speed (ranging from a stop up to 75 miles per hour), drivers and passengers are able to take in brief to longer views of the scenery around them. Slightly elevated sections or gradual undulations of the road provide more expansive views, allowing drivers and passengers slightly higher vantage points and a view of more of the surrounding area. Therefore, highway users would have a moderate sensitivity to visual changes resulting from the project.

Environmental Consequences

Visual impacts were determined by identifying changes to the visual resources and assessing viewer response to those changes. This discussion applies to both build alternatives because the build alternatives would be the same visually.

The project area is not near a state scenic highway or other designated scenic corridor. Accordingly, the proposed project would not substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway; therefore the build alternatives would have no impact on such scenic resources.

Visual Character and Visual Quality, Including Scenic Vistas

Construction

Construction of the proposed project would introduce heavy equipment and associated vehicles (e.g., backhoes, graders, excavators, drilling rigs, cranes, pavers, compactors, and trucks). General construction activities, construction staging/stockpiling, storage of road-widening and building materials, presence of construction equipment, and temporary traffic barricades would temporarily alter the viewsheds throughout the project corridor. However, construction activities would be minor and temporary in duration. Furthermore, they would be governed by city, state, and federal regulations and standards designed to minimize their potential to affect adjacent sensitive land uses, such as those in local general plans (Cities of Rocklin, Roseville, and Lincoln, and Placer County) and the *SR 65 Aesthetic Corridor Master Plan*. Construction-related

effects would be less than significant because of the temporary nature of construction, the transient nature of viewers passing by the project site, and viewers' familiarity with heavy equipment in the project area from recent development within the project vicinity.

Construction activities would occur either sequentially or on a leap-frog basis to avoid shutdown or restriction of traffic flow along substantial portions of the project corridor. The contractor would conduct daily visual inspections to ensure the immediate surroundings of construction staging areas are free from construction-related clutter and would maintain the areas in a clean and orderly manner throughout the construction period. Upon completion of project construction, the visual quality and character of the existing corridor would be maintained, and significant impacts or adverse effects are not anticipated. Additionally, upon completion of construction, implementation of Measure 1, *Use Native Grass and Wildflower Species in Erosion Control Grassland Seed Mix*, would restore areas disturbed by construction, provide visual interest, and enhance roadside aesthetics by adding wildflowers to erosion control seed mix that would be applied to disturbed areas. Implementation of Measure 2, *Work with Caltrans to Implement Appropriate Freeway Landscaping*, would ensure the proper coordination with Caltrans to determine whether to implement landscaping and that landscaping is consistent with existing plans, policies, and procedures.

Operations

During operation, the proposed project elements (additional general purpose and carpool/HOV lanes, widening of the existing median, extension/addition of auxiliary lanes at three locations, and modifications to slip and loop on-ramps for ramp metering) would not impede sightlines to surrounding grasslands in the project area, the Sierra Nevada foothills, the Sutter Buttes, or any other visual resources within the project corridor. Median widening would pave the entire median and require installation of a concrete barrier at the center divider, removing the existing grassy median. However, while this would slightly alter views for roadway users, it would limit widening on the outer lanes and retain larger areas of grasslands along the roadway corridor, for which the corridor is noted. In addition, widened bridges would be very similar to the existing bridges, using the same materials, and viewers would not be negatively affected by these changes. Therefore, the proposed project modifications would be compatible and consistent with existing visual character of the project corridor and would not affect lands outside of the right-of-way and scenic vista views would be retained. Accordingly, the proposed project would not substantially alter the visual character or quality of the project corridor or associated views, including available scenic vista views. This impact is considered less than significant.

The proposed project would also be consistent with the applicable rules, regulations, standards and policies relating to visual elements and aesthetic quality within the project area, such as the *SR 65 Aesthetic Corridor Master Plan*, the *City of Roseville General Plan* and associated specific plans (City of Roseville 2013a, 2013b, 2013c), the *City of Rocklin General Plan* (City of Rocklin 2015), the *City of Lincoln General Plan* (City of Lincoln 2008), and the *Placer County General Plan* (Placer County 2013b). Accordingly, resource change would be low and the project would not constitute a major visual resource change. The average response of all viewer groups would be moderate.

Light and Glare

Effects related to light and glare would be essentially the same for both build alternatives.

Evening and nighttime construction activities under both build alternatives would require the use of temporary lighting at construction sites which could affect highway users and nighttime views of and from the work area. This temporary lighting would not be a substantial source of light that would significantly affect nighttime views.

Ramp improvements would include relocation of lighting fixtures but the light levels would not change and no additional permanent light sources would be introduced. New ramp meters would result in an inconsequential amount of new light.

The new pavement associated with the widened roadway surface would be dark asphalt, which generally absorbs light. Therefore, the proposed project would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area. Impact reslated to light and glare are considered less than significant.

Avoidance and Minimization Measures

Implementation of the following measures will further reduce impacts associated with new hardscape features and changes to views within the corridor and help ensure that lighting used for construction would be directed downward and that spill light would be minimized to the greatest extent possible. These measures will be designed and implemented with the concurrence of the District Landscape Architect.

Use Native Grass and Wildflower Species in Erosion Control Grassland Seed Mix

The project proponent might require construction contractors to incorporate native grass and wildflower seed to standard seed mixes, which may be nonnative, for erosion control measures that will be applied to all exposed slopes. Wildflowers will provide seasonal interest to areas where trees and shrubs are removed and grasslands are disturbed. Only wildflower and grass species that are native will be incorporated into the seed mix, and under no circumstances will any invasive grass or wildflower plant species be used as any component in any erosion control measures. Species will be chosen that are indigenous to the area and for their appropriateness to the surrounding habitat. For example, upland grass and wildflower species will be chosen for drier, upland areas, and wet-adapted species will be chosen for areas that will receive more moisture. If not appropriate to the surrounding habitat, wildflowers should not be included in the seed mix.

Work with Caltrans to Implement Appropriate Freeway Landscaping

Landscaping within interchange loops and on the side of the widened freeway may improve the visual quality of the roadway corridor by improving corridor aesthetics, as noted in the *SR 65 Aesthetic Corridor Master Plan*. However, it may be desirable to retain the existing visual character of roadside grasslands that allow views to the foothills

and mountains. Therefore, the project landscape architect will work with the Caltrans' landscape architect to determine the appropriate freeway landscaping for the portion of SR 65 affected by this project. In accordance with the *SR 65 Aesthetic Corridor Master Plan*, plantings may include enhanced native plantings or more traditional highway plantings; however, it is recommended that plantings rely mostly on drought-tolerant native plants. If landscaping is installed, the following is recommended:

- Species composition should be 100 percent species that are native and indigenous to the project area and California. Native plant species can be used to create attractive spaces, high in aesthetic quality, that are more drought-tolerant than traditional landscape plant palettes. Use of native species promotes a visual character of California that is being lost through development and reliance on nonnative ornamental plant species.
- The species list should include trees, shrubs, and an herbaceous understory of varying heights, as well as both evergreen and deciduous types at interchange loops within the project area. Plant variety will increase the effectiveness of the roadside planting areas by providing multiple layers, seasonality, diverse habitat, and reduced susceptibility to disease. Evergreen groundcovers or low-growing plants, such as Ceanothus spp., should be used in areas where taller vegetation would potentially cause driving hazards by obscuring site distances.
- Low-growing plants should be used along the freeway corridor to maintain views of the foothills and mountains.
- Under no circumstances will any invasive plant species be used at any location.
- Vegetation should be planted prior to project completion.

Minimize Fugitive Light from Portable Sources Used for Construction

At a minimum, the construction contractor shall minimize project-related light and glare to the maximum extent feasible, given safety consideration. Color-corrected halide lights will be used. Portable lights will be operated at the lowest allowable wattage and height and will be raised to a height no greater than 20 feet. All lights will be screened and directed downward toward work activities and away from the night sky, highway users, and highway neighbors, particularly in residential areas, to the maximum extent possible. The number of nighttime lights used will be minimized to the greatest extent possible.

Air Quality

The affected environment and subsequent analysis for Air Quality resources is based on the Air Quality Study Report prepared for the proposed project in September 2016 (ICF International 2016c) and Caltrans' Standard Environmental Reference procedures (Chapter 11, *Air Quality*).

Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality. The California Clean Air Act is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards (see Table 2) have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM10) and particles of 2.5 micrometers and smaller (PM2.5), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb), and state standards exist for visibility-reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics or TACs) and mobile source air toxics (MSAT). Toxic air contaminants and mobile source air toxics are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. Some criteria pollutants are also air toxics or may include certain air toxics in their general definition. In addition, the EPA identified the following seven compounds as priority MSATs:

- Acrolein.
- Benzene.
- 1,3-Butadiene.
- Diesel particulate matter/diesel exhaust organic gases.
- Formaldehyde.
- Naphthalene.
- Polycyclic organic matter.

Table 2. National and California Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (ppm)		Standard (µg/m^3)		Violation Criteria	
			California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.070	137	147	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	NA
Sulfur dioxide	SO_2	Annual arithmetic mean	NA	0.030	NA	NA	NA	If exceeded
		24 hours	0.04	0.14	105	NA	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	75	655	196	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable PM	PM10	Annual arithmetic mean	NA	NA	20	NA	If exceeded	If exceeded at each monitor within area
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	NA	NA	12	12.0	If exceeded	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	35	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded on more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA
		Rolling 3-month average	NA	NA	NA	0.15	If equaled or exceeded	Averaged over a rolling 3-month period

Source: California Air Resources Board 2016

Notes: All standards are based on measurements at 25ºC and 1 atmosphere pressure; national standards shown are the primary (health effects) standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter; NA = not applicable.

The Federal Clean Air Act Section 176(c) outlines federal transportation conformity requirements, which prohibit federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the State Implementation Plan (SIP) for attaining the NAAQS. The Transportation Conformity Act takes place on two levels: the regional, or planning and programming level, and the project level. A project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and maintenance (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. Where a project does not conform, the project must be evaluated under the regional transportation conformity requirements unless the project is already included in an approved Regional Transportation Plan (RTP) and/or Transportation Improvement Program (TIP), and the project design concept or scope remains the same as that described in the RTP and/or TIP.

Affected Environment

The project is located in Placer County, California, which spans three air basins; however, the project is located entirely in the Sacramento Valley Air Basin (SVAB). The SVAB includes Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, and Yolo Counties, as well as parts of Solano and Placer Counties. The SVAB is bounded on the west by the Coast Ranges and on the north and east by the Cascade Range and Sierra Nevada Range. The San Joaquin Valley Air Basin lies to the south.

The SVAB has a Mediterranean climate characterized by hot, dry summers and cool, rainy winters. During the winter, the North Pacific storm track intermittently dominates valley weather, and fair weather alternates with periods of extensive clouds and precipitation. Also characteristic of winter weather in the SVAB are periods of dense and persistent low-level fog that is most prevalent between storms. The frequency and persistence of heavy fog in the SVAB diminishes with the approach of spring. The average yearly temperature range for the Sacramento Valley is between 20 and 115° Fahrenheit (F), with summer high temperatures often exceeding 90°F and winter low temperatures occasionally dropping below freezing.

Prevailing wind in the Sacramento Valley is generally from the southwest due to marine breezes flowing through the Carquinez Strait. The Carquinez Strait is the major corridor for air moving into the Sacramento Valley from the west. Incoming airflow strength varies daily with a pronounced diurnal cycle. The predominant wind direction in the region based on meteorological data from Sacramento Executive Airport. Influx strength is weakest in the morning and increases in the evening hours. Associated with the influx of air through the Carquinez Strait is the Schultz Eddy. The Schultz Eddy is an eddy formed when mountains on the valley's western side divert incoming marine air. The eddy contributes to the formation of a low-level southerly jet between 500 and 1,000 feet above the surface that is capable of speeds in excess of 35 miles per hour (mph). This jet is important for air quality in the Sacramento Valley because of its ability to transport air pollutants over large distances.

The SVAB's climate and topography contribute to the formation and transport of photochemical pollutants throughout the region. The region experiences temperature inversions that limit atmospheric mixing and trap pollutants; high pollutant concentrations result near the ground surface. Generally, the lower the inversion base height from the ground and the greater the

temperature increase from base to top, the more pronounced the inhibiting effect of the inversion will be on pollutant dispersion. Consequently, the highest concentrations of photochemical pollutants occur from late spring to early fall when photochemical reactions are greatest because of intensifying sunlight and lowering altitude of daytime inversion layers. Surface inversions (those at altitudes of 0 to 500 feet above sea level) are most frequent during winter, and subsidence inversions (those at 1,000 to 2,000 feet above sea level) are most common in the summer.

Existing Air Quality

Existing air quality conditions in the project area can be characterized in terms of the NAAQS and California ambient air quality standards (CAAQS) that the federal and state governments have established for several different pollutants and by monitoring data collected in the region. The Placer County Air Pollution Control District monitors air quality conditions at five locations in Placer County. These stations are used by the ARB and U.S. EPA to determine whether the County and Sacramento Valley Air Basin meet CAAQS and NAAQS and to determine the region's attainment status related to these standards. The nearest station to the project site were used to characterize existing air quality conditions in the project area.

The nearest air quality monitoring station in the vicinity of the project area that reported pollutant concentrations between 2013 and 2015 is the North Sunrise Boulevard monitoring station, located at 151 North Sunrise Avenue in Roseville, which is approximately 2 miles south of the proposed project. The North Sunrise Boulevard station monitors for O_3, NO_2, PM10, and PM2.5. Because there are no monitors for CO located in Placer County, monitoring data for CO was taken from the nearest monitoring station, located at North Highlands-Blackfoot Way in Sacramento County (7 miles southwest of the project).

Table 3. Pollutant Concentrations Measured at the Roseville-North Sunrise Boulevard

Pollutant	2013	2014	2015
1-Hour Ozone			
Maximum 1-hour concentration (ppm)	0.111	0.097	0.098
1-hour California designation value (ppm)	0.11	0.10	0.10
1-hour expected peak day concentration (ppm)	0.108	0.103	0.097
Number of days standard exceeded[a]			
CAAQS 1-hour (>0.09 ppm)	2	4	1
8-Hour Ozone			
National maximum 8-hour concentration (ppm)	0.083	0.086	0.084
National second-highest 8-hour concentration (ppm)	0.079	0.084	0.078
State maximum 8-hour concentration (ppm)	0.084	0.087	0.085
State second-highest 8-hour concentration (ppm)	0.079	0.084	0.078
8-hour national designation value (ppm)	0.081	0.081	0.077
8-hour California designation value (ppm)	0.094	0.088	0.085
8-hour expected peak day concentration (ppm)	0.094	0.088	0.085
Number of days standard exceeded[a]			
NAAQS 8-hour (>0.070 ppm)	6	19	6
CAAQS 8-hour (>0.070 ppm)	8	21	6
PM10			
National maximum 24-hour concentration ($\mu g/m^3$)[b]	55.5	30.2	35.7

Pollutant	2013	2014	2015
National second-highest 24-hour concentration (μg/m³)[b]	36.4	29.5	24.4
California maximum 24-hour concentration (μg/m³)[c]	54.1	31.8	59.1
California second-highest 24-hour concentration (μg/m³)[c]	36.5	29.5	43.1
National annual average concentration (μg/m³) California annual average concentration (μg/m³) Number of days standard exceededa NAAQS 24-hour (>150 35 μg/m³) CAAQS 24-hour (>50 μg/m³)	18.4 - 0 -	17.9 18.0 0 0	13.0 18.0 - -
PM2.5			
National maximum 24-hour concentration (μg/m³)[b]	23.7	22.2	29.1
National second-highest 24-hour concentration (μg/m³)[b]	18.9	20.6	20.1
California maximum 24-hour concentration (μg/m³)[c]	57.0	30.7	44.1
California second-highest 24-hour concentration (μg/m³)[c]	35.2	24.8	37.7
National annual designation value (μg/m³)	19.0	18.0	20
National annual average concentration (μg/m³)	7.5	7.8	8.0
California annual designation value (μg/m³)	11.0	11.0	11.0
California annual average concentration (μg/m³) [d]	7.5	10.5	8.1
Number of days standard exceeded[a]			
NAAQS 24-hour (>35 μg/m³)[e]	0	0	0

Source: California Air Resources Board 2016.

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data. In addition, state statistics are based on California-approved samplers.

[d] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[e] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been truncated.

CAAQS = California ambient air quality standards; NAAQS = national ambient air quality standards; ppm = parts per million; μg/m³ = micrograms per cubic meter; – = insufficient data available to determine the value.

Between 2013 and 2015, the Roseville-North Sunrise Boulevard monitoring station experienced 7 violations of the state 1-hour O_3 standard, 35 violations of the state 8-hour O_3 standard, no violations of the state NO_2 standards, no violations of the federal 24-hour PM10 standard, no violations of the state 24-hour PM10 standard, and no violations of the federal 24-hour PM2.5 standard during the 3-year monitoring period. No violations of the state or federal CO standards have occurred at the North Highlands monitoring station during the 3-year monitoring period.

EPA has classified the SVAB portion of Placer County as a severe nonattainment area with regard to the federal 8-hour O_3 standard. For the federal CO and PM2.5[1] standards, EPA has classified the SVAB portion of Placer County as a moderate maintenance (CO) and nonattainment area (PM2.5). EPA has classified all of Placer County as an attainment area for the federal PM10 standard.

ARB has classified the SVAB portion of Placer County as a serious nonattainment area for the state 1-hour O_3 standard. ARB has classified all of Placer County as a nonattainment area for the

[1] The 24-hour PM2.5 standard was lowered from 35 μg/m³ to 12.0 μg/m³ in 2012, and EPA issued its final attainment status designations for the 12.0 μg/m³ standard on January 15, 2013.

state 8-hour O_3 and PM10 standards. With regards to the state CO and PM2.5 standards, ARB has classified the SVAB portion of Placer County as an attainment area. Attainment status information is summarized in Table 4.

Table 4. Attainment Status of Sacramento Valley Air Basin portion of Placer County

Pollutant	Attainment Status	
	State	Federal
1-hour Ozone	Serious Nonattainment	N/A
8-hour Ozone	Nonattainment	Severe Nonattainment
Carbon Monoxide	Attainment	Moderate Maintenance
PM10	Nonattainment	Attainment
PM2.5	Attainment	Nonattainment

Sensitive Receptors

Sensitive receptors are generally defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors include schools, hospitals, and residential areas. Primary pollutants of concern to sensitive receptors are CO, diesel particulate matter (DPM), and, to a lesser extent, odors or odorous compounds such as ammonia and sulfur dioxide. Sensitive receptors would not be directly affected by emissions of regional pollutants, such as ozone precursors (ROG and NO_X).

The project area is located within an existing urban environment that includes a number of sensitive receptors, such as single- and multi-family homes and schools. The nearest sensitive receptors are located 150 feet from the project site.

Environmental Consequences

Operations

The primary operational emissions associated with the project are CO, PM10, PM2.5, the ozone precursors ROG and NO_X, and CO_2 emitted as vehicle exhaust. Various models were used to determine emissions under the project and the effects of criteria pollutants (ozone precursors, CO, PM10, and PM2.5), as well as CO_2 emissions, were quantified using emission factors obtained from Caltrans' CT-EMFAC emission modeling program (version 5.0) and traffic data provided by the project traffic engineers. The effects of localized CO hot-spot emissions were evaluated through CO dispersion modeling using the Transportation Project-Level Carbon Monoxide Protocol developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis and traffic data provided by the project traffic engineers. The effects of localized PM were evaluated using the EPA and Federal Highway Administration's (FHWA) guidance manual, Transportation Conformity Guidance for Qualitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas. MSAT emissions were evaluated using the FHWA's Interim Guidance on Mobile Source Air Toxic Analysis in National

Environmental Policy Act (NEPA) documents. Conformity of the Regional Transportation Plan with the State Implementation Plan.

The project is located in a marginal nonattainment for the federal 8-hour ozone standard. Because ozone and its precursors are regional pollutants, the project must be evaluated under the regional transportation conformity requirements unless the project is already included in an approved RTP and/or TIP, and the project design concept or scope remains the same as that described in the RTP and/or TIP.[2]

The project is include in the Sacramento Area Council of Governments' (SACOG) 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (2016 MTP/SCS), which adopted February 18, 2016. Engineering for the project is also included in the 2015/2018 Metropolitan Transportation Improvement Program (MTIP). The design concept, scope of the proposed project is consistent with the project description in the 2016 MTP/SCS, the 2015/2018 MTIP, and the assumptions in SACOG's regional emissions analysis. Therefore, the project does not need to be evaluated under regional transportation conformity requirements.

Carbon Monoxide

Existing year (2012), construction year (2020), and design year (2040) conditions were modeled to evaluate CO hot spots were evaluated at four receptor locations at each of the four intersections, for a total of 16 receptors. Traffic volumes and operating conditions used in the model were obtained from traffic data prepared by the proposed project's traffic engineers. Only the PM peak hour traffic was modeled, as the traffic congestion would generally be worse in the PM peak hour than in the AM peak hour. The following intersections were included in the model for the specific project conditions (Existing, No-Build, or Build):

- Galleria Boulevard/Roseville Parkway
- I-80 eastbound off-ramp/Eureka Road/Taylor Road/Atlantic Street
- Sunrise Avenue/Douglas Boulevard
- Rocklin Road/Granite Drive

The 1- or 8- hour CAAQS for concentrations of CO is 20 ppm and 9 ppm, respectively. The analysis shows that the highest modeled concentrations of CO occur under Existing Conditions at the intersection of Sunrise Avenue/Douglas Boulevard, with a model result of 6.13 ppm for 1-hour and 4.39 ppm for 8-hour (see Table 5). The concentration of CO for all other intersections and all other project conditions are less than these calculations. Therefore, the project would not result in an exceedance of the 1- or 8- hour CAAQS for concentrations of CO.

[2] Note the SACOG's RTP is known as the MTP/SCS and its Transportation Improvement Program is known as the MTIP.

Table 5. CO Modeling Concentration Results (Parts per Million)

Intersection	Rec.[a]	1-Hour CO Concentrations[b] (ppm)							8-Hour CO Concentrations[c] (ppm)						
		Existing (2012)	Construction Year (2020)			Design Year (2040)			Existing (2012)	Construction Year (2020)			Design Year (2040)		
			Car-pool Lane Alt.	Gen. Purp. Lane Alt.	No Build Alt.	Car-pool Lane Alt.	Gen. Purp. Lane Alt.	No Build Alt.		Car-pool Lane Alt.	Gen. Purp. Lane Alt.	No Build Alt.	Car-pool Lane Alt.	Gen. Purp. Lane Alt.	No Build Alt.
Galleria Blvd./ Roseville Pkwy.	1	6.03	4.13	4.13	4.13	2.93	2.93	2.83	4.32	2.99	2.99	2.99	2.15	2.15	2.08
	2	5.63	3.93	3.93	3.93	2.83	2.83	2.83	4.04	2.85	2.85	2.85	2.08	2.08	2.08
	3	5.73	4.03	4.03	4.03	2.93	2.93	2.93	4.11	2.92	2.92	2.92	2.15	2.15	2.15
	4	5.73	3.93	3.93	4.03	2.93	2.93	3.03	4.11	2.85	2.85	2.92	2.15	2.15	2.22
I-80 EB Offramp/ Eureka Rd/ Taylor Rd/ Atlantic St.	5	5.23	3.73	3.73	3.73	2.83	2.83	2.83	3.76	2.71	2.71	2.71	2.08	2.08	2.08
	6	5.33	3.63	3.63	3.63	2.73	2.73	2.73	3.83	2.64	2.64	2.64	2.01	2.01	2.01
	7	5.03	3.53	3.43	3.63	2.83	2.83	2.73	3.62	2.57	2.50	2.64	2.08	2.08	2.01
	8	5.73	4.03	4.03	4.03	3.03	3.03	2.93	4.11	2.92	2.92	2.92	2.22	2.22	2.15
Sunrise Ave./ Douglas Blvd.	9	6.13	3.93	3.93	3.93	2.93	2.93	2.93	4.39	2.85	2.85	2.85	2.15	2.15	2.15
	10	5.03	3.43	3.43	3.43	2.63	2.63	2.63	3.62	2.50	2.50	2.50	1.94	1.94	1.94
	11	5.33	3.63	3.63	3.63	2.73	2.63	2.73	3.83	2.64	2.64	2.64	2.01	1.94	2.01
	12	5.73	3.73	3.73	3.73	2.73	2.73	2.73	4.11	2.71	2.71	2.71	2.01	2.01	2.01
Rocklin Rd./ Granite Dr.	13	4.73	3.73	3.73	3.73	2.73	2.73	2.73	3.41	2.71	2.71	2.71	2.01	2.01	2.01
	14	4.13	3.23	3.23	3.33	2.63	2.63	2.63	2.99	2.36	2.36	2.43	1.94	1.94	1.94
	15	3.93	3.13	3.13	3.13	2.53	2.53	2.53	2.85	2.29	2.29	2.29	1.87	1.87	1.87
	16	4.23	3.43	3.43	3.43	2.63	2.63	2.63	3.06	2.50	2.50	2.50	1.94	1.94	1.94
State Standard (ppm)		20	20	20	20	20	20	20	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Federal Standard (ppm)		35	35	35	35	35	35	35	9	9	9	9	9	9	9

[a] Consistent with Caltrans CO Protocol, receptors are located at 3 meters from the intersection, at each of the four corners to represent the nearest location in which a receptor could potentially be located adjacent to a travelled roadway. The modeled receptors indicated in Table 5 (Receptors 1-16) are not representative of the actual sensitive receptors. All intersections modeled have two intersecting roadways.

[b] Average 1-hour background concentration between 2012 and 2014 was 1.93 ppm (California Air Resources Board 2015b).

[c] Average 8-hour background concentration between 2012 and 2014 was 1.45 ppm (U.S. Environmental Protection Agency 2014).

CO = carbon monoxide; ppm = parts per million; EB = eastbound

To be considered a Project of Air Quality Concern (POAQC), and require a PM.2.5 hotspot analysis, a project would need to be one of the following types of projects, as defined by the U.S. EPA's POAQC Guidance:

i) *New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles.*

The proposed project would add carpool lanes or general purpose lanes and auxiliary lanes on SR 65 from north of Galleria Boulevard/Stanford Ranch Road to Blue Oaks Boulevard, and would add auxiliary lanes from Blue Oaks Boulevard to Lincoln Boulevard to relieve existing mainline congestion and accommodate planned and anticipated growth along the corridor by adding to mainline capacity. The Carpool Lane Alternative under the design year (2040) conditions was selected for the analysis, as traffic volumes are forecasted to be highest for the Carpool Lane Alternative when compared to the General Purpose Lane Alternative, while the design year (2040) condition represents the year with maximum traffic volumes. AADT on the evaluated road segments on SR 65 for the Carpool Lane Alternative under design year (2040) conditions will vary between 127,000 and 170,900, depending on the location. Heavy-duty trucks comprise between 2.8% and 3.9% of this AADT, resulting in a truck AADT of 3,500 to 6,700. Predicted AADT would be in excess of the EPA's AADT guidance criterion of 125,000, while predicted truck percentages and volumes would be well below the EPA's guidance criteria of 8% or 10,000 vehicles per day (maximum truck percentages and truck AADT are 3.9% and 6,700, respectively). Table 6 also indicates truck percentages for all segments analyzed under the Carpool Lane Alternative would decrease relative to the No Build Alternative between 0.2 and 0.5%. Accordingly, the project would not serve a significant number of diesel vehicles or result in a significant increase in diesel vehicles.

ii) *Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.*

Peak-hour LOS and delay at half of all key intersections analyzed under existing construction year (2020) and design year (2040) conditions would experience increases in delay with implementation of the Build Alternatives. However, the Build Alternatives would result in reduced congestion and delay on the local regional network, with substantial improvements in measures of effectiveness seen under some conditions. For example, between 11 and 22% reductions in vehicle hours of delay are seen in the PM peak period in the design year. In addition, none of the study intersections have a significant number of trucks (3% during the AM peak hour and 2% during the PM peak hour under Year 2040 conditions), therefore, the proposed project would not affect any at-grade intersections with a high number of diesel vehicles.

Table 6. AADT Volumes and Truck Percentages

Segment	Existing Year (2009[a]) Conditions			Design Year (2040) Conditions										
				General Purpose Lane Alternative				Carpool Lane Alternative				No Build Alternative		
	AADT	Truck AADT	% Truck	AADT	Truck AADT	% Truck	Δ % Truck from No Build Alternative	AADT	Truck AADT	% Truck	Δ % Truck from No Build Alternative	AADT	Truck AADT	% Truck
Stanford Ranch Rd/ Galleria Blvd to Pleasant Grove Blvd	104,400	3,500	3.4%	169,200	6,600	3.9%	-0.2%	170,900	6,700	3.9%	-0.2%	152,400	6,300	4.1%
Pleasant Grove Blvd to Blue Oaks Blvd	83,400	3,100	3.7%	159,800	6,300	3.9%	-0.4%	162,300	6,400	3.9%	-0.4%	140,800	6,000	4.3%
Blue Oaks Blvd to Sunset Blvd	65,300	2,400	3.7%	134,600	4,900	3.6%	-0.5%	135,700	4,900	3.6%	-0.5%	112,100	4,600	4.1%
Whitney Ranch Pkwy/Placer Pkwy to Twelve Bridges Dr	54,000	1,900	3.5%	126,500	3,500	2.8%	-0.2%	127,000	3,500	2.8%	-0.2%	112,700	3,400	3.0%

Notes:

a. The existing conditions total volume data is from 2009 as reported in the PeMS database. The existing truck volumes are estimated from the base year SACMET model.

b. The existing condition total volume data from Twelve Bridges Dr to Lincoln Blvd is estimated based on 2009 PeMS data at Sunset Blvd and the base year SACMET model.

Source: Fehr & Peers 2015

iii) *New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.*

The project does not include new bus or rail terminals and transfer points.

iv) *Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.*

The project does not include new bus or rail terminals and transfer points.

v) *Projects in or affecting locations, areas, or categories of sites which are identified in the PM2.5 or PM10 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.*

Currently, the SMAQMD's PM2.5 SIP, *PM2.5 Implementation/Maintenance Plan and Redesignation Request for Sacramento PM2.5 Nonattainment Area*, has not identified any locations, areas, or categories of sites as s site of violation or possible violation.

Accordingly, the project is not considered to be a POAQC, and project-level particulate matter conformity determination requirements are thus satisfied and the proposed project would not be anticipated to result in an exceedance of the PM2.5 CAAQS.

Criteria Pollutants - Generation of Operation-Related Emissions of Reactive Organic Gases, Oxides of Nitrogen, Carbon Monoxide, and Particulate Matter

Long-term air quality impacts are those associated with motor vehicles operating on the roadway network, predominantly those operating in the project vicinity. Emission of ROG, NO_X, CO, PM10, and PM2.5 for existing year (2012) and design year (2040[3]) conditions, were evaluated through modeling conducted using Caltrans' CT-EMFAC model and vehicle activity data provided by the project traffic engineer, Fehr & Peers[4].

Table 7 summarizes the modeled project-related criteria pollutant emissions. The differences in emissions between the Build Alternative and No-Build Alternative conditions represent emissions generated directly as a result of implementation of the project. Vehicular emission rates are anticipated to lessen in future years due to continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

Table 7 indicates implementation of the Build Alternatives would result in decreases in ROG, NO_X, and CO emissions compared to existing conditions. These reductions are primarily the result of lower future emission factors associated with the replacement of older, more heavily polluting vehicles with newer and cleaner vehicles, which offset increase in VMT associated with the Build Alternatives. Table 7 also indicates PM2.5 and PM10 emissions would increase relative to existing conditions. This increase is because, unlike reductions seen in ROG, NO_X,

[3] CT-EMFAC only includes vehicle emission rates up to the year 2035, thus project design year (2040) emissions use CT-EMFAC 2035 emission rates.

[4] Note that 2020 traffic data from the travel demand model is not available (Stanek pers. comm.); the analysis of greenhouse gas emissions evaluates traffic data for existing and 2040 conditions.

and CO exhaust emissions due to lowering emission factors from newer vehicles replacing older vehicles, the increases in PM10 and PM2.5 emissions are due to brake wear and tire wear emissions, which are dependent upon VMT. Implementation of the Build Alternatives would increase all criteria pollutants relative to the No Build condition in 2040.

Because Caltrans has statewide jurisdiction, and the setting for projects varies so extensively across the state, Caltrans has not and has no intention to develop thresholds of significance for CEQA. Further, because most air district thresholds have not been established by regulation or by delegation down from a federal or state agency with regulatory authority over Caltrans, Caltrans is not required to adopt those thresholds in Caltrans' documents. Nevertheless, Placer County Air Pollution Control District (PCAPCD) thresholds are also provided for reference.

Table 7. Estimated Criteria Pollutant Emissions from Operation of the SR 65 Capacity and Operational Improvements Project (pounds per day)

Alternative	Daily VMT	ROG	NO_X	CO	PM10	PM2.5
2012 Baseline	5,144,317	2,345	4,351	25,181	601	273
2040 No Build	7,734,336	1,492	1,851	13,080	854	365
2040 General Purpose Lane	7,868,726	1,528	1,888	13,334	869	372
2040 Carpool Lane	7,852,195	1,524	1,883	13,297	867	371
Comparison to Existing (% change)						
2040 No Build	2,590,019 (+50.3%)	-853 (-36.4%)	-2,500 (-57.5%)	-12,101 (-48.1%)	253 (+42.1%)	92 (+33.7%)
2040 General Purpose Lane	2,724,409 (+53.0%)	-817 (-34.8%)	-2,463 (-56.6%)	-11,847 (-47.0%)	268 (+44.6%)	99 (+36.3%)
2040 Carpool Lane	2,707,878 (+52.6%)	-821 (-35.0%)	-2,468 (-56.7%)	-11,884 (-47.2)	266 (+44.3%)	98 (+35.9%)
Comparison to No Build (% change)						
2040 General Purpose Lane	134,390 (+1.7%)	36 (+2.4%)	37 (+2.0%)	254 (+1.9%)	15 (+1.8%)	7 (+1.9%)
2040 Carpool Lane	117,859 (+1.5%)	32 (+2.1%)	32 (+1.7%)	217 (+1.7%)	13 (+1.5%)	6 (+1.6%)
PCAPCD Threshold	-	*55*	*55*	-	*82*	-

CO = carbon monoxide
NO_X = nitrogen oxides
PCAPCD = Placer County Air Pollution Control District
PM10 = particles of 10 micrometers or smaller
PM2.5 = particles of 2.5 micrometers and smaller
ROG = reactive organic gases
VMT = vehicle miles travelled

Mobile Source Air Toxic Emissions

Annual average daily traffic (AADT) on SR 65 will vary between 127,000 and 170,900 depending on the location, for Carpool Lane Alternative under design year (2040) conditions (ICF International 2016c). Consistent with FHWA guidance, this project is considered a project with higher potential MSAT effects, because AADT is in excess 140,000 (U.S. Federal Highway Administration 2012). Consequently, based on the FHWA's 2016 MSAT guidance, a quantitative analysis of MSAT emissions is required (U.S. Federal Highway Administration

2016). Therefore, an evaluation of MSAT emissions for existing (2012) and design year (2040) conditions was performed using the CT-EMFAC model and the traffic data.

Table 8 presents modeled MSAT emissions by scenario, as well as a comparison of Build Alternative emissions to No Build and existing conditions. The differences in emissions between with- and without-project conditions represent emissions generated directly as a result of implementation of the proposed project. The table indicates that implementation of all Build Alternatives would result in decreased MSAT emissions compared to existing conditions, except for naphthalene and polycyclic organic matter (POM), which would see no change relative to existing conditions. Table 8 also indicates there would be no meaningful differences in levels of MSAT emissions between the Future Build and No Build Alternatives, as there is no change in MSAT emissions between the Build Alternatives and No Build Alternative, except for formaldehyde and DPM, which would both result in a 1 pound per day increase in emissions relative to the No Build Alternative.

Table 8. Estimated MSAT Emissions from Operation of the SR 65 Capacity and Operational Improvements Project (pounds per day)

Alternative	Benzene	Acrolein	Formaldehyde	Butadiene	Naphthalene	POM	DPM
2012 Baseline	48	2	37	8	3	0	41
2040 No Build	27	1	19	4	3	0	15
2040 General Purpose Lane	27	1	20	4	3	0	16
2040 Carpool Lane	27	1	20	4	3	0	16
Comparison to Existing (% change)							
2040 No Build	-21 (-43.8%)	-1 (-50.0%)	-18 (-48.6%)	-4 (-50.0%)	0 (0.0%)	0 (0.0%)	-26 (-63.4%)
2040 General Purpose Lane	-21 (-43.8%)	-1 (-50.0%)	-17 (-45.9%)	-4 (-50.0%)	0 (0.0%)	0 (0.0%)	-25 (-61.0%)
2040 Carpool Lane	-21 (-43.8%)	-1 (-50.0%)	-17 (-45.9%)	-4 (-50.0%)	0 (0.0%)	0 (0.0%)	-25 (-61.0%)
Comparison to No Build (% change)							
2040 General Purpose Lane	0 (0.0%)	0 (0.0%)	1 (+5.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)
2040 Carpool Lane	0 (0.0%)	0 (0.0%)	1 (+5.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.0%)

POM = polycyclic organic matter; DPM = diesel particulate matter

Moreover, U.S. EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with the U.S. EPA's MOVES2014 model forecasts a combined reduction of over 90 percent in the total annual emission rate for MSAT emissions from 2010 to 2050, while VMT is projected to increase by over 45 percent. This will reduce the background level of MSAT emissions and potentially reduce minor MSAT emissions from this project (Attachment C).

Construction

Criteria Pollutants - Potential for Temporary Increase in Emissions during Grading and Construction Activities

Implementation of the Build Alternative would result in the construction of widened and reconfigured roads as well as intersection improvements. Temporary construction emissions of ozone precursors ROG and NO_X, CO, and PM10 emissions would result from grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, and paving activities and construction worker commuting patterns. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

To provide a realistic, yet conservative scenario, maximum daily emissions from construction activities were estimated assuming all equipment would operate at the same time during individual construction phases. Because of this conservative assumption, actual emissions could be less than those forecasted. Table 9 summarizes maximum daily emissions levels for the proposed construction year 2020. Because Caltrans has statewide jurisdiction, and the setting for projects varies so extensively across the state, Caltrans has not and has no intention to develop thresholds of significance for CEQA. Further, because most air district thresholds have not been established by regulation or by delegation down from a federal or state agency with regulatory authority over Caltrans, Caltrans is not required to adopt those thresholds in Caltrans' documents. Nevertheless, PCAPCD thresholds are also provided for reference.

Table 9. Worst-Case Construction Emission Estimates (pounds per day)

Project Phase	ROG	NO_X	CO	PM10			PM2.5		
				Exhaust	Dust	Total	Exhaust	Dust	Total
Grubbing/Land Clearing	3.7	39.2	31.8	1.7	50.0	51.7	1.5	10.4	11.9
Grading/Excavation	16.5	170.7	127.0	7.8	50.0	57.8	6.7	10.4	17.1
Drainage/Utilities/Sub-Grade	5.7	52.2	49.0	2.6	10.0	12.6	2.2	2.1	4.3
Paving	6.0	91.6	85.3	2.8	-	2.8	2.4	-	2.4
Maximum Daily	16.5	170.7	127.0	7.8	50.0	57.8	1.5	10.4	11.9
PCAPCD Threshold	*82*	*82*	-	-	-	*82*	-	-	-

CO = carbon monoxide
NO_X = nitrogen oxides
PCAPCD = Placer County Air Pollution Control District
PM10 = particles of 10 micrometers or smaller
PM2.5 = particles of 2.5 micrometers and smaller
ROG = reactive organic gases

The project's construction emissions are considered less than significant. Construction activities are subject to requirements found in the Standard Specifications (California Department of Transportation 2015), Section 14-9.02, which includes specifications relating to controlling air pollution by complying with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, including air pollution control rules, regulations, ordinances, and statutes provided in Government Code Section 11017 (Public Contract Code §10231). Standard specification Sections 14-11.04 and 18 address dust control and palliative requirements. Implementation of Avoidance and Minimization Measures: *Implement California Department of Transportation Standard Specification Section 14* and *Implement Basic and*

Additional Control Measures for Construction Emissions of Fugitive Dust would minimize air quality impacts from construction activities.

Potential for Disturbance of Soil Containing Naturally Occurring Asbestos

According to the California Department of Conservation's 2000 publication, *A General Location Guide for Ultramafic Rock in California*, there are no geologic features normally associated with naturally occurring asbestos (i.e., serpentine rock or ultramafic rock near fault zones) in or near the project area. As such, there is no potential for impacts related to naturally occurring asbestos emissions during construction activities. However, construction activities that involve the demolition of any building or structure containing asbestos would be subject to the EPAs National Emissions Standards for Hazardous Air Pollutants and ARB's Airborne Toxic Control Measures. This impact is considered less than significant.

Caltrans' Standard Specifications and required dust control measures, as discussed above under "Criteria Pollutants - Potential for Temporary Increase in Emissions during Grading and Construction Activities" will be implemented, as applicable.

Biological Resources

The affected environment discussions and subsequent analyses for biological resources are based on the *Natural Environment Study* prepared for the proposed project in November 2016 (ICF 2016d).

The project footprint includes roadway sections along SR 65 from north of Galleria Boulevard to Industrial Avenue/Lincoln Boulevard (Figure 1 and Figure 2a-k). Areas of road realignment, new road construction, ramp reconstruction, and drainage improvements are collectively referred to as the limits of disturbance. The biological study area (BSA) comprises the limits of disturbance (including permanent and temporary impact areas) and habitats within 250 feet of these limits to account for potential indirect effects on nearby aquatic resources (Figures 2a through 2k).

The biological conditions of the BSA are described below and are followed by more specific discussions of the regulatory setting, affected environment, environmental consequences, and avoidance, minimization, and/or mitigation measures for specific biological resource areas.

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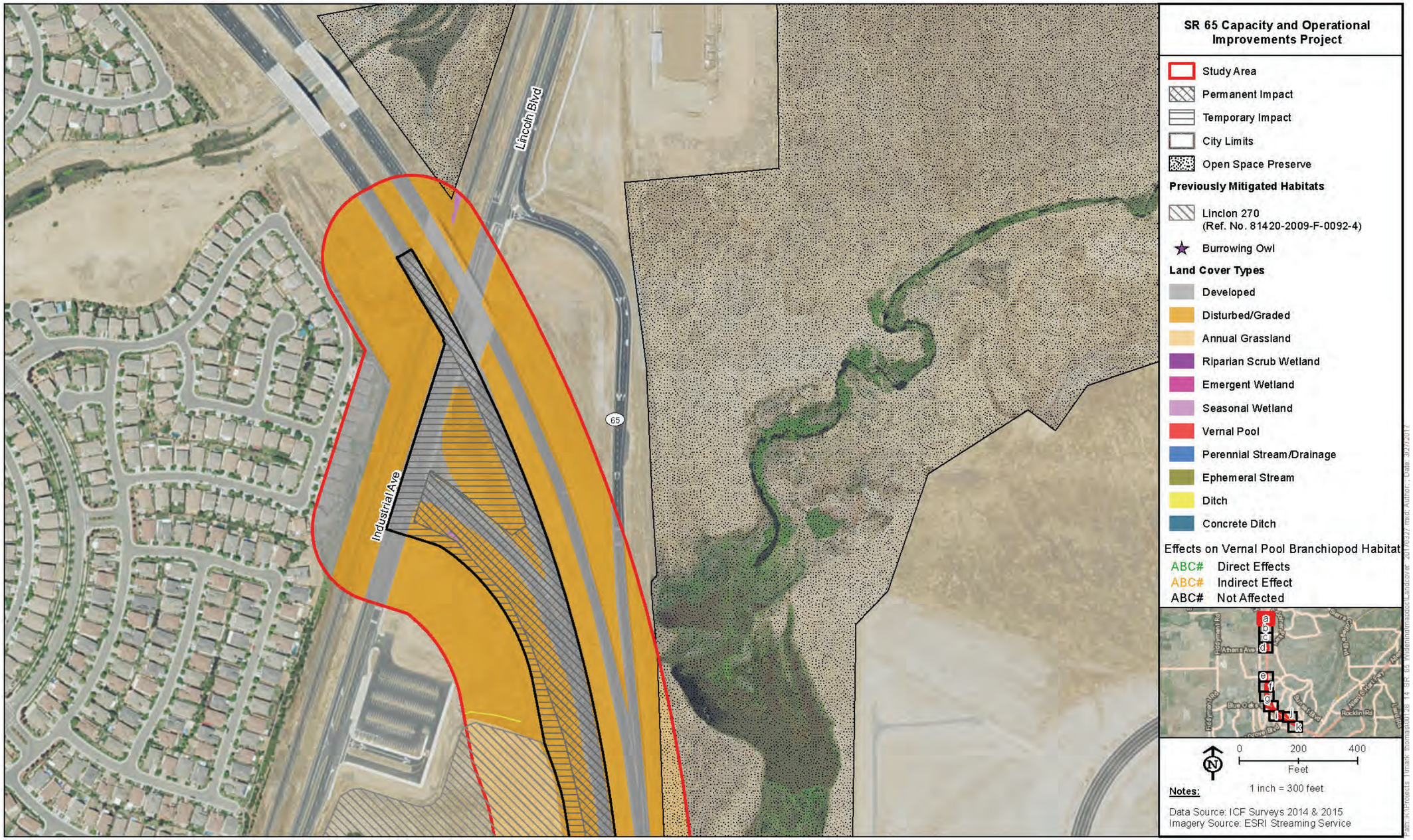
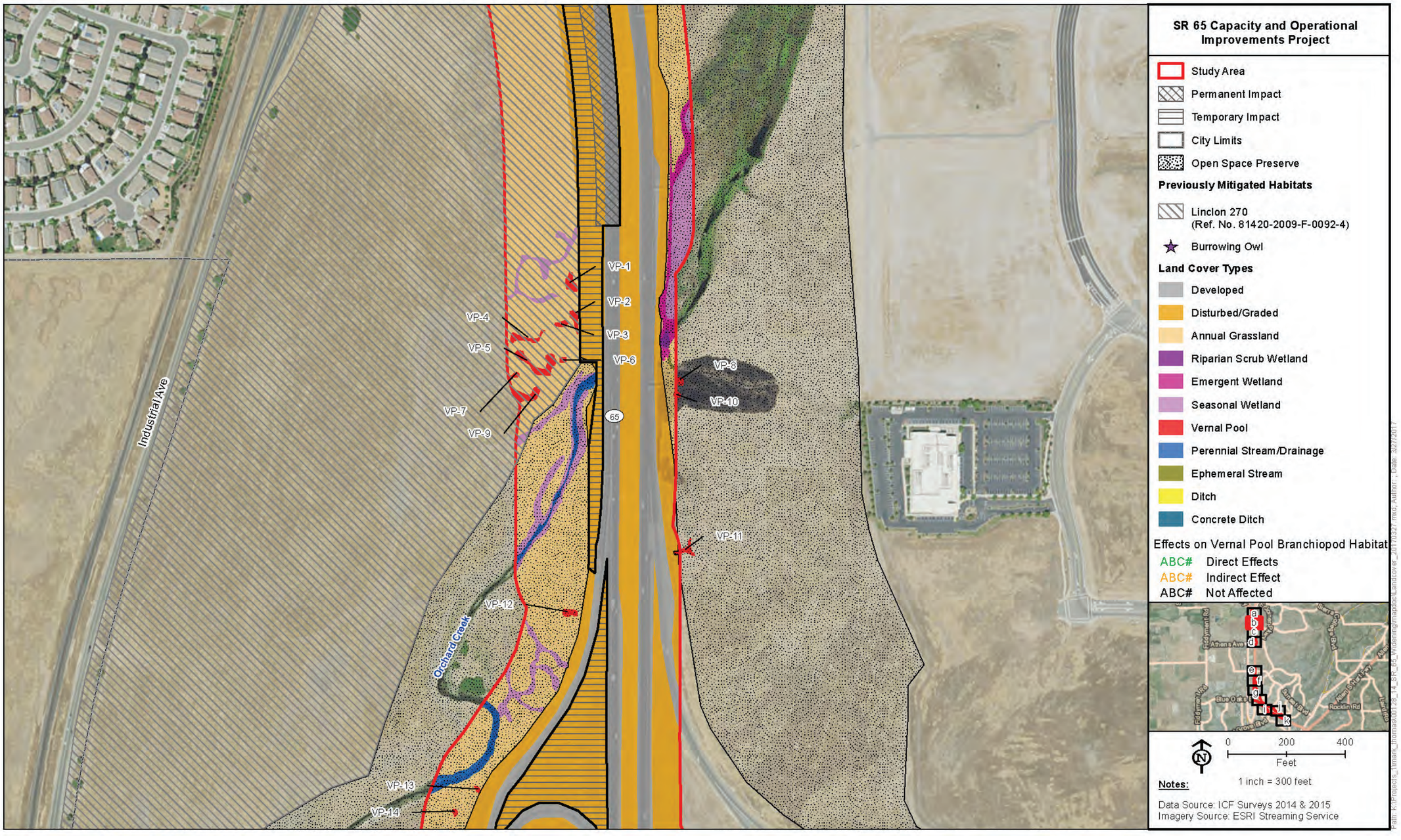


Figure 2a. Biological Resources and Project Impacts



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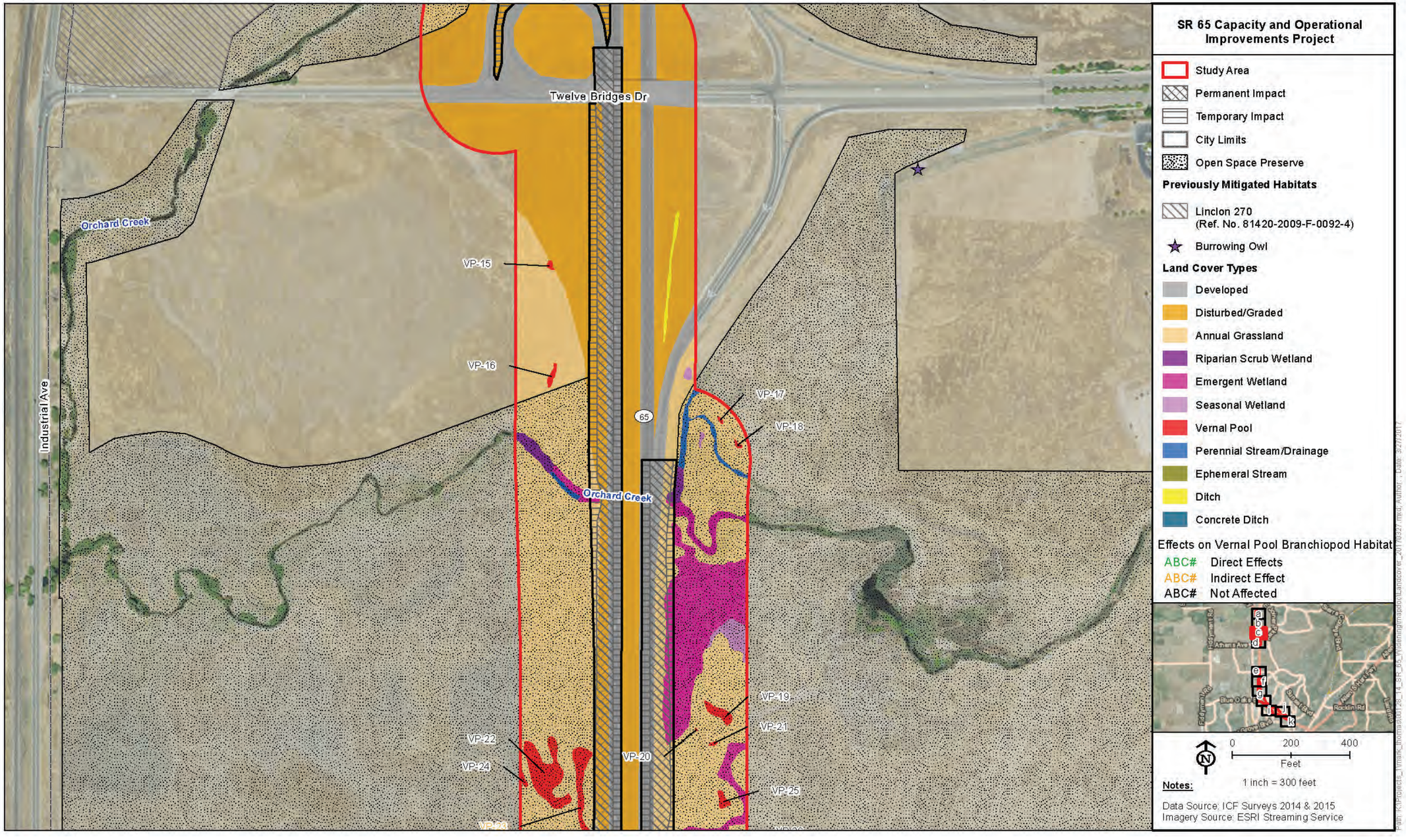
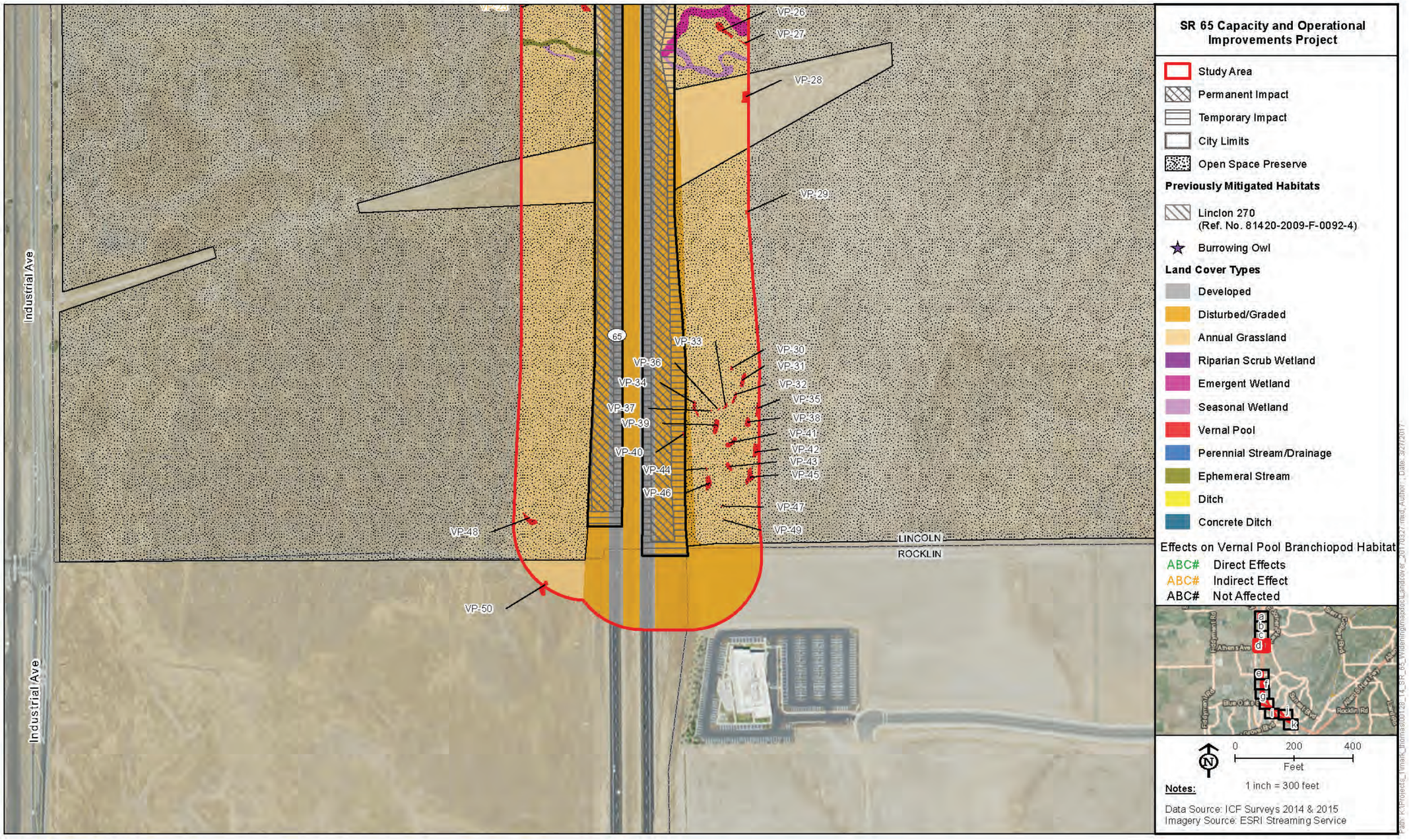


Figure 2c. Biological Resources and Project Impacts



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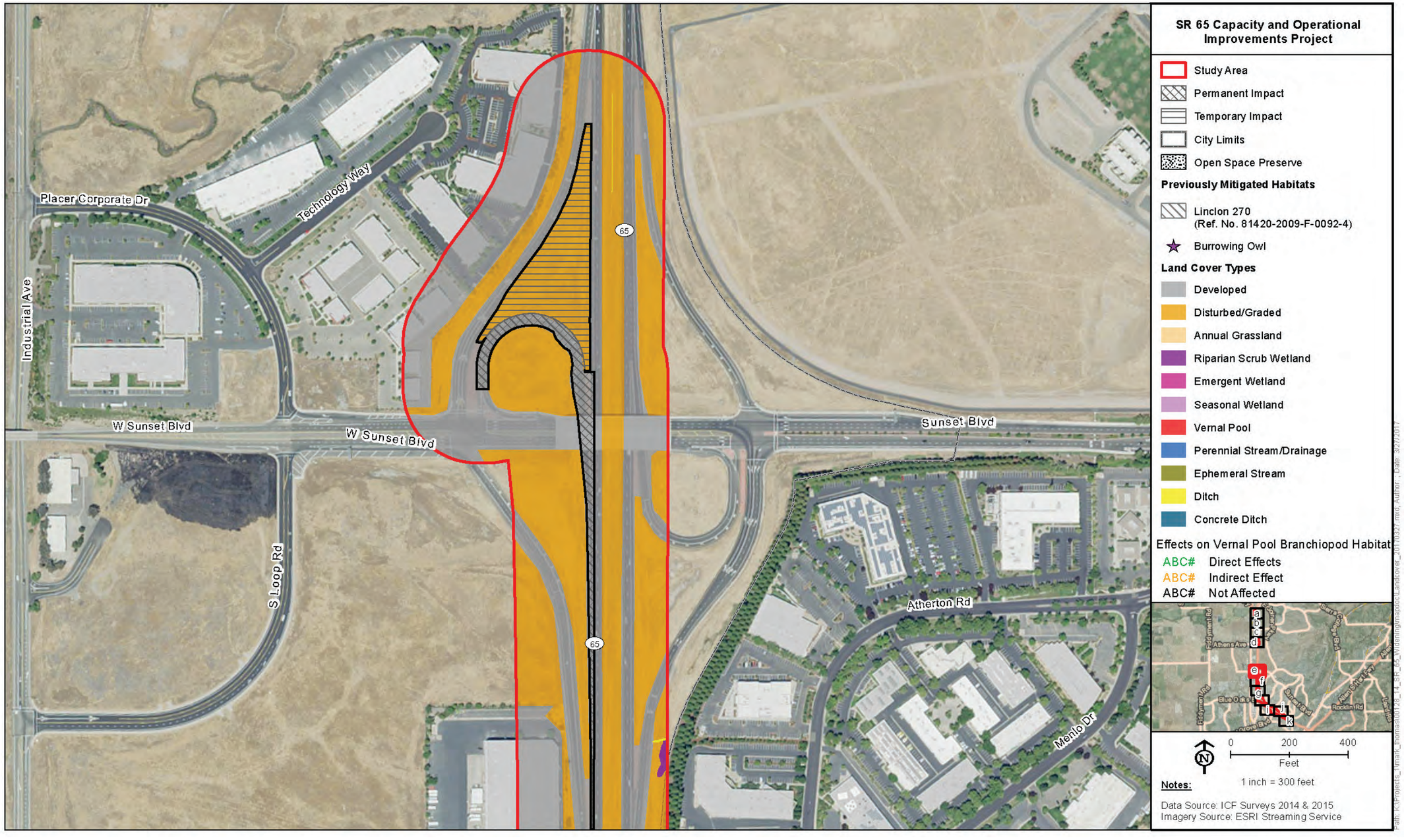

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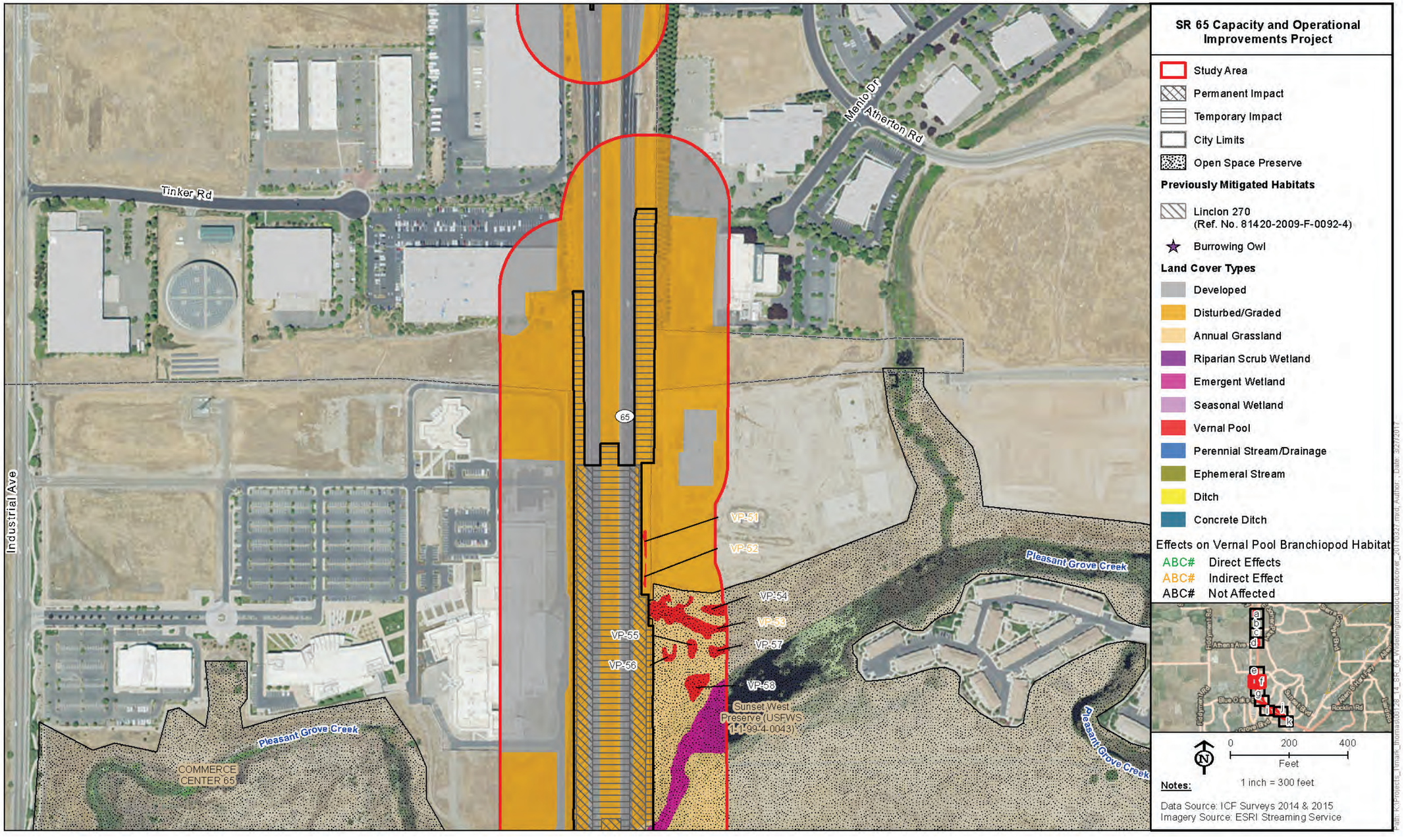

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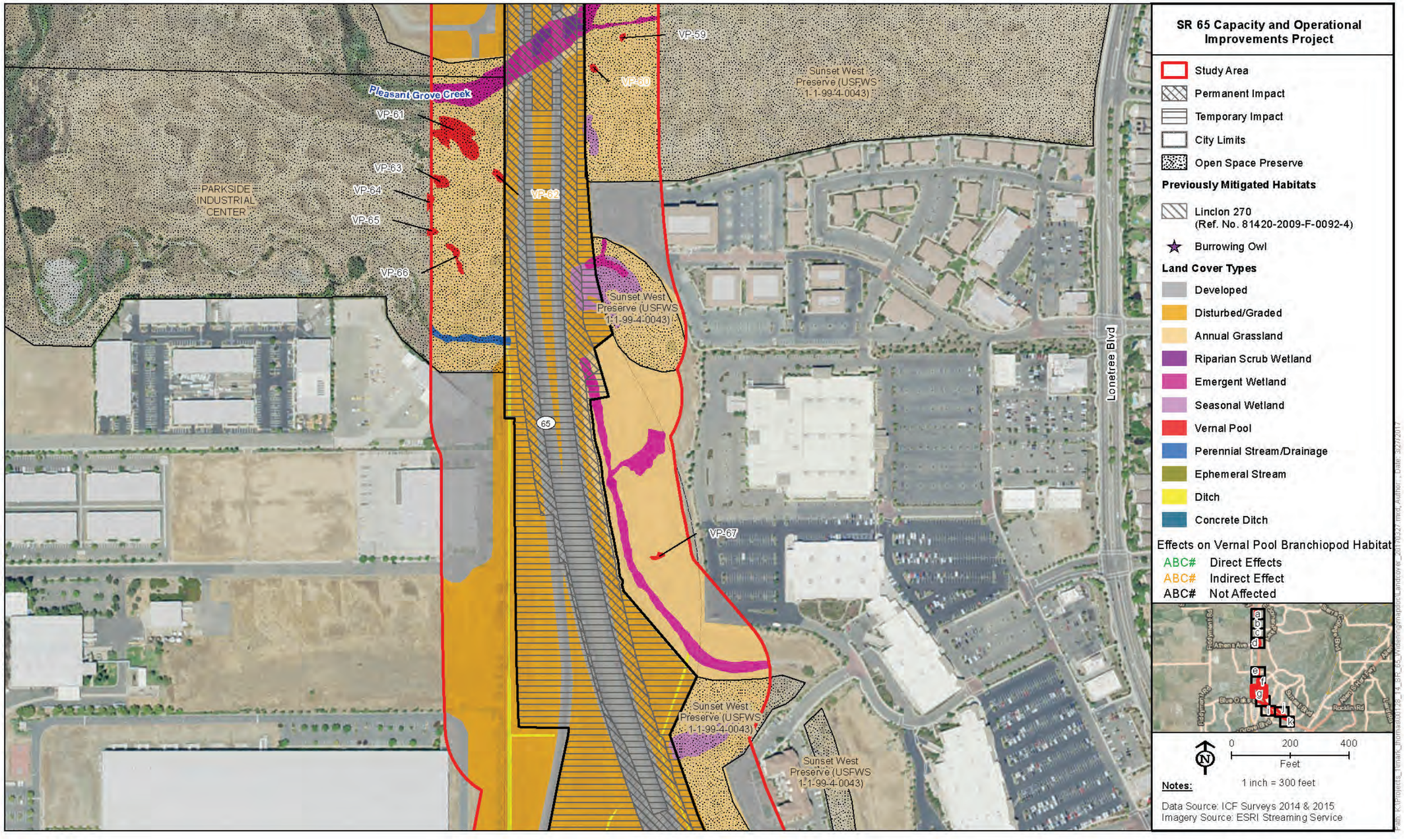

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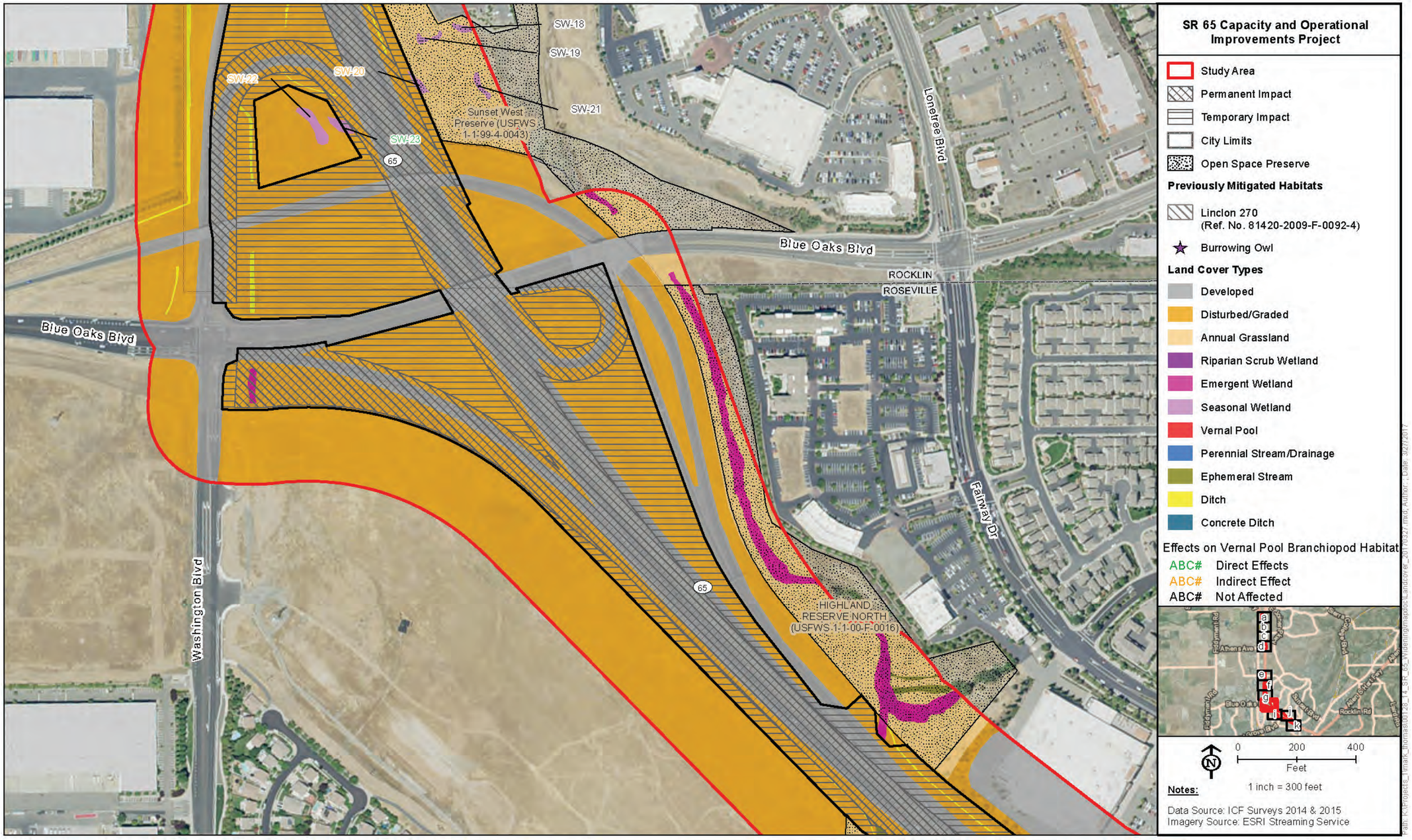

Figure 2h. Biological Resources and Project Impacts

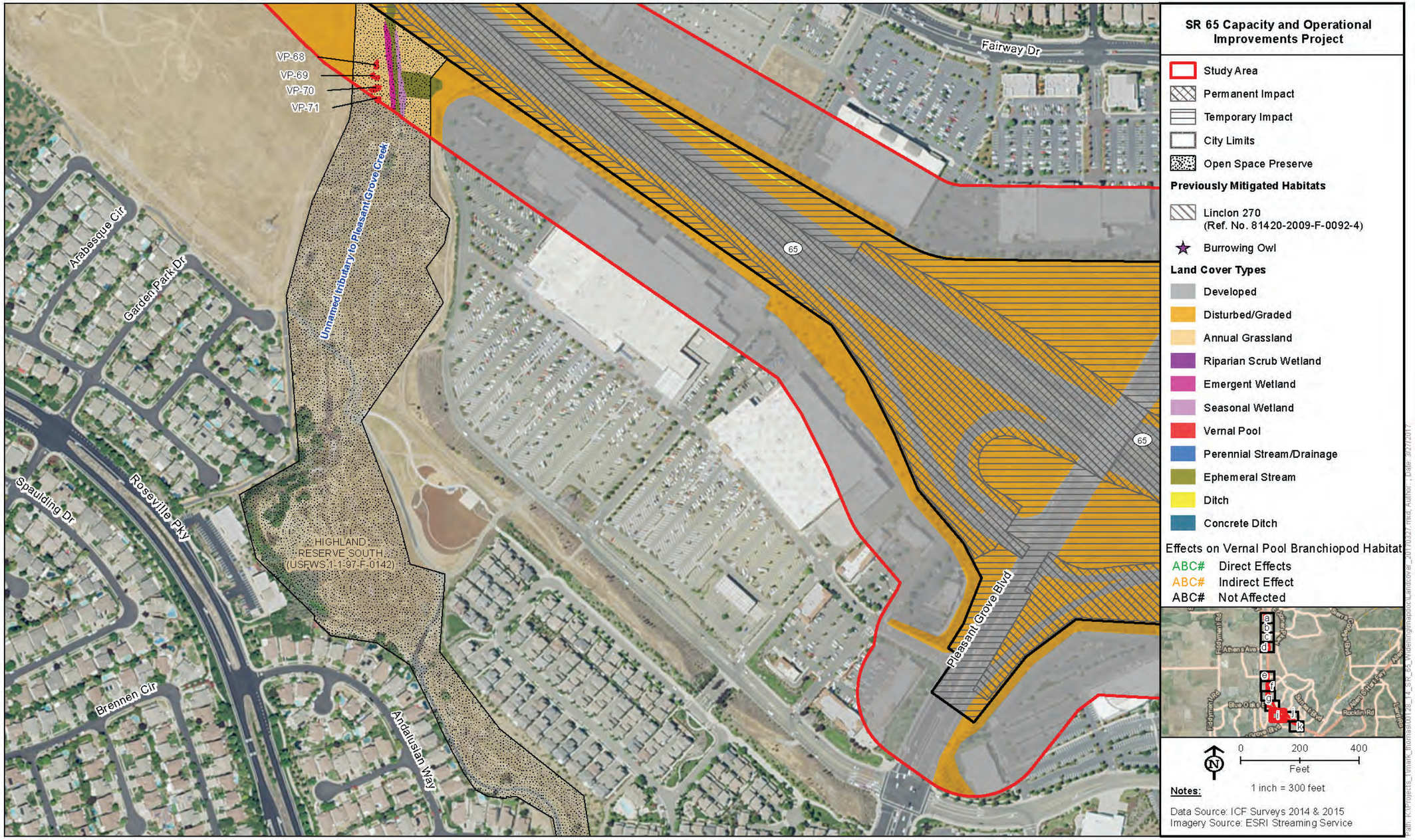

Figure 2i. Biological Resources and Project Impacts

Figure 2j. Biological Resources and Project Impacts

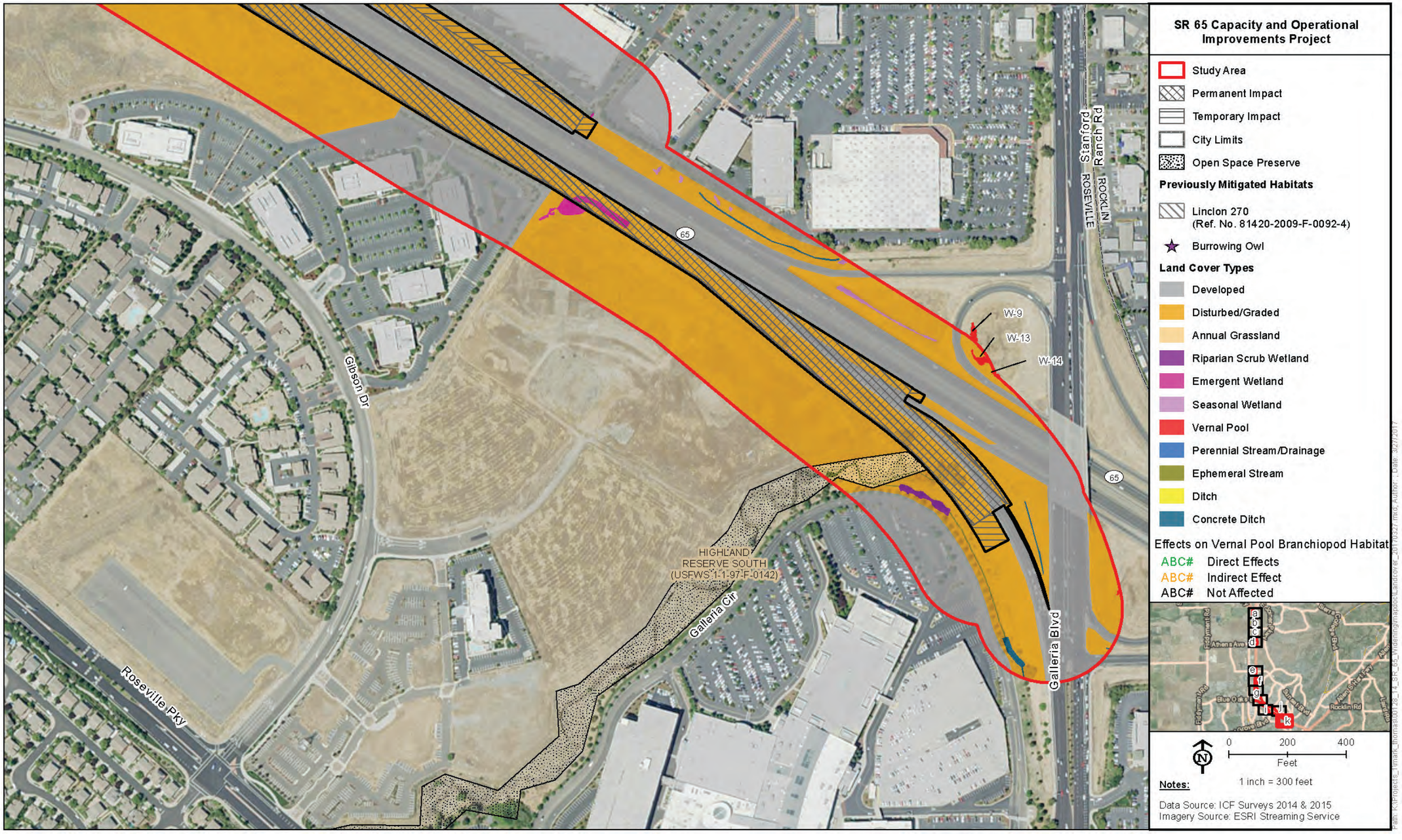

Figure 2k. Biological Resources and Project Impacts

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Biological Conditions in the Study Area

The term *land cover types* is used in this document to refer to natural communities and developed or disturbed areas. Land cover types within the BSA include annual grassland, developed, disturbed/graded, perennial stream/drainage, ephemeral drainage, ditch, riparian scrub wetland, emergent wetland, seasonal wetland, and vernal pool. Most of the BSA is developed or disturbed/graded, with only small areas of the other land cover types. Each of these land cover types is shown on Figures 2a–2k and described below.

In the BSA, four land cover types (riparian scrub wetland, emergent wetland, seasonal wetland, and vernal pool) are considered natural communities of special concern. *Natural communities of special concern* are habitats considered sensitive because of their high species diversity, high productivity, unusual nature, limited distribution, or declining status. Local, state, and federal agencies consider these habitats important. The U.S. Fish and Wildlife Service (USFWS) considers certain habitats, such as wetlands, important to wildlife; and the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) consider wetland habitats important for water quality and wildlife.

The distribution and representative vegetation found in land cover types within the BSA are described below.

Annual Grassland

Most of the annual grassland in the BSA occurs north of Blue Oaks Boulevard. This vegetation type is dominated by nonnative grasses and forbs. Common grass species are Italian ryegrass (*Festuca perennis*), medusahead (*Elymus caput-medusae*), slender wild oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and foxtail barley (*Hordeum murinum ssp. leporinum*). Representative forb species are yellow star-thistle (*Centaurea solstitialis*), rose clover (*Trifolium hirtum*), hairy vetch (*Vicia villosa*), and broadleaf filaree (*Erodium botrys*).

Developed Areas

Developed portions of the BSA consist mostly of commercial and industrial areas, and roadways that are largely unvegetated. The vegetation in developed areas typically consists of ornamental species planted for decorative or landscaping purposes, including lavenders (*Lavandula* spp.), coast redwood (*Sequoia sempervirens*), Japanese maple (*Acer palmatum*), Callery pear (*Pyrus calleryana*), and pines (*Pinus* spp.).

Disturbed/Graded Areas

Disturbed/graded portions of the BSA include areas adjacent to roadways and within the cloverleaves or loops that were graded during construction of the roadways or adjacent development. This category also includes areas graded in preparation for development or construction (e.g., staging areas). The vegetative composition of these areas typically consists of nonnative species, particularly annual grasses and weedy forbs, with scattered trees and shrubs.

The density of vegetation is variable and ranges from relatively high in areas along roadways to more sparse in areas that recently have been graded.

Perennial Stream

Within the BSA, streams were classified as perennial if they flow year-round during a typical year. There are nine segments of perennial streams present within the BSA, including Orchard Creek and several of its tributaries in the northern portion of the BSA, and Pleasant Grove Creek and some associated tributaries in the southern portion of the BSA. Before the surrounding region was developed, most of these streams would have been seasonal, but now they are supported by significant amounts of irrigation runoff from nearby residential and industrial/commercial developments located within their watersheds. Most of these perennial stream features are characterized by a shallow gradient with stands of wetland vegetation along their margins that were mapped separately as emergent wetlands below; the open water portions that lacked aquatic vegetation were mapped as perennial stream.

Ephemeral Stream

Within the BSA, streams were classified as ephemeral if they had no flowing water during the September 2014 fieldwork; were narrow with small watersheds; and showed ordinary high-water mark (OHWM) indicators, including scour along at least 50% of the channel length, distinct bed, defined bank, and shelving. In total, seven segments of ephemeral streams are present in the BSA (Figures 2d, 2h, 2i, and 2k).

Ditch

Numerous drainage ditches and concrete-lined ditches are present throughout the BSA. Most of these ditches were constructed to convey runoff from SR 65 or from adjacent developed areas. Ditches were mapped if they lacked hydrophytic vegetation and had a distinct bed and bank. Ditches with hydrophytic vegetation were mapped as emergent wetlands or seasonal wetlands.

Riparian Scrub Wetland

Within the BSA, riparian scrub wetlands are present throughout the BSA, typically as small patches interspersed with emergent wetland and the open water portions of channels mapped as perennial stream. Many of the riparian scrub wetlands in the BSA are supported through the dry season by irrigation or landscape runoff. The dominant shrub species within this community is sandbar willow (*Salix exigua*), with some arroyo willow (*Salix lasiolepis*).

Emergent Wetland

Within the BSA, emergent wetlands are located along perennial or ephemeral streams that are supported throughout the dry season by irrigation and landscape runoff. Surface water or a high water table was present in most of these features during September 2014 fieldwork. Typical species were wetland plants such as cattails (*Typha latifolia*) and hard bulrush (S*choenoplectus acutus*).

Seasonal Wetland

Numerous seasonal wetlands were mapped throughout the BSA. Seasonal wetlands in the BSA support wetland hydrology but do not have a permanent water source. Some seasonal wetlands are similar to vernal pools in that they also form in small, shallow depressional areas that receive groundwater and surface runoff during the rainy season and dry completely during the summer months. These features supported hydrophytic vegetation but were distinguished from vernal pools during fieldwork by the lack of typical vernal pool plant species. Within the BSA, seasonal wetlands also occur in swales and small linear streams that lack a defined bed and bank, as well as in some drainage swales that receive landscape irrigation runoff. Seasonal wetlands can be transitional between emergent wetlands and upland grassland along major streams such as Orchard Creek, but they lack the perennial hydrology of the emergent wetlands (i.e., seasonal wetlands are inundated only during wetter times of year). Typical hydrophytic plants observed in seasonal wetlands in the BSA were perennial ryegrass, common spike rush (*Eleocharis macrostachya*), Mediterranean barley, and curly dock (*Rumex crispus*). The predominant indicators of wetland hydrology observed were surface soil cracks and the presence of a biotic crust in the form of algal matting.

Vernal Pool

Vernal pools are a type of seasonal wetland; however, not all seasonal wetlands are vernal pools. Vernal pools in the BSA were distinguished from areas designated as seasonal wetlands based on their vegetative composition and hydrology. The vegetation in areas identified as vernal pools includes one or more of the following species that are typically found only in vernal pools: coyote thistle (*Eryngium castrense*), Fremont's goldfields (*Lasthenia fremontii*), and slender popcornflower (*Plagiobothrys stipitata* var. *micrantha*). In terms of hydrology, areas identified as vernal pools exhibited a biotic crust in the form of algal matting. At the time of the September 2014 field work, many of the vernal pools were dominated by summer upland annuals such as narrow tarplant (*Holocarpha virgata*), vinegar weed (*Trichostema lanceolatum*), dove weed (*Croton setiger*), and spikeweed (*Centromadia fitchii*). It was clear during the fieldwork that the very dry conditions of the 2013–2014 rainy season had greatly limited the development of seasonal hydrophytic vegetation; however, despite the dry conditions, the footprint of each vernal pool in the field was typically clear and the boundaries were distinct.

Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] § 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation,

wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by USACE with oversight by EPA.

The USACE issues two types of 404 permits: General and Standard Permits. There are two types of General Permits: Regional Permits and Nationwide Permits. Regional Permits are issued for a general category of activities when they are similar and cause minimal environmental effect. Nationwide Permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard Permits. There are two types of Standard Permits: Individual Permits and Letters of Permission. For Standard Permits, the USACE decision to approve is based on compliance with EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] §230) and on whether permit approval is in the public interest. The Guidelines were developed by EPA in conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the United States) only if there is no practicable alternative that would have less adverse effects. The Guidelines state that USACE may not issue a permit if a least environmentally damaging practicable alternative to the proposed discharge would have lesser effects on waters of the United States and would not result in any other significant adverse environmental consequences.

The Executive Order (EO) for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as the FHWA or Caltrans as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds that 1) there is no practicable alternative to the construction; and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board, the Regional Water Quality Control Boards (RWQCBs), and the California Department of Fish and Wildlife (CDFW). California Fish and Game Code (CFGC) Sections 1600–1607 require any agency proposing a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement is required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or by the outer edge of riparian vegetation—whichever is wider. Wetlands under jurisdiction of USACE may or may not be included in the area covered by a Lake or Streambed Alteration Agreement obtained from CDFW.

The RWQCBs were established under the Porter-Cologne Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities that may result in a discharge to waters of the United States. This is most frequently required in tandem with a Section 404 permit request.

Affected Environment

Seven types of potential waters of the United States (including wetlands) were delineated in the BSA, including perennial streams and drainages, ephemeral streams, ditches, riparian scrub wetland, emergent wetlands, seasonal wetlands, and vernal pools. Descriptions of each wetland type are provided in the section above. Figures 2a–2k depicts the locations of each wetland type within the BSA.

Environmental Consequences

Construction of the proposed project would result in direct temporary and permanent impacts on riparian scrub wetland, emergent wetland, and seasonal wetland habitats. Impacts were considered to be permanent if they would result in the placement of permanent fill in these wetland habitats associated with SR 65 mainline widening and reconstruction of ramp connections. Impacts were considered to be temporary if fill would be removed following completion of construction and temporarily disturbed portions of wetlands would be restored. Both temporary and permanent impacts are considered significant. Additional indirect impacts caused by sedimentation or modification of hydrology could occur in portions of wetlands that lie outside the project footprint.

Wetlands outside the project limits (permanent and temporary impact areas) could be indirectly affected from the introduction of sediment and construction-related pollutants (e.g., fuel, oil, cement).

Construction of the proposed project also would result in temporary and permanent impacts on perennial and ephemeral streams and ditches. Impacts were considered to be permanent if they would result in the placement of permanent fill in stream or ditch habitats associated with construction to extend culverts at existing stream crossings and reconstruction of drainage ditches within existing ramps and interchanges. Impacts were considered to be temporary if fill would be removed following completion of construction and temporarily disturbed portions of stream or ditch would be restored. Temporary impacts on other waters may include modification of the stream bank or channel, increased turbidity, and runoff of chemical substances. Permanent impacts are considered significant.

Indirect impacts on water quality, such as increased turbidity and chemical runoff, may also result from project construction within the downstream portions of streams and drainages that are outside the project footprint.

Table 10 summarizes the impacts of project activities on wetlands and other waters.

Table 10. Impacts on Wetlands and Other Waters of the United States

Wetland and Other Waters	Temporary (acres)	Permanent (acres)
Wetland Type		
Riparian scrub wetland	0.029	0.170
Emergent wetland	0.462	0.858
Seasonal wetland	0.270	0.137
Vernal pool	0	0
Other Waters		
Perennial stream	0.019	0.032
Ephemeral stream	0.038	0.015
Ditch	0.459	0.070

Mitigation Measures

Implementation of the following mitigation measures would reduce significant impacts on wetlands and other waters to less-than-significant levels.

Mitigation Measure 1: Compensate for the Placement of Fill into Wetlands

To compensate for the temporary and permanent project impacts on riparian scrub wetland, emergent wetland, and seasonal wetland, the project proponent will purchase credits at an approved mitigation bank to ensure no net loss of wetland functions and values. Wetland mitigation is also identified under Measure 19 to compensate for federally listed vernal pool fairy shrimp and vernal pool tadpole shrimp habitat. Both compensatory measures have been coordinated such that mitigation for loss of listed species habitat does not duplicate mitigation for loss of USACE-jurisdictional habitat. To accomplish this, the seasonal wetland mitigation credits will be purchased at a bank that includes federally listed branchiopod species. Mitigation banks with service areas for Placer County that sell credits that satisfy USACE wetland and USFWS requirements include Sacramento River Ranch Mitigation Bank, Locust Road Mitigation Bank, and Toad Hill Ranch Mitigation Bank. The wetland compensation ratio will be 1:1 (1 acre of wetland habitat credit for every 1 acre of impact) to ensure no net loss of wetland habitat functions and values.

The project proponent will also implement the conditions and requirements of state and federal permits that will be obtained for the proposed project.

Mitigation Measure 2: Compensate for the Placement of Permanent Fill into Other Waters

The project proponent will compensate for the permanent fill of other waters of the United States/waters of the State (a direct impact associated with culvert and roadway construction). Temporarily disturbed other waters of the United States will be returned to pre-construction condition following construction. To compensate for permanent fill, the project proponent will purchase compensatory credits at a USACE-approved mitigation

bank to ensure no net loss of functions and values. Mitigation banks with service areas for Placer County include Laguna Terrace East Conservation Bank, Reeds Creek Vernal Pool Preserve, Twin Cities Conservation Bank and Preserve, Toad Hill Ranch Mitigation Bank, and Western Placer Schools Conservation Bank. The minimum other waters compensation ratio will be 1:1 (1 acre of other waters habitat credit for every 1 acre of permanent impact) to ensure no net loss of habitat functions and values.

The project proponent also will implement the conditions and requirements of state and federal permits that will be obtained for the proposed project.

Avoidance and Minimization Measures

Implementation of the following measures would further reduce impacts and ensure that the proposed project avoids and minimizes effects on wetlands and other waters within and adjacent to the construction area. Additional measures may be agreed upon during the project permitting process.

Install Fencing and/or Flagging to Protect Sensitive Biological Resources

Prior to construction, the project proponent's contractor will install high-visibility orange construction fencing or flagging, as deemed appropriate by a qualified biologist, along the perimeter of the work area adjacent to Environmentally Sensitive Areas (ESAs) (e.g., riparian vegetation, wetlands, streams, special-status species habitat, and active bird nests). Where specific buffer distances are required for sensitive biological resources (e.g., special-status species habitats), they will be specified under the corresponding measures below. The project proponent will ensure that the final construction plans show the locations where fencing will be installed. The plans also will define the fencing installation procedure. The project proponent or contractor (at the discretion of the project proponent) will ensure that the fencing is maintained throughout the duration of the construction period. If the fencing is removed, damaged, or otherwise compromised during the construction period, construction activities will cease until the fencing is repaired or replaced. The project's special provisions package will provide clear language regarding acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs. All temporary fencing will be removed upon completion of construction.

Conduct Mandatory Environmental Awareness Training for Construction Personnel

Before any work occurs within the project limits, including grading and vegetation removal (grubbing), the project proponent will retain a qualified biologist (familiar with the resources to be protected) to conduct a mandatory contractor/worker environmental awareness training for construction personnel. The awareness training will be provided to all construction personnel (contractors and subcontractors) to brief them on the need to avoid impacts on sensitive biological resources (e.g., riparian vegetation, wetlands, special-status species, and nesting birds) adjacent to construction areas and the penalties for not complying with applicable state and federal laws and permit requirements. The

biologist will inform all construction personnel about the life history and habitat requirements of special-status species with potential for occurrence onsite, the importance of maintaining habitat, and the terms and conditions of applicable project permits. Proof of this instruction will be submitted to the project proponent, and other overseeing agencies (i.e., CDFW, USFWS), as appropriate.

The environmental training will also cover general restrictions and guidelines that must be followed by all construction personnel to reduce or avoid effects on sensitive biological resources during project construction. General restrictions and guidelines that must be followed by construction personnel are listed below.

- Project-related vehicles will observe the posted speed limit on hard-surfaced roads and a 10 mile-per-hour speed limit on unpaved roads or access areas during travel within the project limits.
- Project-related vehicles and construction equipment will restrict off-road travel to the designated construction area.
- Vegetation clearing and construction operations will be limited to the minimum necessary in areas of temporary access to work areas and staging.
- All food-related trash will be disposed of in closed containers and removed from the project site at least once a week during the construction period. Construction personnel will not feed or otherwise attract wildlife to the project site.
- To prevent possible resource damage from hazardous materials such as motor oil or gasoline, construction personnel will not service vehicles or construction equipment outside designated staging areas.

Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction in Sensitive Habitats

The project proponent will retain a qualified biologist to periodically monitor all construction activities that involve ground disturbance (e.g., vegetation removal, grading, excavation) within or adjacent to ESAs (e.g., riparian vegetation, wetlands, streams, special-status species habitat, and active bird nests). At minimum, the monitor will conduct weekly site visits and will monitor construction activities in the vicinity of sensitive habitat for a minimum of 2 hours. The purpose of the monitoring is to ensure that measures identified in this report are properly implemented to avoid and minimize effects on sensitive biological resources and to ensure that the project complies with all applicable permit requirements and agency conditions of approval. The biologist will ensure that fencing around ESAs remains in place during construction and that no construction personnel, equipment, or runoff of sediment from the construction area enters ESAs. The monitor will complete daily logs, and a final monitoring report will be prepared at the end of each construction season and be submitted to the project proponent and other overseeing agencies (i.e., CDFW, USFWS), as appropriate.

Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters

The project proponent will comply with all construction site best management practices (BMPs) developed from Caltrans' Construction Site BMP Manual and specified in the SWPPP and any other permit conditions to minimize the introduction of construction-related contaminants and mobilization of sediment in wetlands and other waters in and adjacent to the project area. These BMPs will address soil stabilization, sediment control, wind erosion control, vehicle tracking control, non-stormwater management, and waste management practices. The BMPs will be based on the best conventional and best available technology that are consistent with the BMPs and control practices required under the CWA.

The proposed project is subject to stormwater quality regulations established under the NPDES, described in Section 402 of the federal CWA. In California, the NPDES program requires that any construction activity disturbing 1 or more acres comply with the statewide General Permit, as authorized by the State Water Board. The General Permit requires elimination or minimization of non-stormwater discharges from construction sites and development and implementation of a SWPPP for the site. The primary elements of the SWPPP include the following.

- Description of site characteristics–including runoff and streamflow characteristics and soil erosion hazard—and construction procedures.
- Guidelines for proper application of erosion and sediment control BMPs.
- Description of measures to prevent and control toxic materials spills.
- Description of construction site housekeeping practices.

In addition to these primary elements, the SWPPP will specify that the extent of soil and vegetative disturbance will be minimized by control fencing or other means and that the extent of soil disturbed at any given time will be minimized. The SWPPP must be retained at the construction site.

The BMPs will be selected to achieve maximum sediment removal. The BMPs will represent the best available technology that is economically achievable and are subject to review and approval by Caltrans. Caltrans and the project proponent will perform routine inspections of the construction area to verify that the BMPs are properly implemented and maintained.

The project proponent also will obtain a 401 water quality certification from the Central Valley RWQCB and a Streambed Alteration Agreement (SAA) from CDFW, which may contain additional BMPs and water quality measures to ensure the protection of water quality.

Plant Species

Regulatory Setting

USFWS and CDFW have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. *Special status* is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the *Threatened and Endangered Species* section for detailed information about these species.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 USC Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at CFGC Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at CFGC Sections 1900–1913, and CEQA, at PRC Sections 21000–21177.

Affected Environment

Botanical surveys in the BSA were conducted on September 3, 4, and 5, 2014 and May 1 and 5, 2015. These surveys coincided with the identification periods of special-status plants determined to have the potential to occur in the project region. Information obtained from the California Natural Diversity Database (CNDDB), CNPS rare plant inventory, and USFWS was used to compile a list of the 13 special-status plant species known to occur in the project region (Table 11).

Table 11. Special-Status Plant Species Identified as Having the Potential to Occur in the Project Region

Common Name Scientific Name	Status[a] Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Likelihood of Occurrence within the BSA
California balsamroot (*Balsamorhiza macrolepis*)	–/–/1B.2	Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 295–5,101 feet	March–June	Present	None; no serpentine soils present. Small amount of marginally suitable habitat present but not observed during surveys within blooming period. Species not expected to be present in BSA.
Hispid bird's-beak (*Chloropyron molle ssp. hispidum*)	–/–/1B.1	Meadow and seeps, valley and foothill grassland, playa, on alkaline soils; 3–508 feet	June–September	Absent	None; microhabitat requirements (i.e., alkaline soils) not present in BSA. Species not expected to be present in BSA.
Brandegee's clarkia (*Clarkia biloba ssp. brandegeeae*)	–/–/4.2	Chaparral, cismontane woodland, lower coniferous forest, often on roadcuts; 246–3,001 feet	May–July	Present	None; potential habitat present but not observed during surveys within blooming period. Species not expected to be present in BSA.
Dwarf downingia (*Downingia pusilla*)	–/–/2B.2	Vernal pools and mesic valley and foothill grasslands; below 1,459 feet	March–May	Present	Moderate; potential habitat present but not observed during surveys within blooming period. Based on aerial imagery, suitable habitat appears to be present on parcels that could not be accessed to conduct surveys. Species could be present within vernal pools in the unsurveyed portions of the BSA, outside the limits of direct disturbance.
Stinkbells (*Fritillaria agrestis*)	–/–/4.2	Chaparral, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland, on clay, sometimes serpentinite substrate; 33–5,101 feet	March–June	Present	None; potential habitat present (small amount of Alamo series clay soils present) but not observed during surveys within blooming period. Species not expected to be present in BSA.

Common Name Scientific Name	Status[a] Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Likelihood of Occurrence within the BSA
Boggs Lake hedge-hyssop (*Gratiola heterosepala*)	–/E/1B.2	Clay soils in areas of shallow water, lake margins of swamps and marshes, vernal pool margins; 33–7,791 feet	April–August	Present	Low; potential habitat present but not observed during surveys within blooming period. Based on aerial imagery, suitable habitat appears to be present on parcels that could not be accessed to conduct surveys. Species could be present within vernal pools in the unsurveyed portions of the BSA, outside the limits of direct disturbance.
Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*)	–/–/1B.2	Wet areas in valley and foothill grassland, vernal pool margins; 98–751 feet	March–May	Present	Moderate; potential habitat present but not observed during surveys within blooming period. Based on aerial imagery, suitable habitat appears to be present on parcels that could not be accessed to conduct surveys. Species could be present within vernal pools in the unsurveyed portions of the BSA, outside the limits of direct disturbance.
Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*)	–/–/1B.1	Seasonally wet areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 115–4,101 feet	March–May	Present	Moderate; potential habitat present but not observed during surveys within blooming period. Based on aerial imagery, suitable habitat appears to be present on parcels that could not be accessed to conduct surveys. Species could be present within vernal pools in the unsurveyed portions of the BSA, outside the limits of direct disturbance.
Legenere (*Legenere limosa*)	–/–/1B.1	Deep, seasonally wet habitats such as vernal pools, ditches, marsh edges, and river banks; below 2,887 feet	April–June	Present	Moderate; potential habitat present but not observed during surveys within blooming period. Based on aerial imagery, suitable habitat appears to be present on parcels that could not be accessed to conduct surveys. Species could be present within vernal pools in the unsurveyed portions of the BSA, outside the limits of direct disturbance.

Common Name Scientific Name	Status[a] Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Likelihood of Occurrence within the BSA
Pincushion navarretia (*Navarretia myersii* ssp. *myersii*)	–/–/1B.1	Edges of vernal pools; 66–1,083 feet	April–May	Present	Moderate; potential habitat present but not observed during surveys within blooming period. Based on aerial imagery, suitable habitat appears to be present on parcels that could not be accessed to conduct surveys. Species could be present within vernal pools in the unsurveyed portions of the BSA, outside the limits of direct disturbance.
Adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*)	–/–/4.2	Clay soils in vernal pools and vernally mesic annual grassland, sometimes serpentine; 330–3,300 feet	April–July	Absent	None; BSA is below known elevation range of this plant. Species not expected to be present in BSA.
Sacramento Orcutt grass (*Orcuttia viscida*)	E/E/1B.1	Vernal pools; 98–328 feet	April–July	Present	None; potential habitat present but not observed during surveys within blooming period. Based on aerial imagery, suitable habitat does not appear to be present on parcels that could not be accessed to conduct surveys. Species not expected to be present in BSA. *No effect.*
Sanford's arrowhead (*Sagittaria sanfordii*)	–/–/1B.2	Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 2,132 feet	May–October	Present	None; potential habitat present but species was not observed during surveys within blooming period. Species not expected to be present in BSA.

Common Name Scientific Name	Status[a] Federal/State/ CRPR	General Habitat Description	Blooming Period	Habitat Present/ Absent	Likelihood of Occurrence within the BSA

[a.] Status explanations:

Federal

E = Listed as endangered under the federal ESA.

T = Listed as threatened under the federal ESA.

C = Species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of th proposed rule is precluded.

— = No listing status.

State

E = Listed as endangered under CESA.

R = Listed as rare under the CESA. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

— = No listing status.

California Rare Plant Rank (CRPR)

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

2B = List 2B species: rare, threatened, or endangered in California but more common elsewhere.

4 = List 4 species: limited distribution; species on a watch list (note: List 4 may not meet the definition of special status but may warrant consideration on the basis of local significance or recent biological information)

.1 = Seriously endangered in California (over 80% of occurrences threatened—high degree and immediacy of threat).

.2 = Fairly endangered in California (20-80% occurrences threatened).

The natural communities in the BSA contain potential habitat for 11 of these species. Of the remaining two species, one has soil type requirements (i.e., alkaline soils) that are not present in the BSA and one occurs at elevations higher than the elevation of the BSA. Additionally, the relatively high level of historical and ongoing disturbance that is present in the BSA reduces the quality of potential habitat for special-status plant species. No special-status plants were observed during 2014 and 2015 botanical surveys, which coincided with the reported identification periods of all 11 potentially occurring special-status plant species. However, access was not available to survey several parcels located on the west side of SR 65 from Industrial Avenue south to the Whitney Ranch Parkway Interchange.

Based on the CNDDB, two special-status vernal pool plant species have been recorded previously in the BSA: dwarf downingia (*Downingia pusilla*) and legenere (*Legenere limosa*) (California Department of Fish and Wildlife 2016). There are two occurrences of dwarf downingia. CNDDB Element Occurrence #60 is mapped at the north end of the BSA between SR 65 and Industrial Avenue and was last seen in 1990. Although, access was not available to conduct surveys in this area and this occurrence could not be verified in 2015, examination of recent aerial imagery shows these parcels support shallow vernal pools and swales, including the area where dwarf downingia has been recorded and this occurrence is therefore presumed to be extant. The second occurrence (CNDDB Element Occurrence #37) was located south of Blue Oaks Boulevard and has been extirpated by grading and development. Legenere (CNDDB Element Occurrence #11) is mapped partially within the BSA in tributaries of Pleasant Grove Creek west of SR 65 and south of Placer Boulevard; however the northern portion of this occurrence has been developed and no suitable habitat remains within the BSA portion of the occurrence.

The vernal pools in the BSA are potential habitat for several special-status plants that are associated with vernal pools (Boggs Lake hedge-hyssop, Ahart's dwarf rush, Red Bluff dwarf rush, legenere, and pincushion navarretia, in addition to dwarf downingia), and it is presumed that these species could be present.

Dwarf downingia has a California Rare Plant Rank (CRPR) of 2B.2 (rare, threatened or endangered in California but more common elsewhere; threat rank is fairly endangered in California). It has no state or federal listing. It occurs primarily in vernal pools but is also found in vernally mesic annual grassland.

Environmental Consequences

Special-status plants were not observed within the BSA during appropriately timed botanical surveys in parcels for which access was available. However, based on the known presence of dwarf downingia at one location in the BSA, it was determined that this plant, and other special-status plants associated with vernal pools, could occur in suitable habitat within the BSA that could not be accessed to conduct surveys. These vernal pools are located on the west side of SR 65 from Industrial Avenue south to the Whitney Ranch Parkway Interchange. For purposes of this impact analysis, vernal pools and seasonal wetlands in the unsurveyed portion of the BSA are presumed to be occupied by dwarf downingia and other special-status plants associated with vernal pools. There would be no direct impacts on vernal pools in this portion of the BSA because the areas of temporary and permanent impact are within the existing right-of-way that

has been graded and does not support vernal pools or suitable seasonal wetlands. Accordingly, there would be no direct impacts on dwarf downingia and other special-status plants.

However, vernal pool habitat for dwarf downingia and other special-status plants that is adjacent to the project footprint could be indirectly affected by construction. Construction activities such as excavation, grading, paving, or stockpiling of soil could result in indirect effects on dwarf downingia and other special-status plants by altering the suitability of nearby habitat. Runoff of sediment, gasoline, oil, or other contaminants could result in degradation of water quality within suitable habitat. Changes in hydrology also could reduce the suitability of habitat by altering the hydroperiod of vernal pools and other suitable wetlands. This impact is considered less than significant.

The proposed project is not expected to remove any populations of dwarf downingia or other special-status plants because suitable habitat for these species will not be directly affected; therefore, no compensation is required.

Avoidance and Minimization Measures

Implementation of the following measures will further assist to avoid or minimize indirect impacts on dwarf downingia and other special-status plant habitat near proposed ground disturbance.

Install Fencing and/or Flagging to Protect Sensitive Biological Resources

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Conduct Mandatory Environmental Awareness Training for Construction Personnel

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction in Sensitive Habitats

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Avoid and Minimize Potential Indirect Impacts on Habitat for Vernal Pool Branchiopods and Other Vernal Pool Species

The following avoidance and minimization efforts will be implemented prior to and during construction to protect habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, and other vernal pool species outside the project footprint.

- Ground disturbance within 250 feet of suitable vernal pool fairy shrimp and vernal pool tadpole shrimp habitat (i.e., vernal pools) will be avoided from the first day of the first significant rain (1 inch or greater) until June 1, or until suitable wetlands remain dry for 72 hours and no significant rain is forecast on the day of such ground disturbance.
- Consistent with Measure 4 (Install Fencing and/or Flagging to Protect Sensitive Biological Resources), a qualified biologist will guide the installation of exclusion fencing prior to the start of ground-disturbing activities (including staging, grading, and vegetation removal). The exclusion fencing will be installed along the edge of the construction limits between the work area and aquatic resources to be avoided. The exclusion fencing will consist of orange construction barrier and erosion control fencing or combination fencing, and will be installed by the project proponent or its construction contractor. The erosion control fencing will be buried a minimum of 6 inches to prevent sediment runoff into adjacent wetlands.
- No herbicide will be applied within 100 feet of aquatic habitat, except when applied to cut stumps or frilled stems, or injected into stems. No broadcast applications will be used.

Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. USFWS, NMFS, and CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under FESA or CESA. Species listed or proposed for listing as threatened or endangered are discussed in the *Threatened and Endangered Species* section. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NMFS candidate species or species of concern.

Federal laws and regulations relevant to wildlife include the following.

- National Environmental Policy Act
- Migratory Bird Treaty Act (MBTA)
- Fish and Wildlife Coordination Act
- Magnuson-Stevens Fishery Management and Conservation Act (MSA)

State laws and regulations relevant to wildlife include the following.

- California Environmental Quality Act
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code
- Sections 3503 and 3503.5 of the California Fish and Game Code

- Sections 3511, 3513, 4700, 5050, and 5515 of the California Fish and Game Code

Migratory Bird Treaty Act

The MBTA protects migratory bird species from take. Under the MBTA, *take* is defined as to (or attempt to) pursue, hunt, shoot, capture, collect, or kill (50 CFR 10.12). The definition differentiates between intentional take (take that is the purpose of the activity in question) and unintentional take (take that results from, but is not the purpose of, the activity in question). EO 13186, signed January 10, 2001, directs each federal agency taking actions that would, or likely would, negatively affect migratory bird populations to work with USFWS to develop a memorandum of understanding (MOU) to promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities.

- Avoid and minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
- Restore and enhance habitat of migratory birds, as practicable.
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The EO is designed to assist federal agencies in their efforts to comply with the MBTA; it does not constitute any legal authorization to take migratory birds.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act of 1958 requires that all federal agencies consult with USFWS, NMFS, and the affected state wildlife agency for activities that affect, control, or modify surface waters, including wetlands and other waters.

Magnuson-Stevens Fishery Conservation and Management Act

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267) and the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (Public Law 109-479), requires federal agencies to consult with NMFS on activities that may adversely affect EFH. The purpose of the MSA is to conserve and manage the fishery resources of the United States and to promote protection of EFH. EFH is the aquatic habitat necessary for fish to spawn, breed, feed, or grow to maturity that will allow a level of production needed to support a long-term, sustainable commercial fishery and contribute to a healthy ecosystem (Pacific Fishery Management Council 2014). Important components of EFH include substrate, water quality, water quantity, depth, velocity, channel gradient and stability, food, cover, habitat complexity, space, access and passage, and habitat connectivity. EFH is described for Pacific salmon fisheries (specifically Chinook salmon) in Chapter 4. The MSA requires the following.

- Federal agencies undertaking, permitting, or funding an activity that may adversely affect EFH are required to consult with NMFS.
- NMFS is required to provide conservation recommendations for any federal or state activity that may adversely affect EFH.

- Within 30 days of receiving conservation recommendations from NMFS, federal agencies must provide a detailed response in writing to NMFS regarding the conservation recommendations (the response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH, or reasons for not following the recommendations).

California Fish and Game Code Sections 1600–1603 (Lake or Streambed Alteration)

CDFW regulates activities that would interfere with the natural flow of—or substantially alter the channel, bed, or bank of—a lake, river, or stream, including disturbance of riparian vegetation under CFGC Sections 1600–1616. CDFW requires a Lake or Streambed Alteration Agreement (LSAA) permit for these activities. Requirements to protect the integrity of biological resources and water quality often are conditions of LSAAs. CDFW may establish conditions that include avoiding or minimizing vegetation removal, using standard erosion control measures, limiting the use of heavy equipment, limiting work periods to avoid impacts on fisheries and wildlife resources, and restoring degraded sites or compensating for permanent habitat losses. All areas qualifying as waters of the United States under CWA Section 404 also qualify as waters of the State of California under the jurisdiction of CFGC Sections 1600-1616; however, some areas considered as waters of the State of California do not qualify as waters of the United States. CDFW jurisdiction at streams, lakes, and ponds considered as non-wetland waters of the United States extends beyond the OHWM to the top of bank or to the greatest lateral extent of riparian vegetation, whichever is greater.

California Fish and Game Code Sections 4150 and 4152 (Nongame and Predatory Animals)

These sections regulate the taking and killing of nongame mammals and depredatory animals. Nongame and fur-bearing mammals that are injuring crops or other property may be taken at any time or in any manner in accordance with this code. It is unlawful to use snares, hooks, or barbed wire to remove from the den, or fire to kill in the den, any immature predatory mammal.

California Fish and Game Code Sections 3503 and 3503.5 (Protection of Birds and Raptors)

Section 3503 of the CFGC prohibits killing of birds and destruction of bird nests. Section 3503.5 prohibits killing of raptor species and destruction of raptor nests. Typical violations include destruction of active bird and raptor nests as a result of tree removal, and failure of nesting attempts (loss of eggs or young) as a result of disturbance of nesting pairs caused by nearby human activity.

California Fish and Game Code Sections 3511, 3513, 4700, 5050, and 5515 (Fully Protected Species)

CFGC Sections 3511, 3513, 4700, 5050 and 5515 pertain to fully protected wildlife species (birds in Sections 3511 and 3513, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515) and strictly prohibit take of these species. CDFW cannot issue a take permit for fully protected species, except under narrow conditions for scientific research or the protection of livestock, or if a natural community conservation plan has been adopted. Specifically, Section 3513 prohibits any take or possession of birds designated by the

MBTA as migratory nongame birds except as allowed by federal rules and regulations pursuant to the MBTA.

Affected Environment

Surveys for terrestrial wildlife species in the BSA included a habitat-based assessment on February 15, 2015. Non-listed wildlife species that could be affected by the proposed project are discussed below.

The BSA provides habitat for an assemblage of wildlife species typical of valley grassland habitats. Numerous mammal species or evidence of use (i.e., scat, burrows) were observed in or near the BSA during the 2015 field survey, including black-tailed hare (*Lepus californicus*), coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*), and Botta's pocket gopher (*Thomomys bottae*). Numerous western fence lizards (*Sceloporus occidentalis*) were observed throughout the BSA and one burrowing owl (*Athene cunicularia*) was observed adjacent to the BSA. Wetland and stream habitats in the BSA also provide habitat for common amphibians and reptiles such as western toad (*Anaxyrus boreas*), Pacific tree frog (*Pseudacris regilla*), and western terrestrial garter snake (*Thamnophis elegans*). Common bird species observed throughout the BSA included red-winged blackbird (*Agelaius phoeniceus*), cliff swallow (*Petrochelidon pyrrhonota*), brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Carduelis psaltria*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*).

Information on the current distribution and abundance of fish species in Orchard Creek and Pleasant Grove Creek, and in the BSA in particular, is lacking. Based on a literature review and field investigation of Western Placer County streams, Bailey (2003) described Pleasant Grove Creek as having "numerous diversions, a multitude of beaver dams, and man-made small earthen dams upstream of Highway 65" and concluded that the potential was low for Pleasant Grove Creek to be an anadromous fish stream. Bailey's study provided no information on Orchard Creek. Generally, habitat conditions in Orchard Creek and Pleasant Grove Creek are similar to those in Auburn Ravine downstream of SR 65 and are therefore likely to support similar fish communities. Past fish surveys conducted in Auburn Ravine have shown that the fish community downstream of SR 65 is dominated by nonnative species such as bluegill (*Lepomis macrochirus*), pumpkinseed (*Lepomis gibbosus*), redear sunfish (*Lepomis microlophus*), mosquitofish (*Gambusia affinis*) and carp (*Cyprinus carpio*), with native species such as rainbow trout (*Oncorhynchus mykiss*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Catostomus occidentalis*), and hitch (*Lavinia exilicauda*) increasing in dominance upstream of SR 65 (Analytical Environmental Services 2007).

Orchard Creek may be seasonally accessible to Central Valley (CV) fall-run Chinook salmon and California Central Valley (CCV) steelhead, based on its connection with Auburn Ravine and general accounts of fall-run Chinook salmon and steelhead in the Auburn Ravine watershed (Bailey 2003; National Marine Fisheries Service 2014).

Based on a review of the CNDDB search results, the USFWS list of endangered, threatened, and proposed species within the project region, and species' distribution and habitat data, 23 special-

status terrestrial wildlife and fish species were identified as having the potential to occur or are known to occur in the project region (i.e., within 10 miles of the BSA) (Table 12). After completion of the field survey and review of existing information, the biologists determined that 8 of the 23 species would not occur in the BSA because the area lacks suitable habitat or is outside the species' known range. An explanation for the absence of each of these species from the BSA is provided in Table 12. Six of the 15 species determined to occur in the BSA are listed under FESA or CESA and are discussed under *Threatened and Endangered Species*. Suitable habitat is present in the BSA for the remaining 9 non-listed special-status wildlife discussed in this section.

Western Spadefoot Toad

The western spadefoot toad is designated as a state species of special concern. In California, western spadefoot toads historically ranged throughout the Central Valley and Coast Ranges and the coastal lowlands from San Francisco Bay southward to Mexico. The species has experienced severe population declines in the Sacramento Valley and a reduced density of populations in the eastern San Joaquin Valley.

Western spadefoots typically inhabit lowland habitats such as washes, floodplains of rivers, alluvial fans, playas, and alkali flats. This species also may be found in the foothills and mountain regions. Western spadefoot toads prefer areas of open vegetation and short grasses where the soil is sandy or gravelly. They are found in the valley and foothill grasslands, open chaparral, and pine-oak woodlands. Western spadefoots are primarily terrestrial, and require upland habitats for feeding and for burrowing during their long dry-season dormancy. They require wetlands for reproduction and have been observed in a variety of permanent and temporary wetlands, including rivers, creeks, pools in intermittent streams, vernal pools, and temporary rain pools. Larval development can be completed in 3 to 11 weeks but has been known to take up to 79 days from hatching to metamorphosis. Vernal pools and other temporary wetlands may be optimal for breeding due to the absence or reduced abundance of predators. Little is known regarding the distance that western spadefoot toads disperse from aquatic breeding areas. Current research on amphibian conservation suggests that average habitat utilization falls within 1,207 feet of aquatic habitats.

Within the BSA, perennial streams, emergent wetlands, seasonal wetlands, and vernal pools provide suitable aquatic habitat for western spadefoot toad. Annual grassland in the vicinity of these aquatic resources provides upland habitat for adult spadefoots. Spadefoots are not expected to be present in disturbed/graded areas immediately adjacent to SR 65. The closest CNDDB occurrence for western spadefoot toad is a 1994 record from an emergent wetland located between the railroad tracks and Taylor Road, 0.75 mile southeast of the BSA.

Table 12. Special-Status Wildlife Known or with Potential to Occur in the Project Region, or that may be Affected by the Proposed Project

Common Name Scientific Name	Legal Status[a] (Federal/ State/Other)	General Habitat Description	Habitat Present/Absent	Likelihood of Occurrence within the BSA
Invertebrates				
Vernal pool fairy shrimp *Branchinecta lynchi*	T/–	Found in Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County; common in vernal pools; also found in sandstone rock outcrop pools.	Habitat Present	High; suitable vernal pool habitat is present within the BSA. *Likely to adversely affect.*
Vernal pool tadpole shrimp *Lepidurus packardi*	E/–	Found from Shasta County south to Merced County; occurs in vernal pools and ephemeral stock ponds.	Habitat Present	High; suitable vernal pool habitat is present within the BSA. Species may be present within the BSA. *Likely to adversely affect*.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/–	Streamside habitats below 3,000 feet throughout the Central Valley; occurs in riparian and oak savanna habitats with elderberry shrubs; elderberry shrubs are the host plant.	Absent	None; no elderberry shrubs (host plant) are present in the BSA. Species not expected to be present in BSA. *No effect.*
Amphibians				
California red-legged frog *Rana aurora draytonii*	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehema County to Fresno County; occurs in permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation; may estivate in rodent burrows or cracks during dry periods.	Habitat Present	None; suitable perennial aquatic habitat is present within the BSA. However, the species is believed by USFWS to be extirpated from the floor of the Central Valley and the BSA would be considered part of the Sacramento Valley. Although western Placer County is considered within the current range of the species, the BSA is near the border of Sacramento County, which is not within the current range. The closest California Natural Diversity Database occurrences are more than 34 miles northeast of the BSA in the nearby foothills (California Natural Diversity Database 2015). This species is not expected to be present within the BSA. No effect.

Common Name Scientific Name	Legal Status[a] (Federal/ State/Other)	General Habitat Description	Habitat Present/Absent	Likelihood of Occurrence within the BSA
Western spadefoot toad *Spea hammondii*	–/SSC	Seasonal wetlands such as vernal pools and stock ponds in annual grasslands and oak woodlands within the Sierra Nevada foothills, Central Valley, and Coast Ranges.	Habitat Present	Moderate; suitable aquatic (vernal pools) and upland habitat is present within the BSA. Species may be present within the BSA.
Reptiles				
Giant garter snake *Thamnophis couchi gigas*	T/T	Sloughs, canals, low-gradient streams, and freshwater marsh habitats with a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	Habitat Present	None; perennial streams and emergent wetland habitat within the BSA provide suitable habitat for giant garter snake; however, no giant garter snakes have been reported from Placer County and the closest known occurrence is approximately 13 miles to the west, in an agricultural ditch in rice field habitat. No rice field habitat is present within or near the study area. The species is not expected to occur in the BSA. No effect.
Northern western pond turtle *Emys marmorata*	–/SSC	Occurs throughout California west of the Sierra-Cascade crest; found from sea level to 6,000 feet; does not occur in desert regions except for along the Mojave River and its tributaries; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.	Habitat Present	High; suitable aquatic and upland habitat is present within and along perennial drainage and emergent wetland habitats in the BSA. Species may be present within the BSA.
Birds				
Bank swallow *Riparia*	–/T	Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam, along streams, coastal bluffs, and sand/gravel pits.	Absent	None; no suitable river or stream eroded bank habitat is present in BSA.

Common Name Scientific Name	Legal Status[a] (Federal/ State/Other)	General Habitat Description	Habitat Present/Absent	Likelihood of Occurrence within the BSA
Burrowing owl *Athene cunicularia hypugaea*	–/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast; level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	Present	High; annual grassland along SR 65 in the BSA provides suitable habitat. One wintering burrowing owl was observed during the February 2015 wildlife survey in a rock-lined ditch south of Twelve Bridges Drive and just east of the BSA.
California black rail *Laterallus jamaicensis coturniculus*	–/T, FP	Permanent resident in the San Francisco Bay and eastward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties; tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations. Recently discovered northern Sierra Nevada foothill population occupies shallow, densely vegetated freshwater wetlands.	Habitat Present	Low; emergent wetland habitat in the BSA provides potential nesting habitat. Black rails have not be identified in Placer County south of Lincoln but they are known to occur in close proximity. The closest known nesting location is approximately 4 miles east of the BSA within wetlands along Clover Creek (CNDDB Occurrence # 134; CDFW 2015).
Northern harrier *Circus cyaneus*	–/SSC	Occurs in grasslands, meadows, marshes, and seasonal and agricultural wetlands throughout lowland California.	Habitat Present	High; emergent wetland and tall annual grasslands along SR 65 provide potential nesting and foraging habitat for northern harrier.
Osprey *Pandion haliaetus*	–/SSC	Nests in snags, trees, or utility poles near the ocean, large lakes, or rivers with abundant fish populations.	Absent	None; no suitable nesting or foraging habitat is present within the BSA. Possible migrant through the BSA.
Purple martin *Progne subis*	–/SSC	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats; also nests in vertical drainage holes under elevated freeways and highway.	Habitat Present	Low; purple martins have been documented to nest in the drain holes within the SR 65 overcrossing at Taylor Road just south of the BSA. Freeway overcrossings in the BSA provide potential nesting habitat for the species.

Common Name Scientific Name	Legal Status[a] (Federal/ State/Other)	General Habitat Description	Habitat Present/Absent	Likelihood of Occurrence within the BSA
Swainson's hawk *Buteo swainsoni*	–/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley; highest nesting densities occur near Davis and Woodland, Yolo County; nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields.	Present	High; annual grassland in the BSA provide suitable foraging habitat for the species. Scattered trees within and adjacent to the BSA provide potential nesting sites. The closest known nest site is approximately 1.5 miles to the west along Pleasant Grove Creek (CNDDB Occurrence # 2115; CDFW 2015). Swainson's hawks have been observed foraging adjacent to the BSA during previous surveys in the vicinity (ICF International 2014).
Tricolored blackbird *Agelaius tricolor*	–/C	Permanent resident in the Central Valley from Butte County to Kern County; breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties; nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony.	Habitat Present	High; emergent wetland and riparian scrub wetland along Orchard Creek and Pleasant Grove Creek in the BSA provide suitable nesting habitat. The closest known nesting colonies are located within bulrush vegetation at a pond approximately 0.75 mile west of Industrial Avenue at the north end of the BSA (CNDDB Occurrence # 242; CDFW 2015) and within dense blackberry along Orchard Creek approximately 0.3 mile west of the BSA (ICF International 2014).
White-tailed kite *Elanus leucurus*	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border; low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging.	Present	High; annual grassland in the BSA provide suitable foraging habitat for the species. Scattered trees within and adjacent to the BSA provide potential nesting sites. White-tailed kite was observed foraging adjacent to the BSA during the February 2015 wildlife survey.

Common Name Scientific Name	Legal Status[a] (Federal/ State/Other)	General Habitat Description	Habitat Present/Absent	Likelihood of Occurrence within the BSA
Mammals				
Pallid bat *Antrozous pallidus*	–/SSC	Occurs throughout California primarily at lower and mid-level elevations in a variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Daytime roosts include rock outcrops, mines, caves, hollow trees, buildings, and bridges.	Present	Bridges in the BSA provide potential roosting areas for this species.
Silver-haired bat Lasionycteris noctivagans	–/SSC	Typically roosts in tree cavities, crevices and under loose bark; may also use leaf litter, buildings, mines, and caves; breeds in coastal and montane coniferous forests, valley foothill and montane riparian habitats; may occur in any habitat during migration.	Present	Bridges in the BSA provide potential roosting areas.
Townsend's big-eared bat *Corynorhinus townsendii*	–/C	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; very sensitive to disturbances and may abandon a roost after one onsite visit.	Absent	No suitable roosting habitat is present in the BSA.
Western red bat *Lasiurus blossevillii*	–/SSC	Found throughout much of California at lower elevations; found primarily in riparian and wooded habitats; occurs at least seasonally in urban areas; day roosts in trees within the foliage; found in fruit orchards and sycamore riparian habitats in the Central Valley.	Absent	No suitable roosting habitat is present in the BSA.
Fish				
Delta smelt *Hypomesus transpacificus*	T/E	Found primarily in the Sacramento–San Joaquin Estuary but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay; occurs in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand (Moyle 2002).	Absent	None; the BSA is not located within the historical or current distribution of this species, and suitable habitat does not occur in the BSA. *No effect.*

Common Name Scientific Name	Legal Status[a] (Federal/ State/Other)	General Habitat Description	Habitat Present/Absent	Likelihood of Occurrence within the BSA
California Central Valley steelhead *Oncorhynchus mykiss*	T/–	Sacramento and San Joaquin Rivers and tributary Central Valley streams and rivers below impassable barriers; occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18 degrees (°) Celsius (C); habitat types are riffles, runs, and pools; adults spawn at head of riffles/tails of pools; young rear year-round for 1–4 years before emigrating to the ocean.	Habitat Present Critical Habitat-Present	Low; Orchard Creek and Pleasant Grove Creek in the BSA provide potential migration and seasonal rearing habitat because of their hydrologic connection to Auburn Ravine and Pleasant Grove Canal, respectively. (There are anecdotal reports that adult steelhead occur in Auburn Ravine, and Pleasant Grove Canal has a direct connection to the Cross Canal and the Sacramento River—the latter is known to support steelhead.) Species not expected to be present in the BSA during the summer primarily because of excessively warm water temperatures and low or no flow. *No effect.*
Central Valley fall-/late fall–run Chinook salmon *Oncorhynchus tshawytscha*	–/SSC	Sacramento and San Joaquin Rivers and tributary Central Valley streams and rivers below impassable barriers; occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C; habitat types are riffles, runs, and pools; adults spawn at head of riffles/tails of pools; young rear for several months and emigrate to the ocean before summer.	Habitat Present	Low; Orchard Creek and Pleasant Grove Creek in the BSA provide potential migration and seasonal rearing habitat for the species because of their hydrologic connection to Auburn Ravine and Pleasant Grove Canal, respectively. Species is not expected to be present in the BSA during summer because most juveniles migrate downstream before summer when conditions become unsuitable.

[a] Status explanations:

Federal

E = Listed as endangered under the federal Endangered Species Act.
T = Listed as threatened under the federal Endangered Species Act.
D = Delisted from the federal Endangered Species Act.
– = No listing.

State

E = Listed as endangered under the California Endangered Species Act.
T = Listed as threatened under the California Endangered Species Act.
C = Candidate for listing as threatened or endangered under the California Endangered Species Act.
P = Proposed for listing as threatened or endangered under the California Endangered Species Act.
FP = Fully protected under the California Fish and Game Code.
SSC = Species of special concern in California.
– = No listing.

Notes:
Absent = no habitat present and no further work needed. | Habitat Present = habitat is, or may be present. The species may be present. | Present = the species is present.

Northern Western Pond Turtle

Northern western pond turtle (also called western pond turtle or Pacific pond turtle) is a California species of special concern. Pond turtles occur throughout much of California except for east of the Sierra-Cascade crest and desert regions (with the exception of the Mojave River and its tributaries). Aquatic habitats used by northern western pond turtles include ponds, lakes, marshes, rivers, streams, and irrigation ditches with a muddy or rocky bottom in grassland, woodland, and open forest areas. Pond turtles spend a considerable amount of time basking on rocks, logs, emergent vegetation, mud or sand banks, or human-generated debris. Pond turtles move to upland areas adjacent to watercourses to deposit eggs and overwinter. Turtles have been observed overwintering several hundred meters from aquatic habitat. Throughout their range, the farthest distance that pond turtles have been reported to travel from water is between approximately 500 and 1,500 feet. Where permanent water is available and winter temperatures are mild, for example in the southern portion of the range and along the central coast, western pond turtles can be active year-round. In colder regions and where permanent water is not reliable or aquatic habitat is associated with streams and rivers, pond turtles typically become active in March and return to overwintering sites by October or November.

Within the BSA, Orchard Creek and Pleasant Grove Creek and their associated tributaries within the BSA represent suitable aquatic habitat for northern western pond turtle. Annual grassland within the BSA is located within 1,500 feet of potential aquatic habitat and therefore could be used as upland nesting and overwintering sites by pond turtles if they are present. No northern western pond turtles were observed within the BSA during the 2015 wildlife surveys.

Burrowing Owl

Burrowing owl is a state species of special concern and is protected during its nesting season under the MBTA and CFGC Section 3503.5. Burrowing owl is a ground-nesting raptor that typically uses the burrows of other species, such as ground squirrels, for nesting, protection, and shelter. Burrowing owls are a year-round resident in a variety of grasslands, as well as in scrublands with a low density of trees and shrubs and low-growing vegetation. Burrowing owls that nest in the Central Valley may winter elsewhere. The primary habitat requirement of the burrowing owl is burrows appropriate for nesting. Burrowing owls usually nest in abandoned burrows, although they have been known to construct their own burrows in softer soils. In urban and agricultural areas, burrowing owls often use artificial burrows, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement, particularly pipes. This owl breeds from March through August and is most active while hunting during dawn and dusk.

Annual grassland in the BSA along SR 65 represents suitable wintering and breeding habitat for burrowing owls. Although the BSA supports abundant small rodent activity (e.g., mice, vole, and pocket gopher), ground squirrel burrows typically used by breeding burrowing owls are absent from the BSA, so there is a low probability that burrowing owls would nest onsite. Existing culverts and rock piles that occur throughout the BSA provide refuge and escape cover for wintering owls. One burrowing owl was observed during the February 2015 field survey within

rock armoring of a human-made ditch south of Twelve Bridges Drive, just outside the BSA (Figure 2c).

Northern Harrier

Northern harrier is a state species of special concern and is protected during its nesting season under the MBTA and CFGC Section 3503.5. Northern harrier is a year-round resident throughout the Central Valley and often is associated with open grassland habitats and agricultural fields. Nests are found on the ground in tall, dense, herbaceous vegetation. Northern harrier nests from April to September, with peak activity in June and July. The breeding population has been reduced, particularly along the southern coast, because of the destruction of wetland habitat, native grassland, and moist meadows and from burning and plowing of nesting areas during early stages of breeding.

Annual grassland, emergent wetland, and seasonal wetland in the BSA support tall upland and wetland vegetation that could be used by northern harriers as substrate for establishing nest sites. Annual grassland throughout the BSA is considered suitable for foraging harriers. Northern harrier was observed foraging in the BSA during the February 2015 field survey.

Purple Martin

Purple martin is a state species of special concern and is protected during its nesting season under the MBTA and CFGC Section 3503.5 Purple martin is broadly distributed throughout eastern North America and occurs locally in the Rocky Mountains, Sonoran Desert, Central Mexico, and Pacific Coast states and provinces. The species summers in North America from mid-March to late September, breeding between May and August. It migrates to South America in the fall (September), and returns as an early spring migrant from its South American wintering grounds. Generally, purple martins inhabit open areas with an open water source nearby. Martins adapt well in and around people but are out-competed by starlings and sparrows in urban areas. Purple martins are colonial cavity nesters in abandoned woodpecker holes, human-made nest boxes, or cavities in other structures such as bridges and overpasses. Once established at a nest location, martins usually come back to the same site every year. The once widespread Central Valley nesting population is now restricted to a bridge-nesting population in the Sacramento region. Since 2004, this population has declined from 173 pairs to 70 pairs in 2009, a 60% decrease. The Sacramento area martin population includes one Placer County breeding pair first documented in 2007.

The only known nesting occurrence for purple martins in Placer County is from the SR 65 overcrossing at Taylor Road just south of the BSA (CNDDB occurrence #27). Only one breeding pair has been previously documented—in a weep hole on the underside of the existing structure in 2007, in 2008, and then again in 2012. No purple martins were observed nesting at this location in 2013 and 2014.

Based on 2015 wildlife surveys, existing freeway overcrossing structures in the BSA support nesting habitat (i.e., weep holes) for purple martins.

White-Tailed Kite

White-tailed kite is a state species of special concern and is designated as fully protected under CFGC Section 3511. White-tailed kites occur in coastal and valley lowlands in California. They generally inhabit low-elevation grassland, savannah, oak woodland, wetlands, agricultural, and riparian habitats. Some large shrubs or trees are required for nesting and for communal roosting sites. Nest trees range from small, isolated shrubs and trees to trees in relatively large stands. White-tailed kites make nests of loosely piled sticks and twigs, lined with grass and straw, near the top of dense oaks, willows, and other tree stands. The breeding season lasts from February through October and peaks between May and August. They forage in undisturbed, open grassland, meadows, farmland, and emergent wetlands.

Scattered trees in the BSA provide potential nesting habitat for white-tailed kite. The closest documented white-tailed kite nest site is approximately 2 miles west and southwest of the BSA along Pleasant Grove Creek. Annual grassland in the BSA represents suitable foraging habitat for white-tailed kite. No white-tailed kites were observed in the BSA during the February 2015 wildlife survey; however, the species has been previously observed foraging in open grassland habitat along SR 65 adjacent to the BSA (ICF International 2014).

Special-Status and Non-Special-Status Roosting Bats

Several species of special-status and non-special-status bats could potentially roost in the BSA. Existing freeway overcrossing structures provide human-made roost sites for special-status and non-special-status bats, particularly where they span perennial creeks that provide abundant prey for bats. Focused bat roosting surveys have not been conducted within BSA.

Pallid bat and silver-haired bat are designated as state species of special concern and are considered moderate- to high-priority species in California by the Western Bat Working Group.

Pallid Bat

Pallid bat is a state species of special concern and considered moderate- to high-priority species in California by the Western Bat Working Group. Pallid bats are found throughout most of California at low to middle elevations (6,000 feet). Pallid bats are found in a variety of habitats, including desert, brushy terrain, coniferous forest, and non-coniferous woodlands. Daytime roosts include rock outcrops, mines, caves, hollow trees, buildings, and bridges. Night roosts are commonly under bridges but also are in caves and mines. Hibernation may occur during late November through March. Pallid bats breed in October through December, and possibly through February, and one or two young are born in May or June.

Silver-Haired Bat

Silver-haired bats occur primarily in the northern portion of California and at higher elevations in the southern and coastal mountain ranges, but may occur anywhere in California during their spring and fall migrations. They are associated with coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. Silver-haired bats roost in trees almost exclusively in summer, and maternity roosts

typically are located in woodpecker hollows or in gaps under bark. Maternal colonies range from several to about 75 individuals. In winter, the species hibernates in trees, crevices, and buildings.

Central Valley Fall- and Late Fall–Run Chinook Salmon

The CV fall- and late fall–run Chinook salmon evolutionarily significant unit (ESU) is a federal species of concern (69 FR 19975; April 15, 2004). The CV fall-run and late fall–run Chinook salmon ESU includes all naturally spawning populations of fall-run and late fall–run Chinook salmon in the Sacramento and San Joaquin River basins and their tributaries east of the Carquinez Strait in California (64 FR 50394). Critical habitat for CV fall- and late fall–run Chinook salmon has not been designated. The CV fall- and late fall–run Chinook salmon ESU is not listed under CESA, but is considered a California species of special concern. CDFW classifies the current status of CV fall-run Chinook salmon as Moderate Concern (i.e., the species is under no immediate threat of extinction but populations are in long-term decline or are naturally small and isolated, and warrant frequent status reassessment) and CV late fall–run Chinook salmon as High Concern (considered to be under severe threat of extinction, but extinction is less imminent than for other more imperiled species) (Moyle et al. 2015). Only fall-run Chinook salmon have the potential to occur in the BSA (late fall–run Chinook salmon occur primarily in the Sacramento River, and has also been observed in some of its larger tributaries [e.g., Yuba and Feather Rivers, and Battle, Cottonwood, Clear, and Mill Creeks] (Moyle et al. 2015).

Adult fall-run Chinook salmon enter the Sacramento River and larger tributaries from June through December with a peak in September and October, and spawn from late September through December, with a peak in October and November (Moyle 2002). Entry into smaller tributaries often depends on when access is restored following significant fall rain events. Adults spawn within a few days or weeks of reaching their spawning grounds (Moyle 2002). Spawning and egg incubation are unlikely to occur in the vicinity of the BSA based on the limited availability of this habitat in the BSA. Shortly after emergence from redds, most fry disperse downstream toward the Delta and into the San Francisco Bay estuary. Juveniles typically migrate to the ocean from December to June before water temperatures become too warm.

There are no reports of CV fall-run Chinook salmon being observed in Orchard Creek or Pleasant Grove Creek in, or in the vicinity of, the BSA. However, adult and juvenile fall-run Chinook salmon have been observed in Auburn Ravine, and Orchard Creek drains into Auburn Ravine; therefore, Orchard Creek may be accessible to CV fall-run Chinook salmon when flow conditions create suitable conditions for passage. Pleasant Grove Creek may also be accessible to CV fall-run Chinook salmon for the same reasons; however, its direct hydrologic connection is with Pleasant Grove Canal, which flows to the Cross Canal (to which Auburn Ravine also flows), and ultimately the Sacramento River (which supports CV fall-run Chinook salmon).

Orchard Creek and Pleasant Grove Creek, including the portions in the BSA, are considered essential fish habitat (EFH) for Pacific salmon (Chinook salmon). Section 305(b) of the MSA directs federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. EFH is defined as aquatic habitat (water and substrate) necessary to fish for spawning, feeding, and growth to maturity.

Other Migratory Birds and Raptors

Non-special-status migratory birds and raptors have the potential to nest in trees, shrubs, and grassland in the BSA. Swallows and other non-special-status birds have the potential to nest under bridges and overpasses in the BSA. Although these species are not considered special-status wildlife species, their occupied nests and eggs are protected by CFGC Sections 3503 and 3503.5 and the MBTA.

Cliff swallow and black phoebe were observed nesting on existing bridge structures during field surveys. Based on 2015 wildlife surveys, existing freeway overcrossing structures in the BSA support nesting habitat (i.e., weep holes) for structure-nesting sites (i.e., ledges and 90 degree angles) for non-special-status birds including swallows and black phoebe. Remnant swallow nests were observed on the underside of the bridge over Pleasant Grove Creek in the BSA.

Wildlife Migration Corridors

The BSA consists predominantly of annual grassland and disturbed and developed areas along SR 65 and associated on-ramps and off-ramps. These existing roadways generally do not provide wildlife migration corridors; however, resident wildlife species may traverse the BSA along streams and drainages that culvert under or parallel these roadways. These features could be used as movement corridors to access larger open space areas outside the BSA. Despite the disturbed conditions, the open water portion of Orchard Creek and Pleasant Grove Creek may serve as a migration or movement corridor for resident and migratory aquatic species. Native and nonnative fish species could migrate or disperse through the BSA, provided that flow conditions create suitable conditions for passage. Therefore, streams/drainages and associated uplands in the BSA provide important wildlife dispersal and movement corridors between established open space preserves.

Environmental Consequences

Western Spadefoot Toad

Construction activities such as excavation, grading, and stockpiling of soil could fill, remove, or otherwise alter suitable habitat for western spadefoot toad, or could result in their injury or mortality. Western spadefoot toads could also become entrapped in open trenches or other project facilities. Construction associated with roadway and culvert expansion would result in permanent and temporary impacts on suitable aquatic habitat (perennial stream, emergent wetland, seasonal wetlands, and vernal pools) and temporary impacts on upland habitat (annual grassland) that could be used by spadefoot toads. Based on the proximity (within 1,200 feet) of annual grassland habitat to potential aquatic breeding habitat throughout the BSA, all annual grassland within the BSA is considered potential upland habitat for western spadefoot toad.

Table 13 summarizes the temporary and permanent impacts of project activities on western spadefoot toad habitat.

Table 13. Impacts on Western Spadefoot Toad Habitat

Habitat	Temporary Impact (acres)	Permanent Impact (acres)
Aquatic habitat	0.751	1.027
Upland habitat	1.251	1.862
Note: For purposes of calculating aquatic and upland impacts, aquatic habitat for western spadefoot toad includes perennial stream, emergent wetland, seasonal wetland, and vernal pool; and upland habitat consists of annual grassland.		

The permanent loss of a small amount (1.72 acres) of aquatic and upland habitat is not expected to adversely affect the local western spadefoot population. However, because the population of spadefoots in the project region is expected to be relatively small due to the limited amount of suitable habitat in the vicinity of the project, loss of even a small number of individuals during construction could result in an adverse effect to the population. This would be a significant impact.

Northern Western Pond Turtle

Construction associated with roadway and culvert expansion at and adjacent to Orchard Creek, Pleasant Grove Creek, and associated tributaries would result in permanent and temporary impacts on suitable aquatic and upland habitat for northern western pond turtle. In-water work within and near perennial stream habitat could cause entrapment of pond turtles, resulting in their injury or mortality. Additionally, pond turtles and nests containing hatchlings or eggs could be crushed and killed during the movement of construction equipment in upland habitats (i.e., annual grassland, oak woodland, and riparian forest)—typically within 1,300 feet of aquatic sites. This would be a significant impact.

Table 14 summarizes the impacts of project construction on northern western pond turtle habitat.

Table 14. Impacts on Northern Western Pond Turtle Habitat

Habitat	Temporary Impact (acres)	Permanent Impact (acres)
Aquatic habitat	0.481	0.890
Upland habitat	1.063	1.751
Note: For purposes of calculating impacts on northern western pond turtle, aquatic habitat includes perennial stream and emergent wetland; and upland habitat consists of annual grassland within 1,300 feet of perennial streams.		

Burrowing Owls

Widening the existing new roadway within annual grassland habitat in the BSA would result in the loss of potential wintering and breeding habitat for burrowing owls. Additionally, construction-generated noise has the potential to indirectly affect burrowing owls nesting near construction activities. Disturbing burrows with active nests and indirect construction disturbance (i.e., noise, increased human presence) during the breeding season may result in nest abandonment and subsequent loss of eggs or young. Disturbance or loss of burrowing owls would violate the MBTA and the CFGC and be considered a significant impact.

Table 15 summarizes the impacts of the proposed project on burrowing owl habitat.

Table 15. Impacts on Burrowing Owl Habitat

Habitat	Temporary (acres)	Permanent (acres)
Wintering, Breeding, and Foraging Habitat	1.251	1.862
Note: For purposes of calculating impacts on burrowing owl, wintering, breeding, and foraging habitat consists of annual grassland.		

Northern Harrier

Construction activities associated with roadway improvements in annual grassland and emergent wetland habitat could disturb an active northern harrier nest, if present in or near the construction area. These activities could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance or loss of a northern harrier nest would violate the MBTA and CFGC Section 3503.5 and be a significant impact.

Table 16 summarizes the impacts of the proposed project on northern harrier habitat.

Table 16. Impacts on Northern Harrier Habitat

Habitat	Temporary (acres)	Permanent (acres)
Nesting habitat	1.983	2.857
Foraging habitat	1.251	1.862
Note: For purposes of calculating impacts on northern harrier, nesting habitat consists of annual grassland, emergent wetland, and seasonal wetland and foraging habitat consists of annual grassland.		

Purple Martin and Other Structure-Nesting Migratory Birds

Construction activities associated with new roadway construction and ramp reconstruction could disturb an active purple martin or other structure-nesting migratory bird nest. These activities could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance or loss of a purple martin nest, or that of another migratory bird, would violate the MBTA and CFGC Section 3503, a significant impact.

The proposed project would not result in the loss of human-made nesting habitat for purple martin or other structure-nesting birds.

White-Tailed Kite

Proposed project activities are not expected to remove or otherwise disturb any potential nest trees for white-tailed kite because none are present within the permanent impact area. However, construction-generated noise and activity has the potential to indirectly affect white-tailed kites nesting near project activities. Increased levels of noise and human activity in the vicinity of an active nest could result in nest abandonment or forced fledging and subsequent loss of fertile

eggs, nestlings, or juveniles. Disturbance or loss of an active white-tailed kite nest would violate the MBTA and CFGC Sections 3503.5 and 3511.

Roadway construction also could result in indirect impacts on white-tailed kite through temporary and permanent loss of grassland that provides suitable foraging habitat. Because only a small area of suitable foraging habitat would be permanently lost, the proposed project is not expected to affect white-tailed kites and would not result a significant impact on foraging white-tailed kite. This impact is considered less than significant.

Table 17 summarizes the impacts of the proposed project on white-tailed kite habitat.

Table 17. Impacts on White-Tailed Kite Habitat

Habitat	Temporary (acres)	Permanent (acres)
Nesting Habitat	0	0
Foraging Habitat	1.251	1.862
Note: For purposes of calculating impacts on white tailed kite foraging habitat consists of annual grassland.		

Roosting Bats

Modification or disturbance of existing highway structures within the BSA could affect structure-roosting bats such as pallid bat, silver haired bats, and other non-special-status bats (i.e., Mexican free-tailed bat [*Tadarida brasiliensis*], little brown bat [*Myotis lucifugus*], and Yuma myotis [*Myotis yumanensis*]) during the maternity season or hibernation period, resulting in a significant impact.

Central Valley Fall- and Late Fall–Run Chinook Salmon

Potential project impacts on CV fall-run Chinook salmon include both short-term and long-term effects. Short-term effects include temporary construction-related effects that may last from a few hours to days (e.g., disturbance, suspended sediment and turbidity, contaminants, creek diversion). Long-term effects include loss of aquatic habitat, water quality-related effects from polycyclic aromatic hydrocarbons (PAHs) associated with new asphalt, and potential changes in channel morphology and hydraulics from added impervious surfaces. Short- and long-term effects on CV fall-run Chinook salmon and its habitat were evaluated qualitatively based on general knowledge of the impact mechanisms and the anticipated response of the species to construction actions and changes in water quality. Impacts on habitat were quantified as area or linear feet of habitat affected. Impacts on spawning adults, eggs, alevins (larvae), and fry would not occur because these sensitive life stages do not occur in the BSA, nor would they be affected by construction activities; therefore, they are not discussed any further. Potential direct and indirect impacts on adult and juvenile CV fall-run Chinook salmon arising from the proposed project are discussed below.

Direct Impacts

Disturbance and Direct Injury or Mortality

Noise, vibrations, artificial light, and other physical disturbances resulting from construction activities in or near aquatic habitats can harass fish, disrupt or delay normal activities, or cause injury or mortality. Physical disturbance, injury, and direct or indirect mortality are most likely to occur during in-water work. Project actions that may involve in-water work as part of this project include installing and removing cofferdams; stream dewatering and operation of stream diversions; installing RSP; and pile driving.

In general, the potential magnitude of effects depends on a number of factors, including the type and intensity of the disturbance, proximity of the action to the waterbody, timing of actions relative to the occurrence of sensitive life stages, and frequency and duration of activities. Injury to or mortality of fish could result from direct and indirect contact with humans and machinery, materials being placed in the stream, and physiological stress.

Orchard Creek and Pleasant Grove Creek may be accessible to adult and juvenile CV fall-run Chinook salmon, and direct exposure of adults and juveniles of CV fall-run Chinook salmon to disturbance and direct injury or mortality from construction activities could occur though the quality of existing habitat in the BSA is low. Construction activities that occur when migrating adults are present (mid- to late-fall) could affect this life stage. The project will conduct all in-channel construction activities between June 1 and October 15, ensuring that migrating adults would not be affected and making direct effects on juvenile CV fall-run Chinook salmon very unlikely because all work would be performed during the dry season after juveniles have emigrated to the ocean and when low or non-existent flow and excessively warm water temperatures make habitat conditions in the BSA unsuitable for juveniles. Therefore, this impact is considered less than significant.

Erosion and Mobilization of Sediment

Site clearing, earthwork, cofferdam installation and removal, and bridge widening and culvert construction activities would result in disturbance of soil and streambed sediments, potentially resulting in temporary increases in turbidity and suspended sediments in Orchard Creek and Pleasant Grove Creek.

Elevated levels of suspended sediments can result in physiological, behavioral, and habitat effects. The severity of these effects depends on the sediment concentration, duration of exposure, and sensitivity of the affected life stage. Short-term increases in turbidity and suspended sediment can disrupt normal behavior patterns of fish, potentially affecting foraging, rearing, and migration. The level of disturbance can also cause juveniles to abandon protective habitat or reduce their ability to detect predators, potentially increasing their vulnerability to predators (e.g., piscivorous birds and fish). Increased sediment delivery can also smother aquatic invertebrates (a fish food item), degrade forage habitat, and reduce cover for juvenile fish. Because CV fall-run Chinook salmon are unlikely to be present in the BSA during proposed construction activities, potential effects would likely be limited to the effects of increased turbidity and sedimentation on aquatic habitat and food resources.

Compliance with all construction site BMPs developed from Caltrans' Construction Site BMP Manual and specified in the SWPPP and any other permit conditions to minimize the introduction of construction-related contaminants and mobilization of sediment would minimize the potential for mobilization of sediment and increased sedimentation and turbidity in Orchard Creek and Pleasant Grove Creek. Any temporary increases in turbidity and suspended sediment that do occur in Orchard Creek or Pleasant Grove Creek would be expected to be brief and diminish within a short distance downstream of the construction sites (within approximately 200 feet) as a result of rapid settling of sediment in response to low flow conditions and the small quantities of sediment that would be expected to be released. Therefore, the potential for adverse effects on CV fall-run Chinook salmon associated with erosion and mobilization of sediments from ground disturbing activities would be less than significant.

Contaminant Spills

Construction activities that occur in or near stream channels can result in the discharge of contaminants that are potentially lethal to fish. The operation of bulldozers, scrapers, excavators, backhoes, pile drivers, cranes, and other construction equipment can result in spills and leakage of fuel, lubricants, hydraulic fluids, and coolants. Other sources of potential contamination include asphalt, wet concrete, and other materials that may come into direct contact with surface water during construction activities.

The potential magnitude of biological effects resulting from contaminant spills depends on a number of factors, including the proximity of spill to the stream; the type, volume, concentration, and solubility of the contaminant; and the timing and duration of the spill. Contaminants can affect survival, growth, and reproductive success of fish and other aquatic organisms. The level of effect depends on the species, life stage sensitivity, duration of exposure, condition or health of exposed individuals, and the physical and chemical properties of the water (e.g., temperature, dissolved oxygen).

The potential for exposing CV fall-run Chinook salmon to hazardous chemicals would be avoided by limiting in-channel construction activities to the summer dry season (between June 1 and October 15) and by implementing required BMPs during project construction to protect water quality. Therefore, the potential for adverse effects on CV fall-run Chinook salmon associated with contaminant spills is considered less than significant as they would be extremely unlikely to occur.

Stream Diversion and Dewatering

Stream diversion and dewatering of the construction site to facilitate construction associated with bridge widening and culvert construction can create a barrier to fish movement in the stream. It can also result in direct mortality if fish become trapped in areas being dewatered for construction, or in downstream reaches if stream flow is interrupted while cofferdams and the stream diversion system are being installed.

The project would limit in-channel construction activities to the summer dry season (between June 1 and October 15), when adult and juvenile CV fall-run Chinook salmon are not present in the BSA, ensuring that CV fall-run Chinook salmon are not stranded during stream diversion and

dewatering activities. In addition, the project's use of cofferdam and stream diversion restrictions will further ensure that flow to creek segments downstream from construction sites will not be interrupted as streamflow is being diverted, and that fish passage will be maintained through the BSA at all times while the stream is diverted. Therefore, this impact is considered less than significant.

Temporary and Permanent Loss of Aquatic Habitat

The proposed project would result in the temporary and permanent loss of aquatic habitat area, including potential habitat for CV fall-run Chinook salmon. Stream dewatering would result in the temporary loss of aquatic habitat (substrate and water column) equal to the cumulative area of the creek channel being dewatered. Up to approximately 160 feet of channel length on Pleasant Grove Creek would be dewatered in each construction season; the size of the area of habitat this represents would depend on flow levels at the time dewatering is implemented and whether the entire creek width is dewatered or flow is only confined to one side of the channel. Similarly, up to 120 feet of channel length on Orchard Creek may be dewatered during one construction season if water is present at the time of construction. However, creek dewatering would occur during the summer dry season (between June 1 and October 15) when CV fall-run Chinook salmon would not be present. In addition, the creek dewatering system would be removed from the creek prior to the arrival of seasonal rains when adult CV fall-run Chinook salmon could be present. Therefore, impacts on CV fall-run Chinook salmon from the temporary loss of aquatic habitat associated with the temporary dewatering of Orchard Creek and Pleasant Grove Creek would be less than significant.

Widening of the northbound and southbound SR 65 bridges over Pleasant Grove Creek would require that 16 new bridge piers (four at each of the four bents) be installed in the channel under each widened bridge and below the OHWM. Installation of the 32 new piers to support the widened bridges would result in the permanent loss of substrate habitat equal to the cumulative area of the creek channel that would be occupied by the new bridge piers. Up to 44 square feet of substrate habitat would be permanently affected by the installation of the new bridge piers. Similarly, widening of the northbound and southbound lanes of SR 65 over Orchard Creek would require that the existing box culvert be extended 6 feet upstream and 6 feet downstream from the existing culvert inlet and outlet, respectively. Extending the existing box culvert would result in the permanent loss of substrate habitat equal to the cumulative area of the creek channel that would be occupied by the new culvert sections. Up to 43 square feet of substrate habitat would be permanently affected by extending the inlet and outlet of the box culvert. Overall, a total of 87 square feet of substrate habitat would be permanently affected as a result of extending the culvert and widening the two bridges.

Dewatering of the project site, installation of the new bridge piers, and construction of the culvert extensions would result in the temporary and permanent loss of aquatic habitat, including habitat for aquatic invertebrates, potentially affecting the availability of food for CV fall-run Chinook salmon. However, the effect of potential losses in food availability would be because of the small area of habitat that would be temporarily dewatered, the anticipated rapid re-colonization of the streambed by invertebrates following re-watering of the sites, and because of the small area of streambed permanently affected from bridge pier and culvert construction relative to the

availability of existing substrate and food producing habitat in Orchard Creek and Pleasant Grove Creek. This impact is considered less than significant.

RSP would be required at the new abutments of the widened bridges over Pleasant Grove Creek to prevent scour and erosion at the abutments. RSP would consist of 1/4-ton rock with a median diameter size of approximately 23 inches. Approximately 2,600 square feet of RSP would be located below the OHWM, resulting in the permanent loss of aquatic habitat equal to the cumulative area of creek channel that would be occupied by the RSP. However, the effect of potential losses in food availability would be negligible because of the small area of habitat that would be permanently affected from placement of RSP relative to the availability of existing substrate and food producing habitat in Pleasant Grove Creek. Placement of RSP could also result in the creation of predatory habitat as a result of the large voids that could be created in the RSP; however, the inclusion of soil in the RSP would prevent large gaps in the RSP that favor predators. Therefore, the potential for adverse effects on CV fall-run Chinook salmon associated with placement of RSP below the OHWM would be less than significant.

Vegetation Clearing

Within the BSA, riparian scrub wetlands supporting sandbar willow, with some arroyo willow, are present in small patches and provide streamside vegetation that overhang the wetted channel. This streamside vegetation is important for stream shading, which helps to moderate water temperatures, provides fish with protection from predators, and contributes leaf litter and insects (an important food source for fish) to the stream.

Construction activities associated with extending the box culvert inlet (upstream of SR 65) on Orchard Creek by 6 feet and widening the upstream side of the northbound SR 65 bridge over Pleasant Grove Creek by 12 feet would result in the temporary and permanent removal of this habitat (Figure 2). Removal of this vegetation would result in increased exposure of surface water to solar radiation, reduced overhead cover, and reduced input of leaf litter and food resources. However, the proposed action is not expected to cause long-term changes in water temperature or food availability for CV fall-run Chinook salmon, as sandbar willow is expected to quickly recolonize areas temporarily affected by construction activities, and the stream shading afforded by the culvert extension on Orchard Creek and the widened portion of the bridge on Pleasant Grove Creek would offset the loss of stream shading associated with the permanent removal of vegetation within the project footprint. This impact is considered less than significant.

Indirect Impacts

Increase in Impervious Surfaces

The proposed project would result in added impervious surfaces in the Orchard Creek and Pleasant Grove Creek watersheds, and ultimately in the Sacramento River watershed. The project would add up to 15.89 acres of additional impervious surfaces under the Carpool Lane Alternative, and up to 17.03 acres of additional impervious surfaces under the General Purpose Lane Alternative (ICF 2016e). The added impervious area has the potential to increase peak flow and runoff volume in receiving waters from the loss of natural ground cover and reduced infiltration of water into soil. This change could subsequently lead to accelerated streambed and

bank erosion, loss of stream structure, increased sediment transport and deposition (turbidity and sedimentation effects), and increased flooding. In response to the increases in flow magnitude and frequency, stream channels could incise or widen, which could result in adding additional fine sediments to the stream from the resultant increases in channel bed and stream bank erosion. These changes could lead to long-term alterations to stream flow, temperature, and geomorphology, with long-term or permanent consequences for fish and their habitat.

The increase in impervious surfaces also could result in increased water pollutants in local streams. Increased traffic loads in the corridor could result in increased deposition of particulates onto roadway surfaces that are then transported to receiving waters with road runoff. Heavy metals, oil, grease, and PAHs are common pollutants in road runoff and some of these pollutants can accumulate in stream sediments with lethal and sublethal consequences for fish and other aquatic species, particularly during “first flush” rain events. PAHs are organic compounds—containing only carbon and hydrogen—that occur in motor vehicle exhaust, petroleum products, materials associated with asphalt, and various other municipal and industrial sources. PAHs are widely distributed in the environment and are important environmental pollutants because of their carcinogenicity and tendency to bioaccumulate. PAHs are readily absorbed by fish and other aquatic organisms and, depending on concentration, can lead to lethal and deleterious sublethal effects in these organisms (Tuvikene 1995). PAHs tend to adsorb to any particulate matter, including fine sediment; therefore, relative concentrations of PAHs in aquatic ecosystems are generally highest in sediments, followed by aquatic biota and the water column (Tuvikene 1995). There is evidence that urban runoff containing roadway sediment may be an important PAH input to aquatic habitats and that a significant contribution to the PAH content of roadway sediment comes from materials associated with asphalt (Wakeham et al. 1980).

To prevent PAHs from entering waterways in the project area, the project proponent will require the contractor to implement a SWPPP prior to beginning construction, which will include Caltrans standard construction site BMPs. The temporary construction BMPs may include fiber rolls, check dams, and silt fences. To further prevent the introduction of PAHs from the new asphalt and ensure that water quality is maintained, the proposed temporary BMPs will be maintained in-place for a period of 6 months after construction while biofiltration swales are becoming established. Once established, the biofiltration swales will block entry of toxic substance-bearing particles, including those containing PAHs, from entering drainages.

The approach roadways leading to the widened bridges and culvert extensions also create the potential for PAHs to leach through the pavement, where they have the potential to enter the embankment material and ultimately the drainages in the project area. However, no long-term leaching effects are expected to occur from the proposed project because it is expected that the bridge abutments and culvert extensions would contain any PAHs that leach through the newly paved roadway surface and into the embankment material. The abutments and culvert extensions will provide a permanent impermeable barrier between PAHs and drainages in the project area.

The project proponent would substantially reduce or eliminate the potential for hydromodification impacts and the potential for deleterious materials like PAHs from entering Orchard Creek and Pleasant Grove Creek and eventually downstream receiving waters by incorporating temporary construction site BMPs, pollution prevention and erosion control BMPs, and treatment BMPs (e.g., biofiltration swales) into the project design to promote infiltration of stormwater runoff

from new and reconstructed impervious surfaces. With these safeguards in place, the potential for long-term adverse effects related to toxic chemicals entering Orchard Creek and Pleasant Grove Creek in surface runoff during storm events and from leaching through the asphalt and embankment materials would be negligible. This impact is considered less than significant.

Impacts on Essential Fish Habitat

EFH for Pacific salmon could be affected by the proposed project. The MSA-managed species that may occur in Orchard Creek and Pleasant Grove Creek in the BSA and that could be potentially affected by the project is CV fall-run Chinook salmon. Environmental conditions that could potentially affect Pacific salmon EFH are sedimentation and turbidity, hazardous materials and contaminants, stream diversion and dewatering, and temporary and permanent loss of aquatic habitat.

Effects on Pacific salmon EFH associated with sedimentation, turbidity, and contaminant spills would be temporary, while effects associated with permanent loss of aquatic habitat, and pollutants from new asphalt would be long-term. Implementing all applicable construction site BMPs and pollution prevention and erosion control BMPs will avoid or minimize potential adverse effects on EFH from increased fine sediment and turbidity and contaminants. Implementation of the SWPPP, along with applicable BMPs, would substantially reduce or eliminate the potential for an accidental spill and unintentional discharge of contaminants associated with potential effects on EFH. The permanent loss of aquatic habitat (substrate) from new bridge piers, culvert extensions, and riprap would be relatively minor compared to the amount of available habitat in these drainages. This impact is considered less than significant.

Wildlife Migration Corridors

Modifications to existing culverts within the BSA will not impede wildlife movement along existing streams/drainages. Wildlife movements may be temporarily restricted at a particular culvert crossing during construction but this impact would be short-term. Fish passage through the construction area will be maintained either by restricting the flow to one side of the creek at a time or diverting all flow into an open channel around the construction site. This impact is considered less than significant.

Mitigation Measures

Implementation of the following mitigation measure would reduce impacts on western spadefoot toad to less-than-significant levels.

Mitigation Measure 3: Provide Escape Ramps for Wildlife and Inspect Pits and Trenches Daily

To prevent inadvertent entrapment of western spadefoot toads during construction in grassland habitat, all excavated, steep-walled holes, and trenches more than 6 inches deep, will be provided with one or more escape ramps constructed of earth fill or wooden planks and will be inspected prior to being filled to ensure that no wildlife are present. In the event that holes or pits cannot be ramped, they will be properly covered at night to prevent

access by wildlife. Coverings may consist of wooden boards, metal plates, or tarps held down by soil or rocks, with no openings between the cover and the ground. The biological monitor or a designated construction crew member will inspect covered and open trenches and pits each morning and evening during construction to look for spadefoot toads or other wildlife that may have become trapped. It should be noted that spadefoot toads can fall into a trench or pit through the excavated wall of the trench or pit; therefore, these areas must be inspected daily, even if covered.

Implementation of the following mitigation measure reduce impacts on northern western pond turtle to less-than-significant levels.

Mitigation Measure 4: Conduct a Pre-Construction Survey for Northern Western Pond Turtle and Exclude Turtles from the Work Area

To avoid and minimize impacts on northern western pond turtles, the project proponent will retain a qualified wildlife biologist to conduct two separate pre-construction surveys: 2 weeks before and within 48 hours of disturbance in suitable aquatic and upland habitats. The survey objectives are to determine the presence or absence of pond turtles in the construction work area and, if necessary, to allow time for successful trapping and relocation. If possible, the surveys will be timed to coincide with the time of day and year when turtles are most likely to be active (during the cooler part of the day from 8:00 a.m. to 12:00 noon during spring, summer, and late summer). Prior to conducting presence/absence surveys, the biologist will locate the microhabitats for turtle basking (logs, rocks, and brush thickets) and determine a location to quietly observe turtles.

Each aquatic survey will include a 15-minute wait time after arriving onsite to allow startled turtles to return to open basking areas. The survey will consist of a minimum 15-minute observation time per area where turtles could be observed. A survey of adjacent upland habitat also will be conducted to look for adult turtles and active nests.

If turtles are observed during a survey and they cannot be avoided, they will be either hand-captured or trapped and relocated outside the construction area to appropriate aquatic habitat by a biologist with a valid memorandum of understanding from CDFW and as determined during coordination with CDFW. If an active turtle nest is found, the biologist will coordinate with CDFW to determine the appropriate avoidance measures.

Implementation of the following mitigation measure would reduce impacts on western burrowing owl to less-than-significant levels.

Mitigation Measure 5: Conduct Pre-Construction Surveys for Burrowing Owl and Establish Exclusion Zones, if Necessary

A qualified biologist will conduct two separate pre-construction surveys for burrowing owl: no less than 14 days prior to, and within 48 hours of, initiating ground-disturbing activities within suitable habitat. The pre-construction survey area will encompass the designated work area (including permanent and temporary impact areas) and a 500-foot buffer around this area where access is permitted. To the maximum extent feasible (i.e.,

where the construction footprint can be modified), construction activities within 500 feet of active burrowing owl burrows will be avoided during the nesting season (February 1 to August 31).

If an active burrow is identified near a proposed work area and work cannot be conducted outside of the nesting season (February 1 to August 31), a qualified biologist will establish a no-activity zone that extends a minimum of 250 feet around the burrow. If burrowing owls are present at the site during the non-breeding season (September 1 through January 31), a qualified biologist will establish a no-activity zone that extends a minimum of 150 feet around the burrow.

If the designated no-activity zone for breeding or non-breeding burrowing owls cannot be established, a wildlife biologist experienced in burrowing owl behavior will evaluate site-specific conditions and, in coordination with CDFW, recommend a smaller buffer (if possible) that still minimizes the potential to disturb the owls (and is deemed to still allow reproductive success during the breeding season). The site-specific buffer will consider the type and extent of the proposed activity occurring near the occupied burrow, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity to background activities.

If burrowing owls are present within the direct disturbance area and cannot be avoided during the non-breeding season (generally September 1 through January 31), passive relocation techniques (e.g., installing one-way doors at burrow entrances) will be used instead of trapping. Passive relocation also may be used during the breeding season (February 1 through August 30) if a qualified biologist, coordinating with CDFW, determines through site surveillance that the burrow is not occupied by burrowing owl adults and/or young. Passive relocation will be accomplished by installing one-way doors (e.g., modified dryer vents or other CDFW-approved method). The one-way doors will be left in place for a minimum of 1 week and will be monitored daily to ensure that the owls have left the burrow. The burrow will be excavated using hand tools, and a section of flexible plastic pipe (at least 3 inches in diameter) will be inserted into the burrow tunnel to maintain an escape route for any animals that may be inside the burrow during burrow excavation.

Implementation of the following mitigation measure would reduce impacts on northern harrier to a less-than-significant level and avoid violation of the MBTA and the CFGC,

Mitigation Measure 6: Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Nesting Migratory Birds and Raptors

- Where vegetation removal is required to construct project features, the project proponent will conduct this activity during the non-breeding season for migratory birds and raptors (generally between September 1 and February 28), to the extent feasible.
- If construction activities (including vegetation removal) cannot be confined to the non-breeding season, the project proponent will retain a qualified wildlife biologist with

knowledge of the relevant species to conduct nesting surveys before the start of construction. The migratory bird and raptor nesting surveys will be conducted in conjunction with the surveys identified for burrowing owl and Swainson's hawk (Measure 13, *Conduct Pre-Construction Surveys for Burrowing Owl and Establish Exclusion Zones, if Necessary*, and Measure 21, *Conduct Pre-Construction Surveys for Swainson's Hawk and Establish Exclusion Zones, if Neccessary*) and will include a minimum of two separate surveys to look for active migratory bird and raptor nests. Surveys will include a search of all trees, shrubs, wetlands, and grassland vegetation that provide suitable nesting habitat in the construction area. In addition, a 500-foot area around the construction area will be surveyed for nesting raptors and a 100-foot area around the construction area will be surveyed for song birds. One survey should be conducted no more than 14 days prior to construction and the second survey should be conducted within 48 hours prior to the start of construction or vegetation removal. If no active nests are detected during these surveys, no protective measures are required.

- If an active nest is found in the survey area, a no-disturbance buffer will be established around the nest site to avoid disturbance or destruction of the nest until the end of the breeding season (August 31) or until after a qualified wildlife biologist determines that the young have fledged and moved out of the nesting substrate (this date varies by species). The extent of these buffers will be determined by the biologist in coordination with USFWS and/or CDFW, and will depend on the level of construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. Suitable buffer distances may vary between species but will be established a minimum of 50 feet from active construction.

Implementation of the following mitigation measure will avoid direct impacts and minimize indirect impacts on purple martin and other structure-nesting birds, and will avoid violation of the MBTA and the CFGC.

Mitigation Measure 7: Modify Existing Structures during the Non-Breeding Season for Purple Martin and Other Structure-Nesting Migratory Birds or Implement Exclusion Measures to Deter Nesting

To avoid impacts on nesting purple martins, swallows, and other structure-nesting migratory birds that are protected under the MBTA and the CFGC, the project proponent will modify existing structures after the conclusion of the bird nesting period (February 15 through August 31). Modification or disturbance of existing roadway structures after the nesting period has concluded is strongly preferred; however, if this is not possible, the project proponent will implement the following avoidance measures.

- Prior to the start of each phase of construction, the project proponent will hire a qualified wildlife biologist to inspect any aerial structure that would be modified or disturbed during the non-breeding season (September 1 through February 14). If nests are found and are determined to be inactive (abandoned), they may be removed.

- After inactive nests are removed and prior to construction that would occur between February 15 and August 31, the undersides of the portion of the structure to be modified or disturbed will be covered with a suitable exclusion material that will prevent birds from nesting (i.e., 0.5- to 0.75-inch mesh netting, plastic tarp, or other suitable material safe for wildlife). Portions of the existing structures containing weep holes that would be modified or disturbed also will be covered or filled with suitable material to prevent nesting (i.e., fiberglass insulation, foam padding, and PVC/ABS caps). All weep holes connected to the same girder recess area would require installation of exclusion material. The project proponent will hire a qualified wildlife management specialist experienced with installation of bird exclusion materials to ensure that exclusion devices are properly installed and will avoid inadvertent entrapment of migratory birds. All exclusion devices will be installed before February 15 and will be monitored throughout the breeding season (typically several times a week). The exclusion material will be anchored so that swallows cannot attach their nests to the structures through gaps in the net.
- Exclusion devices will be installed consistent with bat exclusion measures (Measure 16, *Conduct Pre-Construction Surveys for Roosting Bats and Implement Protection Measures*) and in a manner that does not entrap day-roosting bats.
- As an alternative to installing exclusion materials on a structure, the project proponent may hire a qualified biologist or qualified wildlife management specialist to remove nests as the birds construct them and before any eggs are laid. Visits to the site would need to occur daily throughout the breeding season (February 15 through August 31) as swallows can complete a nest in a 24-hour period.
- If exclusion material is not installed on structures prior to February 15 or manual removal of nests is not conducted daily, and migratory birds colonize a structure, removal or modification to that portion of the structure may not occur until after August 31, or until a qualified biologist has determined that the young have fledged and the nest is no longer in use.
- If appropriate steps are taken to prevent swallows from constructing new nests as described in the preceding measures, work can proceed at any time of the year.

Implementation of the following mitigation measure would reduce impacts on special-status and non-special-status bats to less-than-significant levels.

Mitigation Measure 8: Conduct Pre-Construction Surveys for Roosting Bats and Implement Protection Measures

Baseline data is not available on how bats use the BSA, their individual numbers, or how they vary seasonally. Daily and seasonal variations in habitat use by bats is common. To obtain the highest likelihood of detection, the following pre-construction bat surveys will be conducted within and adjacent to the construction area for each phase of construction. If surveys determine that bats are roosting in the construction area, the project proponent will implement the following protective measures.

Conduct Pre-Construction Surveys at Bridges and Other Structures

Before work begins on the bridge/structure, qualified biologists will conduct a daytime search for bat sign and evening emergence surveys to determine whether the bridge/structure is being used as a roost. Biologists conducting daytime surveys will listen for audible bat calls and will use the naked eye, binoculars, and a high-powered spotlight to inspect expansion joints, weep holes, and other bridge features that could house bats. Bridge surfaces and the ground around the bridge/structure will be surveyed for bat sign, such as guano, staining, and prey remains.

Qualified biologists also will conduct evening emergence surveys at structures that contain suitable roosting areas. The surveys will consist of at least one biologist stationed on each side of the bridge/structure watching for emerging bats from a half hour before sunset to 1–2 hours after sunset for a minimum of 2 nights at each survey location within the season that construction would be taking place. Surveys may take place over several nights to fully cover the extent of structure work. All emergence surveys will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). Survey methodology may be supplemented as new research identifies advanced survey techniques and equipment that would aid in bat detections. Acoustic detectors may be used during emergence surveys to obtain data on bat species present in the survey area at the time of detection.

If suitable roost structures would be removed, additional surveys may be required to determine how the structure is used by bats—whether it is used as a night roost, maternity roost, migration stopover, or for hibernation.

Identify Protective Measures for Bats Using Bridges/Structures

If it is determined that bats are using bridges/structures within or adjacent to the construction area as roost sites, the project proponent (or their designated contractor) will coordinate with CDFW to identify protective measures to avoid and minimize impacts on roosting bats based on the type of roost and timing of activities. These measures could include, but are not limited to the following.

- If a non-maternity roost is located within a structure that would be modified or disturbed in a manner that would expose the roost, bats will be excluded from the structure by a qualified wildlife management specialist working with a bat biologist. An exclusion plan will be developed in coordination with CDFW that identifies the type of exclusion material/devices to be used, the location and method for installing the devices, and monitoring schedule for checking the effectiveness of the devices. Because bats are expected to tolerate temporary construction noise and vibrations, bats will not be excluded from structures if no direct impacts on the roost are anticipated.
- If a maternity roost is located, whether solitary or colonial, that roost will remain undisturbed until September 15 or until a qualified biologist has determined that the roost is no longer active.

Avoidance and Minimization Measures

Implementation of the following measures will further reduce potential permanent and temporary impacts.

Install Fencing and/or Flagging to Protect Sensitive Biological Resources

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Conduct Mandatory Environmental Awareness Training for Construction Personnel

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction in Sensitive Habitats

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Conduct All In-Channel Construction Activities between June 1 and October 15

The project proponent will require the contractor to conduct all in-channel construction and impact pile driving between June 1 and October 15, unless earlier and/or later dates for in-channel construction activities and impact pile driving are approved by CDFW and NMFS. In-channel construction is defined as creek bank and channel-bed construction below the OHWM, including the installation of stream diversion structures, channel dewatering, and excavation and grading activities. By requiring contractors to adhere to these dates for in-channel construction and pile driving, the project proponent would achieve several goals.

- In-water construction would avoid the period when adult and juvenile CCV steelhead could be moving through the project area.
- The timing of in-water construction would be concurrent with the period when rearing juvenile CCV steelhead are expected to be absent from the affected reaches of Orchard Creek and Pleasant Grove Creek because of unsuitable conditions (low or lack of flow, excessive water temperatures).
- The length of the in-water construction period would be maximized, thereby ensuring that only one in-channel construction season would be needed to complete the culvert construction on Orchard Creek, and only two in-channel construction seasons would be needed to complete bridge widening on Pleasant Grove Creek.

Implement Cofferdam and Stream Diversion Restrictions

Any activity that temporarily diverts flow from any segment of Orchard Creek or Pleasant Grove Creek will trigger implementation of the following conditions:

- The extent of cofferdam footprints and stream channel dewatering will be limited to the minimum necessary to support construction activities.
- If temporary diversion cofferdams are constructed of natural materials (i.e., gravel), the material will be composed of washed, rounded, spawning-sized gravel between 0.4 and 4 inches in diameter, and any gravel in contact with flowing water will be left in place, manually spread out using had tools if necessary, to ensure adequate fish passage for all life stages, and then allowed to disperse naturally by high winter flows.
- The water diversion system will be constructed and be operated in such a way that flow to creek segments downstream from the construction site will not be interrupted as streamflow is being diverted.
- Water will be released downstream at an appropriate rate to maintain downstream flows at all times and the outlet of the diversion will be positioned such that the discharge of water does not induce bank erosion or channel scour.
- Any pumps used to convey diverted water around dewatered reaches will have their intakes properly screened according to CDFW and NMFS screening guidelines for water diversion intakes.
- Fish passage through the construction area will be maintained either by restricting the flow to one side of the creek at a time or diverting all flow into an open channel around the construction site.

Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is FESA (16 USC § 1531 et seq.). See also 50 CFR Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of the FESA, federal agencies, such as the FHWA, are required to consult with USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. *Critical habitat* is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of the FESA defines *take* as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, CESA (CFGC § 2050 et seq.). CESA emphasizes early consultation to avoid potential impacts on rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species

populations and their essential habitats. CDFW is the agency responsible for implementing CESA. CFGC Section 2081 prohibits take of any species determined to be an endangered species or a threatened species. *Take* is defined in CFGC Section 86 as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows take incidental to otherwise lawful development projects; for these actions, CDFW issues an incidental take permit. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW also may authorize impacts on CESA species by issuing a Consistency Determination under CFGC Section 2080.1.

Affected Environment

Three federally-listed species (vernal pool fairy shrimp, vernal pool tadpole shrimp, and CCV steelhead) and three state-listed or candidate species (California black rail, Swainson's hawk, and tricolored blackbird) may occupy the BSA based on the presence of suitable habitat. These species are discussed below.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp is a federally listed threatened species. The species is found from Shasta County in the north throughout the Central Valley, and west to the central Coast Ranges, at elevations of 30 to 4,000 feet. Additional populations have been reported from the Agate Desert region of Oregon near Medford; and disjunct populations occur in San Luis Obispo, Santa Barbara, and Riverside Counties. However, most known locations are in the Sacramento and San Joaquin Valleys and along the eastern margin of the central Coast Ranges.

Vernal pool fairy shrimp inhabit vernal pools that form in depressions, usually in grassland habitats. Pools must remain inundated long enough for the species to complete its life cycle. Vernal pool fairy shrimp has the shortest time of fairy shrimp species to reach sexual maturity, with a minimum of 18 days. Vernal pool fairy shrimp also occur in other wetlands that provide habitat similar to vernal pools, such as alkaline rain pools, ephemeral drainages, rock outcrop pools, ditches, stream oxbows, stock ponds, vernal swales, and some seasonal wetlands. Occupied wetlands range in size from as small as several square feet to more than 10 acres. Vernal pool fairy shrimp and other fairy shrimp have been observed in artificial depressions and drainages where water ponds for a sufficient duration. Examples of such areas include roadside ditches and ruts left behind by off-road vehicles or heavy equipment. Soil compaction from construction activity can sometimes create an artificial hardpan, or restrictive layer, which allows water to pond and form suitable habitat for vernal pool fairy shrimp.

The proposed project is within the current range of vernal pool fairy shrimp. Based on the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, the BSA lies within the Western Placer County core area within the Southeastern Sacramento Valley vernal pool region but does not overlap with designated critical habitat for vernal pool fairy shrimp (70 Federal Register [FR] 46924 and 71 FR 7117). Vernal pools within the BSA represent potential habitat for vernal pool fairy shrimp (Figures 2a through 2k). Several seasonal wetlands were also mapped within the study area; however, many of these features receive irrigation runoff as their principle water source and hold water for shorter periods of time than vernal pools, and are often seasonally inundated during short periods throughout the year. This hydroperiod would not

support suitable conditions for vernal pool fairy shrimp reproduction. Two seasonal wetlands within the southbound SR 65 on-ramp loop from Blue Oaks Boulevard and several seasonal wetlands north of the northbound SR 65 off-ramp loop to westbound Blue Oaks Boulevard (Figure 2h) were considered suitable habitat for vernal pool fairy shrimp. These ephemeral features occupy a low point within the landscape and their principle water source is direct precipitation and stormwater runoff from the adjacent roadway. Based on a review of historical aerial photographs, they appear to hold water for a sufficient duration (at least 3 weeks) to allow vernal pool fairy shrimp to reproduce.

More than 10 documented occurrences of vernal pool fairy shrimp have been recorded within 1 mile of the study area. These records are for natural and created vernal pools located west and east of SR 65.

Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp is a federally listed endangered species. This species is a California Central Valley endemic species, with the majority of populations in the Sacramento Valley. This species has also been reported from the Sacramento–San Joaquin River Delta east of San Francisco Bay and from scattered localities in the San Joaquin Valley from San Joaquin to Madera Counties.

Vernal pool tadpole shrimp generally take 38 days to mature and typically reproduce in about 54 days. Vernal pool tadpole shrimp occur in a wide variety of seasonal habitats, including vernal pools, ponded clay flats, alkaline pools, ephemeral stock tanks, and roadside ditches. This species is typically found at the highest concentrations in playa pools, large deep vernal pools, and winter lakes (greater than 100 acres) but have also been found in very small (less than 25 square feet) ephemeral pools. The species' presence in very small pools is believed to be a result of wash down from larger source pools. Vernal pool tadpole shrimp have been observed in a variety of habitats ranging from clear, vegetated vernal pools to highly turbid alkali scald with variable depths and volumes of water during the wet cycle. Vernal pool tadpole shrimp are uncommon even where suitable habitats occur. During surveys conducted in 95 areas across 27 counties within northern and central California, vernal pool tadpole shrimp were detected in only 17% of over 5,000 wetlands sampled.

Based on the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*, the BSA lies within the Western Placer County core area within the Southeastern Sacramento Valley vernal pool region but does not overlap with designated critical habitat for vernal pool tadpole shrimp (70 FR 46924 and 71 FR 7117). Within Placer County, there have been two documented populations of vernal pool tadpole shrimp within surveyed habitats. The species has been detected in as many as 10 vernal pools at the Lincoln Communication Facility, now part of the Western Placer Schools Conservation Bank, in 1994, 1995, 1996, 2006, 2009, 2011, and 2013, located approximately 5 miles northwest of the BSA. The second known population is on the Woodcreek Oaks City Preserve (documented within a created vernal pool in 1993 and 1995) located just north of Pleasant Grove Boulevard, approximately 2 miles southwest of the BSA. A vernal pool tadpole shrimp cyst was also detected in 2002 from a roadside wetland located along Industrial Avenue approximately 800 feet west of the northern end of the study area. It is presumed that the cyst may

have been transported into this habitat from nearby wetlands that have since been filled by a housing development.

Vernal pools throughout the study area and several depressional seasonal wetlands along northbound and southbound SR 65 just north of Blue Oaks Boulevard (Figure 2h) represent potential habitat for vernal pool tadpole shrimp. These features range in size from 0.001 acre to 0.430 acre. Larger, deeper pools are likely to provide sufficient ponding duration to support the lifecycle of tadpole shrimp (minimum 38 days for adult maturation). Small or shallow pools with a flashy hydroperiod have a low likelihood to support vernal pool tadpole shrimp. In general, most seasonal wetlands in the study area hold water for shorter periods of time than vernal pools and therefore are not expected to have a hydroperiod that would support vernal pool tadpole shrimp reproduction. Therefore, these wetland features were not considered to be suitable habitat for vernal pool tadpole shrimp.

California Black Rail

California black rail is a state-designated threatened species and is fully protected under CFGC Section 3511. California black rail is a subspecies of black rail with extant populations in the San Francisco Bay area, Sacramento-San Joaquin Delta, a few locations in coastal southern California, the Salton Sea, and the lower Colorado River area. This subspecies was recently discovered in the Sierra foothills in 1994. In the Sierra foothills, black rail is a resident (year-round) species that occupies perennial marshes supporting dense vegetation cover and persistent shallow-water conditions (less than 1.2 inches). Within this region, black rails are typically found in relatively small (median 1.63 acres and minimum 0.25 acre), gently sloped and densely vegetated marsh habitats. The breeding season for black rails is from late February through July; for the purpose of the natural environment study, the black rail breeding season was considered to be February 15 through July 31.

Potential habitat for resident California black rails is present within extensive emergent wetland and seasonal wetland vegetation along the two branches of Orchard Creek and along Pleasant Grove Creek in the northern portion of the BSA, east of SR 65 (Figures 2a, 2b, 2c, 2f and 2g). No black rails have been previously detected in the BSA; however, the species is elusive and is difficult to detect even when it is present. Extensive surveys of suitable marsh habitat across 14 counties (including Placer) were conducted between 1994 and 2006 to identify populations of black rails within the Sierra Nevada foothills and portions of the Sacramento Valley (Richmond et. al. 2008). A total of 164 new populations were detected in the Sierra foothills during this study, including one population in Placer County within the Clover Valley area of Rocklin (CNDDB occurrence #134). California black rails have also been detected at Doty Ravine near the City of Lincoln in 2005 (CNDDB occurrence #210).

Black rails in the Sierra foothills are considered a metapopulation (a population geographically separate from the greater population of rails) that commonly moves between nearby sites, especially in areas where hydrologic and vegetation conditions may change throughout the year or between years (i.e., changes in irrigation flows and excessive grazing by cattle). Because black rails are known to occur along Clover Valley Creek approximately 4 miles east of the BSA and because potential habitat is present within the BSA, there is potential for short-term or long-term residency of California black rails within the BSA.

Swainson's Hawk

Swainson's hawk is a state-listed threatened species. Swainson's hawks forage in grasslands, grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Vineyards, orchards, rice, and cotton crops are generally unsuitable for foraging because of the density of the vegetation. The majority of Swainson's hawks winter in South America, although some winter in the United States. Swainson's hawks arrive in California in early March to establish nesting territories and breed. They usually nest in large, mature trees. Most nest sites (87%) in the Central Valley are found in riparian habitats, primarily because trees are more available there. Swainson's hawks also nest in mature roadside trees and in isolated trees in agricultural fields or pastures. The breeding season is from March through August.

Within the BSA, potential nesting habitat for Swainson's hawk is limited to scattered trees along existing roadways and streams. The closest documented Swainson's hawk nest site is located approximately 1.5 mile west of the BSA within riparian habitat along Pleasant Grove Creek. Annual grassland in the BSA represents suitable foraging habitat for Swainson's hawk, and Swainson's hawks were observed foraging over grassland habitat in and adjacent to the study area during April 2014 surveys conducted for a nearby project along SR 65 (ICF International 2014). Graded/disturbed areas within the study area were not considered to be suitable foraging habitat for Swainson's hawk because much of these areas were in active construction at the time of the February 2015 field surveys or are routinely disturbed, and are not expected to support prey populations.

Tricolored Blackbird

Tricolored blackbird was designated by the California Fish and Game Commission as a candidate for state listing as threatened or endangered under CESA on December 10, 2015. This designation triggers a 12-month period during which CDFW will conduct a status review to inform the Commission's subsequent decision on whether to formerly list the species as threatened or endangered. As a candidate species, the tricolored blackbird receives the same legal protection afforded to an endangered or threatened species. The species is also protected during its nesting season under the MBTA and CFGC Section 3503.5. Tricolored blackbird is a highly colonial species that is largely endemic to California. Tricolored blackbird breeding colony sites require open, accessible water; a protected nesting substrate, including either flooded, thorny, or spiny vegetation; and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony. Tricolored blackbird breeding colonies occur in freshwater marshes dominated by tules and cattails, in Himalayan blackberries (*Rubus armeniacus*), and in silage and grain fields. The breeding season is from late February to early August. Tricolored blackbird foraging habitats in all seasons include annual grasslands, dry seasonal pools, agricultural fields (such as large tracts of alfalfa with continuous mowing schedules, and recently tilled fields), cattle feedlots, and dairies. Tricolored blackbirds also forage occasionally in riparian scrub habitats and along marsh borders. Weed-free row crops and intensively managed vineyards and orchards do not serve as regular foraging sites. Most tricolored blackbirds forage within 3 miles of their colony sites, but commute distances of up to 8 miles have been reported.

Emergent wetland and riparian scrub vegetation along Orchard Creek and Pleasant Grove Creek within the BSA provide potential nesting substrate for tricolored blackbird. The closest

documented nesting sites are along Orchard Creek 0.35 mile west of the BSA (observed in dense blackberry bramble in June 2014 [ICF International 2014]) and within dense bulrush at a small pond 0.75 mile west of the BSA (CNDDB Occurrence #242). Grassland and seasonal wetland habitat within the BSA and large tracts of open space grasslands west of the BSA represent suitable foraging habitat for tricolored blackbirds.

California Central Valley Steelhead

The CCV steelhead distinct population segment (DPS) is federally listed as threatened (63 FR 13347; March 19, 1998) (71 FR 834; January 5, 2006). NMFS reaffirmed its threatened status on August 15, 2011 (National Marine Fisheries Service 2011). The CCV steelhead DPS includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries. Artificially propagated fish from Coleman National Fish Hatchery and Feather River Fish Hatchery are included in the DPS (71 FR 834; January 5, 2006). Critical habitat for CCV steelhead has been designated; however, Orchard Creek and Pleasant Grove Creek are not included in the designation (70 FR 52488; September 2, 2005). CCV steelhead is not listed under CESA.

Steelhead exhibit highly variable life history patterns throughout their range, but are broadly categorized into winter and summer reproductive ecotypes. Winter steelhead, the most widespread reproductive ecotype, is the only type currently present in Central Valley streams (McEwan and Jackson 1996). Winter steelhead become sexually mature in the ocean; enter spawning streams in summer, fall, or winter; and spawn a few months later in winter or spring (Meehan and Bjornn 1991; Behnke 1992). Juvenile steelhead rear a minimum of 1 year, and typically 2 or more years, in freshwater before migrating to the ocean as smolts (i.e., juveniles that are physiologically ready to enter seawater). Juvenile migration to the ocean generally occurs from December through August, although peak months of juvenile migration are January to May (McEwan 2001). Generally, juvenile steelhead require cool (optimal temperature for growth is 15–18°C [59–64.4°F]), clean, well-oxygenated (i.e., saturated conditions) riverine habitat with an abundance of relatively clean gravel for spawning and food production, streamside vegetation, and cover (Moyle 2002). These habitat features are largely absent from Orchard Creek and Pleasant Grove Creek in the vicinity of the BSA; therefore, the BSA is considered a potential migratory corridor for adult and juvenile steelhead and may provide limited rearing habitat for juvenile steelhead during winter and spring when water temperatures are within acceptable ranges.

Orchard Creek may be seasonally accessible to CCV steelhead, based on its connection with Auburn Ravine and general accounts of steelhead in the Auburn Ravine watershed. Likewise, Pleasant Grove Creek may be seasonally accessible to CCV steelhead, based on its direct hydrologic connection to Pleasant Grove Canal, and ultimately the Cross Canal (to which Auburn Ravine also flows) and the Sacramento River (which is known to support steelhead). Neither of these creeks is within the historical distribution range of CCV steelhead, and their presence during summer is very unlikely (National Marine Fisheries Service 2014, 2015a, 2015b).

Environmental Consequences

Each of the build alternatives could directly or indirectly affect a threatened species. Impacts of the alternatives are discussed below by species.

Vernal Pool Fairy Shrimp

Based on the known presence of vernal pool fairy shrimp in the project vicinity (within 1 mile of the BSA), it was determined that vernal pool fairy shrimp may occur in suitable habitat (vernal pools and seasonal wetlands) within the BSA. For purposes of this impact analysis, vernal pools and seasonal wetlands in the BSA that support suitable habitat characteristics are presumed to be occupied by vernal pool fairy shrimp. The proposed project has been designed to avoid vernal pool fairy shrimp habitat to the extent possible. Only one wetland that provides suitable habitat for vernal pool fairy shrimp would be directly affected by construction. Reconstruction of the existing southbound SR 65 on-ramp from Blue Oaks Boulevard would fill one seasonal wetland within the on-ramp loop (Figure 2h) that provides suitable habitat for vernal pool fairy shrimp. Direct impacts that result in modification (i.e., permanent or temporary fill or excavation) of suitable habitat in the BSA could result in the subsequent loss of vernal pool fairy shrimp and their eggs.

Vernal pool fairy shrimp habitat that is in close proximity to project construction may also be indirectly affected. Construction activities such as excavation, grading, paving, or stockpiling of soil could result in indirect effects on vernal pool fairy shrimp by altering the suitability of nearby habitat. Runoff of sediment, gasoline, oil, or other contaminants may result in degradation of water quality within suitable habitat. Changes in hydrology also may reduce the suitability of habitat by altering the hydroperiod of vernal pools and other suitable wetlands.

For the purpose of calculating indirect effects, existing barriers between suitable habitat and the limits of disturbance were assumed sufficient in preventing indirect effects. For example, several vernal pools are located east of SR 65 and north of West Ranch View Drive on a bermed area that is approximately 3–4 feet higher than existing grade within the right-of-way (Figure 2d); these vernal pools would not be affected by the project. In addition, if an existing roadway or wetland feature separates the limits of disturbance from suitable vernal pool branchiopod habitat, indirect effects to this habitat was assumed to be avoided. Table 18 summarizes the impacts of project construction on vernal pool fairy shrimp habitat.

Table 18. Effects Rationale for Vernal Pool Branchiopod Habitat

Habitat ID*	Located in an Open Space Preserve?	Effects Rationale	Conclusion of Effects
VPs 1 – 7, and 9	No – but part of a project BO for Lincoln 270 (USFWS 81420-2009-F-0092-4)	Grading and paving activities will occur more than 200 feet north of these pools. Vehicle access and staging may occur within the existing right-of-way up to the fence line adjacent to pools VP 1 and VP 2; however no ground disturbance is anticipated. Therefore, no indirect effects to any of the pools in this area are anticipated. Additionally, these features were previously mitigated by the Lincoln 270 project. Presently, stormwater runoff from the study area sheet flows into an existing toe gutter/ditch and drains to an existing ditch within right-of-way and south into Orchard Creek. This drainage pattern will be maintained.	No effects
VPs 8, 10, and 11	Yes – Lincoln	These pools are on the opposite side of highway from ground disturbance.	No effects
VPs 12 – 14	Yes – Lincoln	These pools are on the opposite side of off-ramp from proposed staging area between off-ramp and SR 65. No excavation or grading proposed in vicinity of these pools.	No effects
VPs 15 and 16	No	Both of these pools are located 150 feet west of proposed grading and paving activities associated with roadway expansion and 120 feet west of the area that would provide vehicle access and staging during construction. In this area storm water sheet flows off the existing roadway and drains south to Orchard Creek. This existing drainage pattern would continue for the new section of roadway. Based on limited ground disturbance (grading and paving) and implementation of water quality and sediment-control BMPs during construction, no indirect effects to these pools are anticipated.	No effects
VPs 17 and 18	Yes-Lincoln	These pools are separated from proposed roadway expansion by a perennial drainage that provides a buffer between the pools and proposed grading and paving activities to the southwest; therefore no indirect effects to the pools are anticipated.	No effects
VPs 22 – 24	Yes-Lincoln	Edge of newly constructed roadway will be 10 feet from VP 23 and this pool could be indirectly affected since it is immediately adjacent to proposed grading and paving activities, which could result in the discharge of sediment or contaminants during construction. Because VP 23 parallels the highway it acts as a barrier to VP 22 and VP 24 and therefore no effects to those pools are anticipated.	Indirect effect on VP 23

Habitat ID*	Located in an Open Space Preserve?	Effects Rationale	Conclusion of Effects
VPs 19 - 21 and 25	Yes-Lincoln	These pools are located between 80 feet and 160 feet east of proposed grading and paving activities associated with new roadway construction. Ground disturbance is expected to be minimal because only a small amount of fill is required to extend the roadway surface. An existing toe drain collects storm water from the road surface and drains to Orchard Creek. The new roadway section would be constructed with a similar feature so that storm water would continue to flow in the same manner and would not sheet flow directly into nearby vernal pools. Based on the limited ground disturbance and implementation of water quality and sediment-control BMPs during construction, no indirect effects to these pools are anticipated.	No effects
VPs 26 - 28	Yes-Lincoln	These pools are located 150 to 225 feet east of proposed grading, excavation, and paving associated with new roadway construction and extension of an existing culvert. Currently at this location storm water is directed into the existing culvert and flows under the highway to the west. This existing drainage pattern would be maintained with the expanded roadway section. Although some fill is required at this location to match the existing road grade and extend the culvert, this activity would have minimal disturbance to the existing drainage patterns and because water quality and sediment-control BMPs will be implemented during construction, no indirect effects to these pools are anticipated.	No effects
VPs 29 -39 and VPs 41 – 47, and 49	Yes – Lincoln	All of the VPs are within grassland habitat that is higher in elevation (between 3 and 6 feet) then the existing and proposed roadway. Although construction of the new roadway section will require cutting into the existing slope, this activity will be more than 50 feet from these pools and the pools will remain at a higher elevation then the disturbance. Therefore no indirect effects on these pools are anticipated.	No effects
VPs 48 and 50	Yes – VP 48 is in Lincoln OS	In this location, a new auxiliary lane would be constructed to the north to tie back into the existing highway. VPs 48 and 50 are located 200 feet and 300 feet, respectively, from proposed excavation and paving activities and are approximately 8 feet higher than the existing and proposed roadway elevations. Although the proposed project will require excavating into the existing slope, all of the proposed ground disturbance will be lower in elevation than the pools and would not affect pool hydrology or result in sedimentation runoff. No effects are anticipated.	No effects

Habitat ID*	Located in an Open Space Preserve?	Effects Rationale	Conclusion of Effects
VPs 51 -58	Yes – VPs 53 to 58 are within Sunset West Preserve (USFWS 1-1-99-F-0043)	VPs 51, 52, and 53 are located within 10 feet of proposed grading and paving activities. Although water quality and sediment-control BMPs will be implemented during construction, the proximity of these pools to ground disturbance increases the risk for discharge of sediment or pollutants during construction. Also, because of the close proximity to the proposed edge of pavement, VPs 51, 52, and 53 are likely to collect direct storm water runoff from the road surface which could lead to a buildup of contaminants in these pools resulting in the degradation of this habitat over time. VPs 54 – 58 are located between 50 and 200 feet west of proposed grading and paving activities associated with roadway expansion. Because the new roadway section will be constructed at the same elevation as the existing roadway, minimal cut and fill will be required. In this area storm water sheet flows off the existing roadway and drains south along a roadside ditch to Pleasant Grove Creek. Construction of the new roadway section will maintain this flow and will not result in a change of drainage patterns in this area. Based on the limited ground disturbance, no change in drainage patterns, and implementation of water quality and sediment-control BMPs during construction, indirect effects can be avoided for VPs 54 – 58.	Indirect effects on VPs 51, 52, and 53
VPs 59 and 60	Yes – Sunset West Preserve (USFWS 1-1-99-F-0043)	VP 59 is located approximately 145 feet east from proposed bridge construction and it is anticipated that with implementation of water quality and sediment-control BMPs, indirect effect on VP 59 can be avoided. VP 60 is located approximately 20 feet east of proposed construction associated with expansion of the existing bridge over Pleasant Grove Creek. Substantial ground disturbance will be required for this work. Although water quality and sediment-control BMPs will be implemented during construction, the proximity and amount of disturbance has a high risk for discharge of sediment or pollutants to this pool during construction. Therefore, it is anticipated that the project may indirectly affect VP 60. VP 59 is located approximately 145 feet east from proposed bridge construction and it is anticipated that with implementation of water quality and sediment-control BMPs, indirect effect on VP 59 can be avoided.	Indirect effects on VP 60
VPs 61-66	Yes – Park Side Industrial Center Preserve	VPs 63 – 66 are separated from the existing roadway by a berm that slopes to the west. Construction of new roadway will require some excavation into this berm. However, VPs 63 – 66 will be at a higher elevation than the new roadway construction activities and they are located between 160 feet and 240 feet west of proposed ground disturbance. No indirect effects to these pools are anticipated.	Indirect effect on VP 62

Habitat ID*	Located in an Open Space Preserve?	Effects Rationale	Conclusion of Effects
		Pools 61 and 62 are located along the toe of the existing berm and are at the same elevation as the existing roadway and the proposed new roadway surface. VP 61 is 100 feet west of proposed grading and paving activities. Because there is minimal cut and fill proposed at this location and because water quality and sediment-control BMPs will be implemented during construction, indirect effects to this pool can be avoided. However, VP 62 is located only 10 feet west of proposed grading and paving associated with roadway construction. Although water quality and sediment-control BMPs will be implemented during construction, the proximity of VP 62 to ground disturbance increases the risk for discharge of sediment or pollutants during construction. Also, because of the close proximity to the proposed edge of pavement, VP 62 is likely to collect direct storm water runoff from the road surface which could lead to a buildup of contaminants in this wetland resulting in the degradation of this habitat over time. Therefore, it is anticipated that the project may indirectly affect VP 62.	
VP 67	No	This pool is separated from grading and paving activities associated with roadway construction by a storm water drainage feature that has been excavated and supports emergent wetland vegetation. Because this drainage feature acts as a buffer between VP 67 and construction, no effects to this pool are anticipated.	No effects
SWs 18 -21	Yes – Sunset West Preserve (USFWS 1-1-99-F-0043)	SWs 18, 19, and 21 are located between 85 feet and 200 feet east of proposed grading and paving activities associated with new roadway construction. Because the new roadway section will be constructed at the same elevation as the existing roadway, minimal cut and fill will be required. Storm water runoff from the existing roadway currently flows to the north into a small ditch that drains to an excavated channel. Construction of the new roadway section will maintain this flow and will not result in a change of drainage patterns in this area. Based on the limited ground disturbance, no change in drainage patterns, and implementation of water quality and sediment-control BMPs during construction, indirect effects can be avoided for SWs 18, 19, and 21. SW 20 is located within 15 feet of proposed grading and paving activities. Although water quality and sediment-control BMPs will be implemented during construction, the proximity to ground disturbance increases the risk for discharge of sediment or pollutants during construction. Drainage patterns in this area will remain the same and storm water runoff from the new roadway section will be directed into a toe gutter/ditch that drains to the north into an existing flood control channel.	Indirect effect on SW 20

Habitat ID*	Located in an Open Space Preserve?	Effects Rationale	Conclusion of Effects
SWs 22 and 23	No	SW 23 will be filled during reconstruction of the on-ramp to southbound SR 65. Although SW 22 will not be directly modified during reconstruction activities, this wetland is located in a low point within the on-ramp loop and there is a high potential for sediment and contaminants to discharge to this feature during excavation upslope. Therefore, it is anticipated that the project will directly affect SW 23 and may indirectly affect SW 22.	Direct effect on SW 23 and Indirect effect on SW 22
VPs 68 – 71	Yes – Highland Reserve South (USFWS1-1-97-F-0142)	VPs 68 – 71 are located between 200 feet and 320 feet east of proposed grading and paving activities associated with roadway construction. Fill will be imported to build the new roadway base because the adjacent land is approximately 5 feet lower than the existing roadway elevation. Storm water runoff from the existing roadway currently flows downslope into a concrete-lined toe drain that drains to Highland Ravine. Construction of the new auxiliary lane will reconstruct the toe drain to maintain this drainage pattern. Based on the limited ground disturbance, no change in drainage patterns, and implementation of water quality and sediment-control BMPs during construction, indirect effects can be avoided for VPs 68 -71.	No effects
VPs 72 and 73	Yes – Highland Reserve North (USFWS 1-1-00-F-0016)	VP 72 is located approximately 10 feet east of construction of a new embankment and extension of a culvert at Highland Ravine to support additional northbound lanes. Fill will be imported to build the new roadway embankment because the adjacent land is approximately 18 feet lower than the existing roadway elevation. Although water quality and sediment-control BMPs will be implemented during construction, the proximity and amount of disturbance poses a high risk for discharge of sediment or pollutants during construction. Based on the proximity (10 feet) of this VP to the new edge of pavement, there is also an increased risk for discharge of contaminants resulting from direct storm water runoff, which could degrade this habitat over time. Therefore, it is anticipated that the project may indirectly affect VP 72. VP 73 is located approximately 80 feet from the edge of construction and it is anticipated that with implementation of water quality and sediment-control BMPs, indirect effect on VP 73 can be avoided.	Indirect effect on VP 72
W's 9, 13, and 14	No	These vernal pools are within an interchange loop on the opposite side of SR 65 from proposed activities.	No effects

Note:
* Habitat features are depicted on Figures 2a through 2k.

Because the proposed project consists of modifying an existing roadway with established drainage patterns for storm water runoff, it is assumed that if these drainage patterns are maintained that the proposed project would not indirectly affect hydrology within adjacent habitat. Indirect effects associated with potential sediment and chemical runoff during construction would also be avoided and minimized through implementation of standard Caltrans construction BMPs that include installation of sediment control devices and implementation of a spill response plan. Because there is abundant vernal pool branchiopods habitat within the study area and because existing conditions and proposed construction activities vary throughout the study area, a detailed effects analysis was conducted for localized areas supporting habitat. Table 18 describes the rationale for effects on vernal pool branchiopod habitat within these localized areas, each consisting of 1 to 19 wetland features. The resulting acreage of habitat that is expected to be directly and indirectly affected by project implementation are listed in Table 19.

Table 19. Acreage of Impacts on Vernal Pool Branchiopod Habitat

Habitat Type	Direct Effects[a] (acres)	Indirect Effects[b] (acres)
Vernal pools	0	0.612
Seasonal Wetlands	0.067	0.164
Total	0.067	0.776

[a.] For purposes of calculating impacts on vernal pool fairy shrimp, the entire pool or wetland basin is considered affected even if disturbance would occur to only a portion of the resource.
[b.] Of the 0.776 acre of indirect effects, 0.624 acre of habitat is within preserves that were established to mitigate for other projects.

Permanent loss of suitable and potentially occupied habitat for vernal pool fairy shrimp is considered a significant impact on the species. Therefore, the proposed project is likely to adversely affect vernal pool fairy shrimp. A biological assessment has been prepared to support ESA Section 7 consultation between Caltrans and USFWS for project effects on vernal pool fairy shrimp.

Vernal Pool Tadpole Shrimp

Based on the known presence of vernal pool tadpole shrimp in the project vicinity (within 1 mile of the BSA), it was determined that vernal pool tadpole shrimp may occur in suitable habitat (deep vernal pools and seasonal wetlands) within the BSA. For purposes of this impact analysis, vernal pools and seasonal wetlands in the BSA that support suitable habitat characteristics are presumed to be occupied by vernal pool tadpole shrimp. The project's direct and indirect effects on vernal pool tadpole shrimp are expected to be the same as those described above for vernal pool fairy shrimp. Table 19 summarizes the direct and indirect impacts on vernal pool fairy shrimp and vernal pool tadpole shrimp habitat (collectively referred to as vernal pool branchiopod habitat).

Loss or disturbance of suitable and potentially occupied habitat for vernal pool tadpole shrimp is considered a significant impact on the species. Therefore, the proposed project is *likely to adversely affect* vernal pool tadpole shrimp. A biological assessment has been prepared to

support ESA Section 7 consultation between Caltrans and USFWS for project effects on vernal pool tadpole shrimp.

California Black Rail

Roadway construction that encroaches on emergent wetland and seasonal wetland habitat along northbound SR 65 in the vicinity of Orchard Creek and Pleasant Grove Creek could result in the disturbance or loss of California black rails and nests containing eggs or chicks. Construction-generated noise and activity also have the potential to indirectly affect black rails nesting near project activities. Increased levels of noise and human activity in the vicinity of an active nest could result in nest abandonment or forced fledging and subsequent loss of fertile eggs, nestlings, or fledglings. Because black rails are a resident species in the Sierra foothills region, they could be present within suitable habitat year-round. Project activities that result in the incidental loss of black rails or otherwise lead to nest abandonment would violate CESA, the MBTA, and CFGC Sections 3503 and 3511. This impact is considered significant.

Table 20 summarizes the impacts of the proposed project on California black rail habitat.

Table 20. Impacts on California Black Rail Habitat

Habitat	Temporary (acres)	Permanent (acres)
Nesting and Foraging Habitat	0.124	0.615
Note: For purposes of calculating impacts on California black rail, suitable nesting and foraging habitat is limited to emergent wetland and seasonal wetland along Orchard Creek and Pleasant Grove Creek.		

Swainson's Hawk

Proposed project activities are not expected to remove or otherwise disturb any potential nest trees because none are present within the permanent impact area. However, construction-generated noise and activity has the potential to indirectly affect Swainson's hawks if they were nesting near project activities. Increased levels of noise and human activity in the vicinity of an active nest could result in nest abandonment or forced fledging and subsequent loss of fertile eggs, nestlings, or juveniles. Disturbance or loss of an active Swainson's hawk nest would violate CESA, the MBTA, and CFGC Section 3503.5.

Roadway construction also could result in an impact on Swainson's hawk through temporary and permanent loss of annual grassland that provides suitable foraging habitat. Because only a small area (1.862 acre) of suitable foraging habitat occurring as a narrow strip of grassland habitat along an existing roadway would be permanently lost, the proposed project is not expected to substantially decrease the available foraging habitat for locally nesting Swainson's hawks and would not result in an adverse impact on foraging Swainson's hawks. This impact is considered less than significant.

Table 21 summarizes the impacts of the proposed project on Swainson's hawk habitat.

Table 21. Impacts on Swainson's Hawk Habitat

Habitat	Temporary (acres)	Permanent (acres)
Nesting Habitat	0	0
Foraging Habitat	1.251	1.862
Note: For purposes of calculating impacts on Swainson's hawk, foraging habitat consists of annual grassland.		

Tricolored Blackbird

Construction activities within and adjacent to emergent wetland and riparian scrub habitat could disturb nesting tricolored blackbirds if an active colony is located in or near the construction area. These activities could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance or loss of a tricolored blackbird nest would violate the MBTA and CFGC Section 3503.

Roadway construction also could result in indirect impacts on tricolored blackbird through temporary and permanent loss of grassland and seasonal wetlands that provide potential foraging habitat. Because only a small area of suitable foraging habitat would be permanently lost, the proposed project is not expected to affect tricolored blackbird and would not adversely affect foraging habitat for tricolored blackbird. This impact is considered less than significant.

Table 22 summarizes the impacts of the proposed project on tricolored blackbird habitat.

Table 22. Impacts on Tricolored Blackbird Habitat

Habitat	Temporary (acres)	Permanent (acres)
Nesting Habitat	0.491	1.028
Foraging Habitat	1.521	1.999
Note: For purposes of calculating impacts on tricolored blackbird, nesting habitat consists of emergent wetland and riparian scrub, and foraging habitat consists of annual grassland and seasonal wetlands.		

California Central Valley Steelhead

Project impacts on CCV steelhead would be the same as those described previously for CV fall-run Chinook salmon and are considered less than significant.

Impacts on California Central Valley Steelhead Critical Habitat

Orchard Creek and Pleasant Grove Creek are not designated as critical habitat for CCV steelhead; however, Orchard Creek discharges to Auburn Ravine and Pleasant Grove Creek discharges to the Cross Canal, both of which are designated as critical habitat for CCV steelhead (70 FR 52488, September 2, 2005). No adverse effects on the designated critical habitat of CCV steelhead are expected because all potential effects on water quality, physical habitat, and food resources would be limited to the BSA, which is well upstream of designated critical habitat in

Auburn Ravine (approximately 6 miles downstream of the SR 65 crossing at Orchard Creek) and in the Cross Canal (approximately 14 miles downstream of the SR 65 crossing at Pleasant Grove Creek). There would be no impact.

Mitigation Measures

Implementation of the following mitigation measure will reduce the project's potential direct and indirect impacts on vernal pool fairy shrimp, vernal pool tadpole shrimp, and their habitat to less-than-significant levels.

Mitigation Measure 9: Compensate for Direct and Indirect Impacts on Vernal Pool Branchiopod Habitat

The project proponent will compensate for direct and indirect impacts on vernal pool fairy shrimp and vernal pool tadpole shrimp (vernal pool branchiopod) habitat by preserving suitable habitat at an approved mitigation bank or through an approved Habitat Conservation Plan, such as the Placer County Conservation Plan. If compensation is accomplished through a mitigation bank, affected habitat will be mitigated 2:1 (2 acres preserved for every 1 acre affected for effects not within an established preserve and 4:1 (4 acres preserved for every 1 acre affected). Because vernal pool habitat within established preserves was used to mitigate other permitted projects that required 2:1 mitigation, the prior mitigation obligation was added to the project's mitigation requirement to total 4:1. Compensatory mitigation will be acquired through the purchase of appropriate habitat credits at a USFWS-approved mitigation or conservation bank. This mitigation is in addition to mitigation for USACE-jurisdictional wetland habitats as described for Measure 8, *Compensate for the Placement of Fill into Wetlands*. Mitigation and conservation banks in Placer County that sell vernal pool branchiopod preservation credits include Laguna Terrace East Conservation Bank, Twin Cities Conservation Bank and Preserve, Locust Road Mitigation Bank, Toad Hill Ranch Mitigation Bank, and Western Placer Schools Conservation Bank. Table 23 lists the proposed mitigation acreage for vernal pool branchiopod habitat based on the current project design.

Table 23. Compensation for Direct and Indirect Impacts on Vernal Pool Branchiopod Habitat

Impact Type	Impact Acreage	Compensation Ratio	Mitigation Acreage to be Preserved
Directly affected not in a preserve	0.067[a]	2:1 preservation	0.134 acre
Indirectly affected not in a preserve	0.152	2:1 preservation	0.304 acre
Indirectly affected in a preserve[b]	0.624	4:1 preservation	2.496 acre
Total Mitigation			2.934 acres

Notes:
For purposes of calculating impacts on vernal pool branchiopod habitat, the entire pool or wetland basin was considered affected even if disturbance would occur to only a portion of the resource.

a. Directly affected habitat is limited to seasonal wetland; no vernal pools will be directly affected.

b. Habitat within preserves was used as mitigation for a previously permitted project.

Implementation of the following mitigation measures will reduce the project's potential direct and indirect impacts on California black rail and its habitat to less-than-significant levels.

Mitigation Measure 1: Compensate for the Placement of Permanent Fill into Wetlands

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Mitigation Measure 10: Conduct Occupancy Surveys for California Black Rail and Implement Avoidance Measures, if Necessary

Prior to construction in or near suitable black rail habitat (emergent wetland and seasonal wetland along Orchard Creek and Pleasant Grove Creek), black rail occupancy surveys will be conducted no later than the summer of the year preceding construction. The surveys will be conducted within suitable habitat in the project footprint and up to 700 feet beyond the limits of disturbance where suitable habitat is present. Survey methods will generally follow those described in Richmond et al. 2008 for call-playback surveys, or other CDFW-approved survey methods. Surveys will be conducted by qualified biologist(s) approved by CDFW for black rail surveys.

A minimum of three call-playback surveys will be conducted at either sunrise or sunset between June 1 and August 30. The survey dates will be spaced at least 2 to 3 weeks apart and will include at least one sunset survey. Multiple surveys (3 or more) conducted during this period have shown to have a 99% probability of detection if the site is occupied (Richmond et al. 2008). The surveys will be conducted according to the following procedures.

- Sunrise surveys will begin at sunrise and conclude 75 minutes after sunrise (or until presence is detected).
- Sunset surveys will begin 75 minutes before sunset and conclude at sunset (or until presence is detected).
- Survey stations will be established every 120 feet within suitable habitat.
- A sequence of California black rail vocalization recordings of “ki-ki-krr” and “grr” will be played at each station.
- Playback sequence consists of 2 minutes of listening, 30 seconds of “ki-ki-krr” calls, 30 seconds of listening, followed by another 30 seconds each of “ki-ki-krr” calls and listening, 30 minutes of “grr” calls, 30 minutes of listening, followed by another 30 seconds each of “grr” calls and listening, ending with 2 minutes of listening.
- Move to next station if no detections.

If California black rail is not detected after completion of the pre-construction surveys, then the survey area will be considered unoccupied for a period of 1 year and no additional surveys or mitigation would be required. If construction activities do not commence within 1 year from the completion of surveys then another round of surveys would be required.

If California black rail is detected in the survey area at any time during the pre-construction surveys, then surveys will cease and the site will be considered occupied.

Because California black rail is a fully protected species under the CFGC, CDFW cannot issue an incidental take permit under CESA. To avoid harming (i.e., nest abandonment, direct mortality) California black rails, the project proponent will coordinate with CDFW to assess which project activities have the potential to disturb black rails or their habitat and to develop appropriate measures to ensure that those activities avoid take of black rails. The project proponent will develop an avoidance strategy that includes, but is not limited to the following avoidance and minimization measures.

- Project activities must be conducted by methods that do not involve dewatering habitat where the rails are present.
- During the non-breeding season (September through March), construction will maintain a minimum 500-foot setback from occupied black rail habitat. If site-specific conditions or the nature of the activity indicate that a smaller buffer could be used, the biologist and the project proponent will coordinate with CDFW to determine the appropriate buffer size.
- To avoid occupied habitat outside the construction area, stakes with brightly colored flagging will be placed along the edges of suitable habitat for black rails, facing construction work areas or access routes (fencing is not proposed because installation could cause unnecessary disturbance and impede the movement of rails within the habitat). Signs will also be placed on stakes every 100 feet to denote the area as biologically sensitive habitat that must be avoided.
- A qualified biologist will conduct periodic monitoring visits (at least once a week) when construction activities will occur within 700 feet of occupied black rail habitat to ensure habitat is avoided and buffer distances are maintained.

Avoidance and Minimization Measures

Implementation of the following measures will further assist to avoid or minimize potential direct and indirect impacts on vernal pool fairy shrimp, vernal pool tadpole shrimp, California black rail, Swainson's hawk, tricolored blackbird, and CCV steelhead and their habitat caused by both build alternatives.

Install Fencing and/or Flagging to Protect Sensitive Biological Resources

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Conduct Mandatory Environmental Awareness Training for Construction Personnel

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Retain a Qualified Biologist to Conduct Periodic Monitoring during Construction in Sensitive Habitats

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Implementation of the following measure will further assist to avoid or minimize indirect impacts on vernal pool fairy shrimp, vernal pool tadpole shrimp, and California black rail habitat.

Protect Water Quality and Minimize Sedimentation Runoff in Wetlands and Other Waters

Please refer to the discussion of this measure under *Wetlands and Other Waters*.

Implementation of the following measures will avoid or minimize indirect impacts on vernal pool fairy shrimp and vernal pool tadpole shrimp habitat that is located outside the limits of disturbance. Additional conservation measures or conditions of approval may be required as part of ESA incidental take authorization.

Avoid and Minimize Potential Indirect Impacts on Habitat for Vernal Pool Branchiopods and Other Vernal Pool Species

Please refer to the discussion of this measure under *Plant Species*.

Implementation of the following measures will further assist to avoid or minimize direct and indirect impacts on CCV steelhead and designated critical habitat.

Conduct All In-Channel Construction Activities between June 1 and October 15

Please refer to the discussion of this measure under *Animal Species*.

Implement Cofferdam and Stream Diversion Restrictions

Please refer to the discussion of this measure under *Animal Species*.

Implementation of the additional following measure will further assist to avoid direct impacts and minimize indirect impacts on Swainson's hawk and will avoid violation of CESA, the MBTA, and the CFGC.

Conduct Pre-Construction Surveys for Swainson's Hawk and Establish Exclusion Zones, if Necessary

If construction activities will occur during the nesting season for Swainson's hawk (generally March through August), the project proponent will retain a qualified wildlife biologist with knowledge of Swainson's hawk to conduct nesting surveys before the start of construction.

Surveys will be conducted by the qualified biologist no more than 1 month prior to ground disturbance that is to occur during the nesting season (March 1 through August 31). Surveys will be conducted in accordance with the Swainson's Hawk Technical Advisory Committee's methodology (May 31, 2000) or according to updated methodologies issued by CDFW. According to current guidelines, the biologist will

inspect all suitable nest trees within 0.5 mile of proposed construction. If surveys conclude that a Swainson's hawk nest(s) is present within the survey area, and is occupied, the project will adopt the following minimization measures.

- During the nesting season (March 1 through August 31), project activities near an occupied nest or nests under construction will be prohibited to prevent nest abandonment. Because project activities would occur along an existing highway and because noise disturbances from project construction will be similar to the existing level of noise disturbances, a minimum 500-foot no-disturbance buffer will generally be established between an active nest and project activities that do not include pile driving. Where pile driving activities are conducted (i.e., at Pleasant Grove Creek), a minimum 0.25-mile buffer will be established. If site-specific conditions or the nature of the activity indicate that a smaller buffer could be used, the biologist and the project proponent will coordinate with CDFW to determine the appropriate buffer size.
- If young fledge prior to September 1 and are not continuing to use the nest tree, project activities can proceed without further restrictions. A qualified biologist will survey the nest to establish whether the young have fledged and determine whether the young are foraging independently or are still being fed by the parents at the nest tree.
- Nest trees will not be disturbed or removed. If a nest tree (any tree that has an active nest in the year the impact is to occur) must be removed, tree removal will occur only between September 1 and February 28.

Implementation of the additional following measure will further assist to avoid direct impacts and minimize indirect impacts on tricolored blackbird and will avoid violation of CESA, the MBTA, and the CFGC.

Conduct Vegetation Removal during the Non-Breeding Season and Conduct Pre-Construction Surveys for Nesting Migratory Birds and Raptors

Please refer to the discussion of this measure under *Animal Species*.

Invasive Species

Regulatory Setting

On February 3, 1999, President William J. Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health."

Affected Environment

Invasive plant species include species designated as federal noxious weeds by the U.S. Department of Agriculture (USDA), species listed by the California Department of Food and Agriculture (CDFA), and invasive plants identified by the California Invasive Plants Council (Cal-IPC). Invasive plants displace native species, change ecosystem processes, alter plant community structure, and lower wildlife habitat quality (California Invasive Plant Council 2006:1). Road, highway, and related construction projects are some of the principal dispersal pathways for invasive plants and their propagules. Table 24 lists the invasive plant species identified by CDFA and Cal-IPC that are known to occur in the BSA. No plant species designated as federal noxious weeds have been identified in the BSA. Most of the invasive plant species occur in annual grassland, along roadways, and in disturbed/graded areas.

Table 24. Invasive Plant Species Identified in the Biological Study Area

Species	CDFA	Cal-IPC
Blow grass (*Lachnagrostis filiformis, Agrostis avenacea*)	–	Limited
Slender wild oat (*Avena barbata*)	–	Moderate
Wild oat (*Avena fatua*)	–	Moderate
Black mustard (*Brassica nigra*)	–	Moderate
Ripgut brome (*Bromus diandrus*)	–	Moderate
Soft chess (*Bromus hordeaceus*)	–	Limited
Red brome (*Bromus madritensis* ssp. *Rubens*)	–	High
Cheatgrass (*Bromus tectorum*)	–	High
Italian thistle (*Carduus pycnocephalus*)	C	Moderate
Yellow star-thistle (*Centaurea solstitialis*)	C	High
Bull thistle (*Cirsium vulgare*)	C	Moderate
Field bindweed (*Convolvulus arvensis*)	C	–
Hedgehog dogtail grass (*Cynosurus echinatus*)	–	Moderate
Stinkwort (*Dittrichia graveolens*)	–	Moderate, Alert
Medusahead (*Elymus caput-medusae*)	C	High
Red-stemmed filaree (*Erodium cicutarium*)	–	Limited
Rattail fescue (*Festuca myuros*)	–	Moderate
Italian ryegrass (*Festuca perennis*)	–	Moderate
Cutleaf geranium (*Geranium dissectum*)	–	Limited
Waxy mannagrass (*Glyceria declinata*)	–	Limited
Field mustard (*Hirschfeldia incana*)	–	Moderate
Bristly ox-tongue (*Helminthotheca echioides*)	–	Limited
Mediterranean barley (*Hordeum marinum* var. *gussoneanum*)	–	Moderate
Foxtail barley (*Hordeum murinum* ssp. *Leporinum*)	–	Moderate
Klamathweed (*Hypericum perforatum*)	C	Moderate
Smooth cat's ear (*Hypochaeris glabra*)	–	Limited
Perennial pepperweed (*Lepidium latifolium*)	B	High
Hyssop loosestrife (*Lythrum hyssopifolia*)	–	Moderate
White horehound (*Marrubium vulgare*)	–	Limited
Bur-clover (*Medicago polymorpha*)	–	Limited
Pennyroyal (*Mentha pulegium*)	–	Moderate
Yellow glandweed (*Parentucellia viscosa*)	–	Limited
Rabbitsfoot grass (*Polypogon monspeliensis*)	–	Limited

Species	CDFA	Cal-IPC
Wild radish (*Raphanus sativus*)	–	Limited
Himalayan blackberry (*Rubus armeniacus*)	–	High
Curly dock (*Rumex crispus*)	–	Limited
Russian thistle, tumbleweed (*Salsola kali*)	–	Limited
Milk thistle (*Silybum marianum*)	–	Limited
Chinese tallowtree (*Triadica sebiferum*; formerly *Sapium sebiferum*)	–	Moderate
Rose clover (*Trifolium hirtum*)	–	Moderate
Woolly mullein (*Verbascum hapsus*)	–	Limited

Note:
The California Department of Agriculture (CDFA) and California Invasive Plant Council (Cal-IPC) lists assign ratings that reflect the CDFA and Cal-IPC views of the statewide importance of the pest, likelihood that eradication or control efforts would be successful, and present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against a pest under general circumstances.
The **CDFA categories** indicated in the table are defined as follows:
B: Eradication, containment, control or other holding action at the discretion of the county agricultural commissioner.
C: State-endorsed holding action and eradication only when found in a nursery; action to retard spread outside nurseries at the discretion of the county agricultural commissioner.
The **Cal-IPC categories** indicated in the table are defined as follows:
High: Species with severe ecological impacts, high rates of dispersal and establishment, and usually widely distributed.
Moderate: Species with substantial and apparent ecological impacts, moderate to high rates of dispersal, establishment dependent on disturbance, and limited to widespread distribution.
Limited: Species with minor ecological impacts, low to moderate rates of invasion, limited distribution, and locally persistent and problematic.
CDFA = California Department of Food and Agriculture
Cal-IPC = California Invasive Plant Council

Environmental Consequences

The proposed project construction activities would temporarily create additional disturbed areas and could result in the introduction and spread of invasive plant species within and beyond the BSA under both build alternatives. Areas where temporary disturbance occurs would be more susceptible to colonization or spread by invasive plants. Because construction disturbance will occur adjacent to established habitat preserves, the proposed project could introduce or spread invasive plant species into these natural or managed habitat areas.

However, Caltrans' *Standard Specifications* (Caltrans 2015) requires implementation of standard practices and BMPs to avoid and minimize the introduction and spread of invasive plant species resulting from construction. Therefore, the impact is considered less than significant.

Avoidance and Minimization Measures

The following standard procedures to comply with Caltrans' *Standard Specifications* would assist to further avoid and minimize effects related to invasive plant species.

Avoid and Minimize the Spread of Invasive Plant Species during Project Construction

The project proponent or its contractor will be responsible for avoiding and minimizing the introduction of new invasive plants and the spread of invasive plants previously

documented in the BSA. The following BMPs will be written into the construction specifications and implemented during project construction.

- Retain all excavated soil material onsite or dispose of excess soil in a permitted offsite location to prevent the spread of invasive plants to uninfested areas adjacent to the project footprint.
- Use a weed-free source for project materials (e.g., straw wattles for erosion control that are weed-free or contain less than 1% weed seed).
- Prevent invasive plant contamination of project materials during transport and when stockpiling (e.g., by covering soil stockpiles with a heavy-duty, contractor-grade tarpaulin).
- Use sterile grass seed and native plant stock during revegetation.
- Revegetate or mulch disturbed soils within 30 days of completing ground-disturbing activities to reduce the likelihood of invasive plant establishment.

Detailed information about implementing these BMPs can be found in Cal-IPC's *Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors*.

Cultural Resources

The affected environment discussions and subsequent analyses for cultural resources are based on the project's *Historic Property Survey Report* (HPSR) (including an Archaeological Survey Report [ASR]), approved in October 2016 (Caltrans 2016).

Regulatory Setting

The term "cultural resources" as used in this document refers to all "built environment" resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include the following.

- The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation [36 CFR 800]. On January 1, 2004 (as amended January 2014), a Section 106 Programmatic Agreement (PA) between the Advisory Council, the FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the Advisory Council's regulations, 36

CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

- Historical resources are considered under CEQA, as well as CA PRC Section 5024.1, which established the California Register of Historical Resources (CRHR). PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the NRHP listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way.

Affected Environment

The area of potential effects (APE) for all cultural resources for the project consists of both the horizontal and vertical maximum potential extent of direct and indirect impacts resulting from the project. The horizontal APE encompasses the project footprint and includes those areas of new construction, easements, utilities, and operations-related activities associated with the project. The vertical APE is the maximum depth of ground disturbance within the horizontal APE. The vertical APE varies by project component, with the maximum depth of excavation for the majority of the APE being 4 feet. Deeper excavation would be required for cut slopes and would occur at the following locations within the APE.

- Approximately 1,500 feet along northbound and southbound SR 65 between the Galleria Boulevard/Stanford Ranch Road and Pleasant Grove Boulevard interchanges – *Approximately 10.5 feet deep maximum ground disturbance.*
- Along southbound off-ramp, northbound off-ramp and SR 65 northbound at the Pleasant Grove Boulevard interchange/overcrossing – *Approximately 14 feet deep maximum ground disturbance.*
- Northbound SR 65, immediately north of Blue Oaks Boulevard overcrossing – *Approximately 32 feet deep maximum ground disturbance.*
- Approximately 1,500 feet of SR 65 between Whitney Ranch Road and Twelve Bridges Drive – *Approximately 27.5 feet deep maximum ground disturbance.*

The APE is in areas that have been modified through construction of roads, highways, railroads, and urban commercial and residential infrastructure. The APE does contain ephemeral drainages and narrow floodplains with the potential for sediment accumulation, which increases sensitivity for buried archaeological sites.

Research Conducted

An archival records search and an intensive archaeological field survey were conducted for the project. The NAHC was also contacted with a request for a search of the NAHC's Sacred Lands File and a list of tribal contacts.

In September 2014, the North Central Information Center (NCIC) at California State University, Sacramento, conducted a cultural resources records search. The records search was conducted following guidance provided in Caltrans Standard Environmental Reference (California Department of Transportation 2015:5:7-8). According to this records search, 16 previously recorded cultural resources are mapped within the APE. Eight of these were historical in age, seven were prehistoric, and one was a rock feature of undetermined age. An additional 37 cultural resources were identified within 0.25 mile of the APE. Thirty-four previous cultural resources studies have been conducted within portions of the APE, and 19 additional previous cultural resources studies have been conducted within 0.25 mile of the APE. The studies have ranged from archaeological reconnaissance surveys for CEQA compliance to testing and evaluation for NRHP/NEPA compliance.

Sacred Lands File Search and Native American Consultation

On August 20, 2014, a request was made for a search of the NAHC's Sacred Lands File for the APE and a list of Native American representatives who may be able to provide information about resources of concern to them located within or adjacent to the APE. The NAHC replied with the results of the Sacred Lands File records search on August 26, 2014, stating that the Sacred Lands File contains no record of any Native American cultural resources in, or in the immediate vicinity of, the APE. The NAHC also provided a list of Native American contacts who may be interested in the project.

On August 28, 2014, letters were sent to all Native American contacts provided by the NAHC. The letters included information on the project and requested that the contacts share any information they so desire regarding potential cultural resources in or in the vicinity of the APE.

On September 4, 2014, Shingle Springs Band of Miwok Indians (Shingle Springs) Tribal Historic Preservation Officer (THPO) Mr. Daniel Fonseca replied by letter stating that Shingle Springs is not aware of any known cultural resources in the project vicinity and requesting that he be provided with updates during the life of the project.

Mr. Marcos Guerrero of the United Auburn Indian Community of the Auburn Rancheria (UAIC) replied by email on September 4, 2014, requesting more information on the project and any survey/testing reports and GIS files, and requesting a field visit. On October 29, 2014, a field visit was conducted with Caltrans and consultant project archaeologists, and UAIC THPO Mr. Jason Camp. During the visit, maps of the project and details on project design were reviewed and the UAIC representatives shared sensitivity maps of known cultural resources in the areas.

The results of the NCIC records search were shared with all parties present. At the end of the site visit, the UAIC representatives stated that they would like to send a representative to accompany the archaeologists during the archaeological pedestrian survey, and that they were concerned with three sites previously recorded as being in the APE and with several other areas with no previously recorded sites. UAIC representatives were invited to participate in the archaeological survey, but UAIC did not provide representatives to participate in the survey.

Archaeological Field Survey

On December 16, 17, 18, and 22, 2014, an archaeological survey of the APE was conducted. UAIC representatives were invited to participate in the survey, but none decided to assist. Focused efforts were made to relocate the 16 previously recorded resources within the APE. The APE is in areas that have been modified through construction of roads, highways, railroads, and urban commercial and residential infrastructure. All archaeological resources previously recorded in the APE appear to have been destroyed or displaced by modern development, including the 1980s construction of SR 65.

Additional research was performed to address the sensitivity for buried archaeological sites, and the geoarchaeological analysis indicated that the APE has low potential for intact buried archaeological deposits with no surface manifestation.

Environmental Consequences

Research and survey for the project found that no NRHP-eligible, NRHP-listed, or previously unevaluated archaeological resources are present in the APE. Because of this lack of known archaeological sites and the low potential for buried archaeological resources, construction of the proposed project would have a less-than-significant impact on archaeological resources.

Caltrans Standard Specification 14-2.03, Archaeological Resources, will be a required part of the project to avoid and minimize effects on archaeological resources. If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

In addition to Caltrans' standard practices concerning cultural resources, tribes that requested to be notified in the event of any finds will be invited to send an authorized tribal representative to assess the find for significance and to consult on further treatment or mitigation.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Caltrans District 3 Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Paleontological Resources

Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

16 USC 431-433 (the "Antiquities Act") prohibits appropriating, excavating, injuring, or destroying any object of antiquity situated on federal land without the permission of the Secretary of the Department of Government having jurisdiction over the land. Fossils are considered "objects of antiquity" by the Bureau of Land Management, the National Park Service, the Forest Service, and other federal agencies.

16 USC 470aaa (the Paleontological Resources Preservation Act) prohibits the excavation, removal, or damage of any paleontological resources located on federal land under the jurisdiction of the Secretaries of the Interior or Agriculture without first obtaining an appropriate permit. The statute establishes criminal and civil penalties for fossil theft and vandalism on federal lands.

23 USC 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law.

23 USC 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state.

Under California law, paleontological resources are protected by CEQA.

Affected Environment

The project area 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 margin, to thousands of feet in the central portion. Volcanic deposits also occur along the valley margin and are mapped in the project area. The project area is underlain by the following three geologic units.

Mehrten Formation

Deposits of the Mehrten Formation occur along the southern and northern portions of the project alignment 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. 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).

Riverbank and Turlock Lake Formations

Sediments of the Riverbank and Turlock Lake Formation occur in the central and northern portion of the project. 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). Along the alignment, these deposits are underlain by the Mehrten Formation which can be encountered at relatively shallow depths.

Environmental Consequences

If fossils are present in the project area, they could be damaged by earth-disturbing activities (i.e., excavation and grading) during construction of all project build alternatives. Several geologic units that underlie the project site have a high sensitivity (Table 25) for paleontological resources; therefore, fossils could be present. These units are the Mehrten Formation, Turlock Lake Formation, and Riverbank Formation (Table 26). Substantial damage to or destruction of significant paleontological resources, as defined by the Society of Vertebrate Paleontology (2010), would be a significant impact. However, Caltrans Standard Specification 14-7.03, Paleontological Resources, will be a required part of the project. Standard Specification 14-7.03 requires that if paleontological resources are discovered at the job site they will not be disturbed, all work will stop within a 60-foot radius, and the resident engineer will be notified so that the site can be assessed and an appropriate treatment identified. Therefore the impact would be less than significant.

Table 25. California Department of Transportation Paleontological Sensitivity Terminology

Caltrans Sensitivity Designation	Characteristics of Geologic Units in This Category
High potential (high sensitivity)	This category consists of rock units known to contain important vertebrate, invertebrate, or plant fossils anywhere within their geographic extent, including sedimentary rock units that are suitable for the preservation of fossils, as well as some volcanic and low-grade metamorphic rock units. This category includes rock units with the potential to contain abundant vertebrate fossils; a few significant fossils (large or small vertebrate, invertebrate, or plant fossils) that may provide new and significant taxonomic, phylogenetic, ecologic, and/or stratigraphic data; areas that may contain datable organic remains older than Recent, including Neotoma (sp.) middens; and areas that may contain unique new vertebrate deposits, traces, and/or

Caltrans Sensitivity Designation	Characteristics of Geologic Units in This Category
	trackways. Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and caves) are given special consideration and ranked as highly sensitive.
Low potential (low sensitivity)	This category includes sedimentary rock units that are potentially fossiliferous but have not yielded significant fossils in the past; have not yet yielded fossils, but have the potential to contain fossil remains; or contain common and/or widespread invertebrate fossils of species whose taxonomy, phylogeny, and ecology are well understood. *Note that sedimentary rocks expected to contain vertebrate fossils are considered highly sensitive, because vertebrates are generally rare and found in more localized strata.*
No potential (no sensitivity)	This category includes rock units and deposits either too young to contain fossils or are of intrusive igneous origin, most extrusive igneous rocks, and moderate- to high-grade metamorphic rocks.

Table 26. Summary of Paleontological Sensitivity of Geologic Units Underlying the Project Site

Geologic Unit	Age (in years)	Paleontological Description	Paleontological Sensitivity
Mehrten Formation	Miocene (5 to 20 million)	Contains significant fossils, such as extinct horse, primitive rhinoceros, camel, and tortoise (University of California Museum of Paleontology 2016a)	High
Turlock Lake Formation	Late to Middle Pleistocene (more than 150,000)	Contains significant fossils, such as extinct horse, ground sloths (Jefferson's ground sloth and Harlan's ground sloth), saber-toothed cat, Armbruster's wolf, llama, deer, camels, mammoth, smooth-tooted pocket gopher, turtle, and tortoise (Dundas et al. 1996)	High
Riverbank Formation	Late to Middle Pleistocene (more than 150,000)	Contains significant fossils, such as mammoth, bison, camel, horse, ground sloth, dire wolf, rodents, moles, and bony fish (University of California Museum of Paleontology 2016b)	High

Avoidance and Minimization Measures

Caltrans Standard Specification 14-7.03, Paleontological Resources, will be a required part of the project. Standard Specification 14-7.03 requires that if paleontological resources are discovered at the job site they will not be disturbed, all work will stop within a 60-foot radius, and the resident engineer will be notified so that the site can be assessed and an appropriate treatment identified. In addition, the following measures would further reduce paleontological impacts associated with construction activities.

Educate Construction Personnel in Recognizing Fossil Material

All construction personnel receive training provided by a qualified professional paleontologist experienced in teaching non-specialists to ensure that construction personnel can recognize fossil materials in the event that any are discovered during construction.

Stop Work if Substantial Fossil Remains are Encountered during Construction

If substantial fossil remains (particularly vertebrate remains) are discovered during earth-disturbing activities, activities will stop immediately following Caltrans Standard Specification 14-7.03 until a State-registered professional geologist or qualified professional paleontologist can assess the nature and importance of the find and a qualified professional paleontologist can recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may include preparation of a report for publication describing the finds. The project proponent will ensure that recommendations regarding treatment and reporting are implemented.

Resource Stewardship Measures

The following will be added to the project's standard specifications.

- A specification alerting the construction contractor that paleontological monitoring will occur during activities that will disturb native sediments.

Greenhouse Gas Emissions and Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.[5] In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.[6] The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." "Greenhouse gas mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. "Adaptation"

[5] https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014
[6] https://www.arb.ca.gov/cc/inventory/data/data.htm

refers to planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).[7]

Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices. This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability." Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

[7] http://climatechange.transportation.org/ghg_mitigation/

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, 74 Federal Register 52117 (October 8, 2009): This federal EO set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. It instituted as policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*, 80 Federal Register 15869 (March 2015): This EO reaffirms the policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and GHG emissions. It builds on the adaptation and resiliency goals in previous executive orders to ensure agency operations and facilities prepare for impacts of climate change. This order revokes Executive Order 13514.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions.

U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[8] and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB

[8] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered EPA to reopen the review and reconsider the mileage target.

NHTSA and EPA issued a Final Rule for "Phase 2" for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO2 emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

Presidential Executive Order 13783, *Promoting Energy Independence and Economic Growth*, of March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

State

With the passage of legislation including State Senate and Assembly bills and executive orders, California has been innovative and proactive in addressing GHG emissions and climate change.

Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order S-3-05 (June 1, 2005): The goal of this executive order (EO) is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB 32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a

strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391 (SB 391), Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero emission vehicles. It directs these entities to achieve various benchmarks related to zero emission vehicles.

Executive Order B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, (SB 32) Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. ARB approved the *First Update*

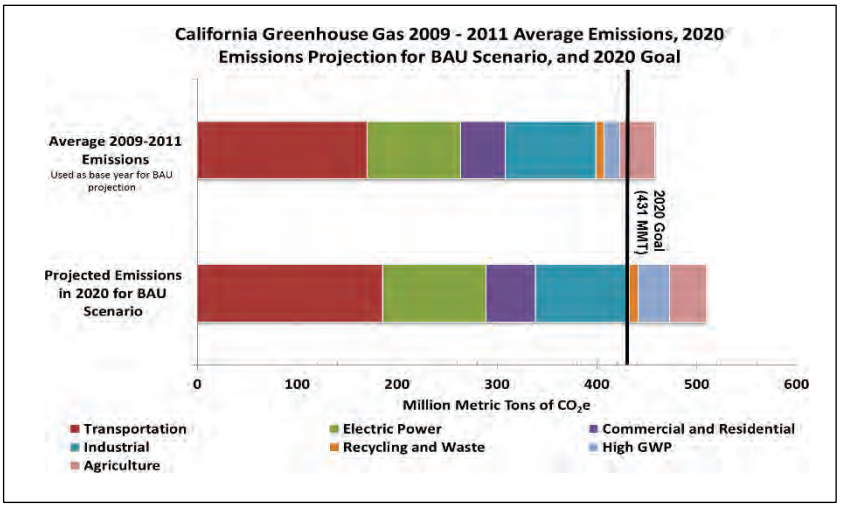
to the Climate Change Scoping Plan[9] on May 22, 2014. ARB is moving forward with a discussion draft of an updated Scoping Plan that will reflect the 2030 target[10] established in EO B-30-15 and SB 32.

The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California.[11] ARB is responsible for maintaining and updating California's GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 3 represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO2e.[12] The 2016 edition of the GHG emissions inventory (released June 2016)[13] found total California emissions of 441.5 $MMTCO_2e$, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 $MMTCO_2e$ total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 $MMTCO_2e$.

[9] https://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm
[10] https://www.arb.ca.gov/cc/scopingplan/2030target_sp_dd120216.pdf
[11] 2016 Edition of the GHG Emission Inventory Released (June 2016): https://www.arb.ca.gov/cc/inventory/data/data.htm
[12] The revised target using Global Warming Potentials (GWP) from the IPCC Forth Assessment Report (AR4)
[13] 2016 Edition of the GHG Emission Inventory Released (June 2016): https://www.arb.ca.gov/cc/inventory/data/data.htm



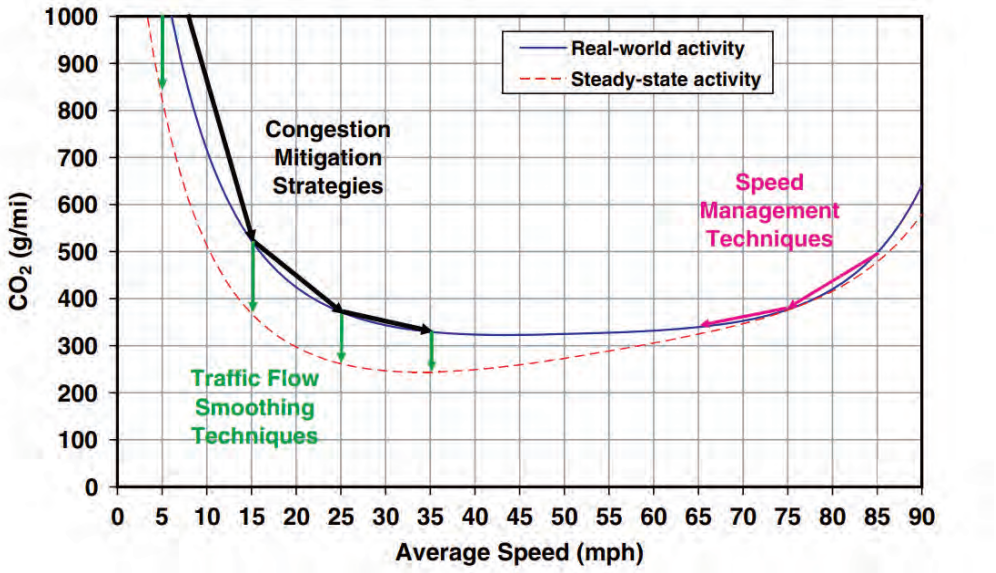
https://www.arb.ca.gov/cc/inventory/data/bau.htm

Figure 3. 2020 Business as Usual (BAU) Emissions Projection 2014 Edition

Project Analysis

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations.

Operational Emissions



Source: Matthew Barth and Kanok Boriboonsomsin University of California, Riverside May 2010 (http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf)

Figure 4. Possible Use of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions

Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity), (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued concurrently.

FHWA supports these strategies to lessen climate change impacts and correlate with efforts that the state of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of CO_2 from mobile sources such as automobiles occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour (see Figure 4 above). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.

Potential for Generation of Greenhouse Gas Contaminant Emissions

The primary purpose of the proposed project is to relieve existing mainline congestion by adding additional mainline capacity. Adding capacity would help planned and anticipated growth along the corridor and would help achieve the mobility and economic development goals of the PCTPA. The project will improve traffic operations and safety in this segment of the highway. Alternative travel modes were considered during the early planning process. Bicycles and pedestrians are not allowed on SR 65, so additions to or enhancements of those modes were considered infeasible. Because modifications to the operations of local transit system providers are not under Caltrans' jurisdiction, they were not considered further as part of the proposed project. But, consideration was given to the benefits to transit operation that congestion relief on SR 65 would provide. Transportation Systems Management options were also considered; it was determined that Transportation Systems Management or Transportation Demand Management measures alone could not provide enough congestion relief to satisfy the purpose of and need for the project. However, ramp metering and preferential carpool/HOV lanes were added to the project at several SR 65 on-ramps where such features were not already planned as part of other projects. To the extent that congestion relief and Transportation Systems Management features on SR 65 would enhance mass transit and improve highway efficiency, these features would contribute to reducing GHG emissions.

Transportation accounts for approximately 50 percent of the SACOG region's GHG emissions. SACOG understands the urgent need to address climate change. SACOG coordinates regional planning efforts with member jurisdictions as part of the SACOG Planners Committee and Regional Planning Partnership. SACOG takes an integrated approach to transportation and land use, and their impacts on air quality and climate change, with a focus on implementation and maintenance of the existing transportation system to achieve a number of transportation and air quality benefits across the region.

SACOG's 2016 MTP/SCS includes objectives to reduce per-capita vehicle greenhouse gas emissions while integrating transportation and land use. The MTP/SCS per-capita reduction targets set by ARB are 7% below 2005 emissions levels by 2020 and 16% below 2005 levels by 2035, and SACOG has demonstrated the MTP/SCS would meet these reduction targets. If implemented, the Project would be consistent with the MTP/SCS. The project is included in the

MTP/SCS and the projects modeled in the MTP/SCS indicate they will meet the GHG reduction targets.

The EIR for the 2016 MTP/SCS states that while growth and development in the impact analysis area is likely to increase cumulative GHG emissions and contributions to global climate change, the MTP/SCS's contribution to this cumulative impact is not cumulatively considerable, and SACOG has demonstrated the MTP/SCS would meet the 2020 and 2035 reduction targets. SACOG's EIR for their MTP/SCS identifies four criteria related to the emissions of GHGs to determine the MTP/SCS would not have a potentially significant adverse impact.

1. Substantially conflict with achievement of AB 32 Goals.

   The MTP/SCS is an integral part of achieving AB 32 Goals within the SACOG region. With the implementation of the MTP/SCS, emissions are anticipated to decline into the future and is not in conflict with achievement of AB 32 Goals.

2. Conflict with the SACOG region's achievement of SB 375 GHG emissions reduction targets.

   The MTP/SCS was found to be consistent with SB 375, as modeled emissions met the 2020 and 2035 SB 375 reductions targets related to land use changes and transportation improvements from the implementation of the MTP/SCS. In fact, the MTP/SCS was found to result in greater emission reductions than the SB 375 targets for 2020, as the MPT/SCS would result in an 8% reduction in GHG emissions.

3. Conflict with applicable local GHG reduction plans.

   The MTP/SCS was found to not conflict with local climate action plans or GHG reduction plans.

4. Increase GHG emissions from project construction activities resulting from the proposed MTP/SCS in a manner inconsistent with AB 32.

   SACOG's MTP/SCS anticipates future development in the region to be more compact development with less infrastructure needs, resulting in an increase in energy consumption but a reduction in energy needs by limiting the need for additional infrastructure. In addition, higher densities, mixed uses, and transit options would result in a VMT per capita decline into the future. The reduction in per capita energy consumption would result in an overall GHG emissions reduction with the implementation of the MTP/SCS and the proposed MTP/SCS does not conflict with the achievement of AB 32 goals.

Within the MTP/SCS are various adaptation strategies to reduce emissions and their impacts, including adopting integrating approaches, building strong partnerships, and applying risk-management methods and tools.

One of the main strategies in Caltrans' Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. Project alternatives were developed

based on the ability of each alternative to meet the Project's defined purpose and need, potential for environmental impacts, cost, and ability to provide adequate traffic operation improvements.

In addition, SACOG is implementing these strategies through programs and partnerships with local associations. For example, SACOG has initiated an incentive program that will subsidize newly-formed vanpools operating in the Sacramento Region for a six-month initial period. SACOG also partnered with the Sacramento Transportation Management Association to support SACOG's program to link interested carpool and vanpoolers in the region to information regarding vanpool routes, locations for park and rides, and vanpool provides.

Caltrans' CT-EMFAC model was used to estimate CO_2 emissions for existing (2012) and design year (2040[14]) conditions and evaluate potential emissions increases. Table 27 summarizes the modeled emissions by scenario, as well as a comparison of Build emissions to No Build and existing conditions. Emissions are presented with and without state mandates to reduce GHG emissions from on-road vehicles and transportation fuels.[15]

Table 27 indicates both build alternatives would result in increased GHG emissions relative to existing conditions. This is due to a smaller reduction in long-range (i.e., 2040) CO_2 emission factors relative to the dramatic increase in vehicle miles traveled (VMT) from existing to 2040 build conditions. Accordingly, since CO_2 emission factors do not decrease as rapidly as VMT rises between existing and 2040 conditions, emissions increase.

Table 27 also indicates GHG emissions associated with the build alternatives are expected to increase relative to the No Build Alternative in 2040. This increase is due to improved traffic operations with the project, which increases demand and associated VMT on the transportation network.

Table 27. Estimated Greenhouse Gas Emissions from Operation of Proposed Project

Alternative	Annual VMT[1]	Emissions without Pavley and LCFS			Emissions with Pavley and LCFS		
		CO_2	Other[b]	CO_2e	CO_2	Other[2]	CO_2e
2012 Baseline	5,144,317	785,570	8,536	794,106	751,407	8,165	759,572
2040 No Build	7,734,336	1,176,948	12,788	1,189,736	783,440	8,513	791,953
2040 General Purpose Lane	7,868,726	1,202,027	13,061	1,215,088	800,028	8,693	808,721
2040 Carpool Lane	7,852,195	1,198,204	13,019	1,211,223	797,494	8,665	806,160
Comparison to Existing							
2040 No Build	2,590,019	391,378	4,252	395,630	32,033	348	32,381
2040 General Purpose Lane	2,724,409	416,457	4,525	420,982	48,621	528	49,149
2040 Carpool Lane	2,707,878	412,634	4,483	417,117	46,087	500	46,588
Comparison to No Build							

[14] CT-EMFAC only includes vehicle emission rates up to the year 2035, thus project design year (2040) emissions use CT-EMFAC 2035 emission rates.

[15] Actions undertaken by the state will contribute to project-level GHG reductions. The state mandate analysis assumes implementation of Pavley and the Low Carbon Fuel Standard (LCFS). Pavley will improve the efficiency of automobiles and light duty trucks, whereas LCFS will reduce the carbon intensity of diesel and gasoline transportation fuels.

Alternative	Annual VMT[1]	Emissions without Pavley and LCFS			Emissions with Pavley and LCFS		
		CO_2	Other[b]	CO_2e	CO_2	Other[2]	CO_2e
2040 General Purpose Lane	134,390	25,079	273	25,352	16,588	180	16,768
2040 Carpool Lane	117,859	21,256	231	21,487	14,054	152	14,207

a. Annual vehicle miles traveled (VMT) values derived from Daily VMT values multiplied by 347, per ARB methodology (ARB 2008).

b. Includes methane (CH_4), nitrous oxide (N_2O), and other trace GHGs emissions emitted by on-road vehicles based on the California 2013 GHG Inventory (California Air Resources Board 2015c).
Note that 2020 traffic data from the travel demand model is not available (Stanek pers. comm.); the analysis of greenhouse gas emissions evaluates traffic data for existing and 2040 conditions.

Currently, there are no federal or state standards set for CO_2 emissions; therefore, the estimated emissions shown in Table 27 are only useful for a comparison between alternatives. While EMFAC has a rigorous scientific foundation and has been vetted through multiple stakeholder reviews, its emission rates are based on tailpipe emission test data. The numbers are not necessarily an accurate reflection of what the true CO_2 emissions would be because CO_2 emissions are dependent on other factors that are not part of the model, such as the fuel mix,[16] rate of acceleration, and the aerodynamics and efficiency of the vehicles. To account for CO_2 emissions, ARB's GHG Inventory follows the IPCC guideline by assuming complete fuel combustion, while still using EMFAC data to calculate CH_4 and N_2O emissions.

GHG – Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO_2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO_2 emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study, brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO_2 emissions during a typical urban trip. Current emission-factor models do not distinguish the emission of such modal events (i.e., acceleration, deceleration) in the operation of a vehicle and instead estimate emissions by average trip speed. It is difficult to model this because the frequency and rate of acceleration or deceleration that drivers chose to operate their vehicles depend on each individual's human behavior, their reaction to other vehicles' movements around them, and their acceptable safety margins. Currently, the U.S. EPA and the CARB have not approved a modal emissions model that is capable of conducting such detailed modeling. This limitation is a factor to consider when comparing the model's estimated emissions for various project alternatives against a baseline value to determine impacts.

Other Variables

With the current understanding, project-level analysis of greenhouse gas emissions has limitations. Although a greenhouse gas analysis is included for this project, there are numerous

[16] CT-EMFAC model emission rates are only for direct engine-out CO_2 emissions not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components.

external variables that could change during the design life of the proposed project and would thus change the projected CO_2 emissions.

First, vehicle fuel economy is increasing. The U.S. EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012," which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy improves each year with a noticeable rate of change beginning in 2005. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 thru 2003 and subsequently increasing to higher fuel economy standards for future vehicle model years. The U.S. EPA estimates that light duty fuel economy rose by 16% from 2007 to 2012. Table 28 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025 as available from the National Highway Traffic Safety Administration for the 2012–2016 and 2017–2025 CAFE Standards.

Table 28. Average Required Fuel Economy (mpg)

	2012	2013	2014	2015	2016	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	41.1-41.6	44.2-44.8	55.3-56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.6-30.0	30.6-31.2	39.3-40.3
Combined	29.7	30.5	31.3	32.6	34.1	36.1-36.5	38.3-38.9	48.7-49.7
Source: U.S. EPA 2013, http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf								

Second, new lower emissions and zero emissions vehicles will come into the market within the expected design life of this project. According to the 2013 Annual Energy Outlook (AEO2013):

> "LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case."[17]

The greater percentage of lower emissions and zero emissions vehicles on the road in the future will reduce overall GHG emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in title 17, California Code of Regulations, Sections 95480-95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

Construction Emissions

The Sacramento Metropolitan Air Quality Management District's (SMAQMD's) RCEM (Version 7.1.5.1) was used to estimate CO_2 emissions from construction activities.

Table 29 summarizes estimated GHG emissions generated by on-site construction equipment over the 2-year construction period. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities. Measures to reduce construction emissions that will be implemented during the project include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

[17] http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf

Table 29. Greenhouse Gas Emissions from Construction of Proposed Project (metric tons per year)

Project Phase	CO_2	CH_4	N_2O	CO_2e
Grubbing/Land Clearing	6,930.8	0.4	0.2	6,992.4
Grading/Excavation	32,652.8	1.8	0.8	32,942.9
Drainage/Utilities/Sub-Grade	11,117.6	0.6	0.3	11,216.4
Paving	16,360.0	0.9	0.4	16,505.4
Total GHG Emissions	67,061.2	3.8	1.7	67,657.1

GHG = greenhouse gas
CO2 = carbon dioxide
CH4 = methane
N2O = nitrous oxide
CO2e = carbon dioxide equivalent

CEQA Conclusion

As discussed above, both the future with project and future no build show increases in CO_2 emissions over the existing levels; the future build CO_2 emissions are higher than the future no build emissions. In addition, as discussed above, there are limitations with EMFAC and with assessing what a given CO_2 emissions increase means for climate change. Therefore, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

Statewide Efforts

In an effort to further the vision of California's GHG reduction targets outlined an AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California*.

Figure 5. The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown's key pillars sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement Eos S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (April 2013).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

Project-Level GHG Reduction Strategies

The following measures will also be implemented in the project to reduce GHG emissions and potential climate change impacts from the project.

1. Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems to help manage the efficiency of the existing highway system. Intelligent Transportation Systems commonly consist of electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.

2. In addition, the Sacramento Area Council of Governments provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity. These include the Sacramento Region 511 website (http://www.sacregion511.org), which provides

information for various programs, including a Commuter Club + Rideshare Database, Vanpool Incentive Program, and map of park and ride lots.

3. Landscaping reduces surface warming, and through photosynthesis, decreases CO_2. The project proposes onsite restoration for all areas temporarily disturbed by construction. On-site replanting of trees may occur in intersection and interchange slopes and along drainage channels, and soil-stabilizing seeding would occur in open areas disturbed by construction. Planted species will be similar to those removed from the project area. Consistent with mitigation proposed to reduce aesthetic impacts (see Measure 2 in the "Aesthetics" section of this document), the species planted should include trees, shrubs, and an herbaceous understory of varying heights, as well as both evergreen and deciduous types at interchange loops within the project area. The replanting will help offset any potential CO2 emissions increase.

4. According to Caltrans Standard Specifications, the contractor must comply with all local Air Pollution Control District's rules, ordinances, and regulations for air quality restrictions.

5. Implement any feasible GHG or climate change-related mitigation measures from the SACOG RTP environmental impact report, including but not limited to the following.

    a. The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained before and for the duration of on-site operations

    b. Temporary traffic control shall be provided as needed during all phases of construction to improve traffic flow, as deemed appropriate by the appropriate department of public works and/or Caltrans and to reduce vehicle dust emissions.

    c. Ground cover shall be reestablished on the construction site as soon as possible, and before final occupancy, through seeding and watering.

    d. Open burning shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (e.g., trash, demolition debris) may be conducted at the project site. Vegetative wastes shall be chipped or delivered to waste-to-energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials off-site for disposal by open burning.

Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from

rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011,[18] outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions."

To further the DOT Policy Statement, in December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*). This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.

State Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea-level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

[18] https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report)[19] was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

In response to EO-S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009),[20] which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California," specifically, "information and recommendations to enhance consistency across agencies in their development of approaches to SLR." The March 2013 update[21] finalizes the SLR Guidance by incorporating findings of the National Academy's 2012 final Sea-Level Rise Assessment Report; the policy recommendations remain the same as those in the 2010 interim SLR Guidance. The guidance will be updated as necessary in the future to reflect the latest scientific understanding of how the climate is changing and how this change may affect the rates of SLR.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation, and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in in working towards identifying these risks

[19] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.
[20] http://www.climatechange.ca.gov/adaptation/strategy/index.html
[21] http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/

throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

Hazards and Hazardous Materials

Regulatory Setting

Federal

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

The primary federal laws regulating to hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as "Superfund," is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include the following.

- Community Environmental Response Facilitation Act of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

In addition to the acts listed above, EO 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

State

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is authorized by the federal government to implement

RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, clean-up, and emergency planning of hazardous waste. The Porter-Cologne Act also restricts disposal of wastes and requires clean-up of wastes that are below hazardous waste concentrations but could affect groundwater and surface water quality. California regulations that address waste management and prevention and clean-up of contamination include Title 22 Division 4.5 *Environmental Health Standards for the Management of Hazardous Waste*, Title 23 *Waters*, and Title 27 *Environmental Protection*.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

Affected Environment

The affected environment and subsequent analysis for hazards and hazardous materials is based on the analysis documented in the *Initial Site Assessment, State Route 65 (SR65) Capacity and Operational Improvements Project, Placer County, California* (ISA; Blackburn Consulting 2014a) and the *Aerially Deposited Lead Assessment SR65 Capacity and Operational Improvements Project, Placer County, CA,* prepared for the project (ADL Report; Blackburn Consulting 2014b).

Yellow Traffic Stripes

Caltrans studies have determined that yellow/white thermoplastic striping and painted markings, such as those used within the proposed project area, may contain elevated concentrations of lead and chromium, depending on the age of the striping (manufactured before 2005) and painted markings (manufactured before 1997). Disturbing either yellow or white pavement markings by grinding, sandblasting, or heating can expose workers to lead and/or chromium. Removal or disturbance of any yellow traffic striping within the project area will require development of an appropriate Lead Compliance Plan.

Aerially Deposited Lead

Aerially deposited lead (ADL) can be found in the surface and near-surface soils along nearly all roadways, including those in the proposed project area, because of the historical use of tetraethyl lead in motor vehicle fuels. Areas of primary concern are soils along routes that have had high vehicle emissions from large traffic volumes or congestion during the period when leaded gasoline was in use (generally prior to 1986). Typically, ADL is found in shoulder areas and has high solubility when subjected to the low pH conditions of waste characterization tests. Shoulder soils along urban and heavily travelled rural highways are commonly above the soluble threshold limit concentration criteria.

The ADL assessment for the proposed project was modeled after historical roadway use, and soil screening was focused on soil expected to represent the highest ADL concentrations within the project corridor. Sixty-six soil samples were collected from 50 locations within the project limits

and tested for total lead, soluble lead, and/or pH. The analytical test results (Blackburn Consulting 2014b) indicate:

- Total lead concentrations range from below the detection limit of 3.0 mg/kg to 160 mg/kg.
- No samples exceed the Total Threshold Limit Concentration (TTLC) for lead of 1,000 mg/kg.
- Six samples exhibited total lead in excess of 50 mg/kg (i.e. ten times higher than the Soluble Threshold Limit Concentration (STLC) of 5.0 mg/l) and were further tested for soluble lead by the WET method.
- Soluble lead test results range from 3.8 mg/l to 15 mg/l, with three of the six samples analyzed exhibiting soluble lead levels that exceed the STLC for lead of 5.0 mg/l.
- The pH test results range from 6.3 to 7.8 with an average value of 6.84.

Of the three samples that exhibited soluble lead levels exceeding the individual STLC for lead of 5.0 mg/l, two were obtained from one sample location, ADL-39. The soil samples obtained from surrounding sample locations exhibited total lead levels below the 50 mg/kg criteria. These findings suggest that ADL-39 is not representative of the project soil profile. Further statistical analysis predicted with 95 percent confidence that soluble lead levels overall are below the regulatory threshold of 5 mg/l (Blackburn Consulting 2014b).

The near-surface soil within the project corridor exhibits low levels of ADL—total lead concentrations at or below 160 mg/kg, well below the total TTLC of 1,000 mg/kg that defines the lower limit for hazardous waste. Based on the lead testing data, soil excavated within the project limits will be classified as Soil Type X – "Non-hazardous Waste. Notify and Require Lead Compliance Plan for Worker Safety," and may be reused within the Caltrans right-of-way. Additional ADL testing is not warranted.

Therefore, based on the concentrations of both total and soluble lead detected, specialized soil management is not warranted. Further, soil pH conditions do not impose any special soil management requirements (Blackburn Consulting 2014b).

In addition, all of the ADL samples exhibited total lead below the industrial California Human Health Screening Level (320 mg/kg for an industrial exposure scenario) for lead. The results of the ADL assessment indicate impacted soil within the project limits does not pose a significant health risk to construction workers or the general public.

Site Adjacent to the Project with Hazardous Substances

A site with known or potential hazardous materials issues adjacent to the project area was identified during a site reconnaissance and records review. The site (Gap Inc.), is at 695 Menlo Drive. One 9,500-gallon gasoline underground storage tank (UST) is listed for the site; field reconnaissance determined the tank is potentially located at the southwest corner of the site, approximately 130 feet from the project limits. The site is also listed as a small-quantity generator of hazardous waste, but no violations or accidental releases are noted in the records.

No evidence in the records reviewed suggest hazardous material issues from this site will affect the planned roadway improvement and no right-of-way acquisition is planned at this property.

Asbestos-Containing Materials and Lead-Based Paint

An asbestos and lead survey of the Pleasant Grove Creek Bridges found that asbestos-containing materials (ACM) is not present in the concrete that comprises the bridge deck and supporting columns beneath the bridges, and surveyors did not observe existing paints or coatings associated with the bridges that would require sampling for lead-based paint (LBP). Although asbestos was not found during the survey, written notification to the ARB may be required (Blackburn Consulting 2014a).

Metal Beam Guardrail Wood Post

If metal beam guardrail (MBGR) wood posts are removed, the contractor will prepare and submit a safety and health work practices plan for handling treated wood waste (TWW) approved by an American Board of Industrial Hygiene (ABIH) Certified Industrial Hygienist. TWW must be disposed of in an approved TWW facility (Blackburn Consulting 2014a).

Proximity of Schools

The closest schools to the project area are the Western Sierra Collegiate Academy and the Rocklin Academy Gateway preschool located approximately 0.08 mile and 0.05 mile east of the project corridor, respectively.

Environmental Consequences

Humans and the environment could be exposed to hazardous conditions from the accidental release of hazardous materials during construction activities. Construction would involve the use of heavy equipment, involving small quantities of hazardous materials (e.g., petroleum and other chemicals used to operate and maintain construction equipment) that may result in hazardous conditions in the project area.

The ISA (Blackburn Consulting 2014a) identified the potential for contamination associated with traffic or roadway maintenance through the removal of yellow/white traffic striping or paint, which could release lead or chromium, threatening worker health and safety. The ISA also identified a nearby site with a UST, but no evidence in the records reviewed suggest hazardous material issues from this site will affect the project.

ADL is present in the soil at levels below regulatory thresholds, allowing it to be reused within Caltrans right-of-way and posing no threat to human health. However, a lead compliance plan will be required.

No ACM or LBP was found associated with the Pleasant Grove Creek bridges. However, ARB may need to be notified in writing.

The proposed improvements would not change existing conditions as they relate to the release of hazardous materials. No new significant sources of hazardous materials will be introduced by the project.

Western Sierra Collegiate Academy and Rocklin Academy Gateway are both located in Rocklin, within 0.25 mile of the project area at 660 Menlo Drive and 6550 Lonetree Boulevard, respectively. Both school sites are east of the project corridor. As noted above, there is the potential for accidental release of hazardous materials during construction-related activities. However, the potential for impacts is considered less than significant because of existing laws and regulations in place to protect worker and public health and safety. Implementation of the avoidance and minimization measures described below, as well as compliance with federal and state laws for handling and disposal of hazardous wastes, would further reduce impacts.

Avoidance and Minimization Measures

The following standard procedures to comply with Caltrans' Standard specifications, and state and federal regulations, would be required as part of the project to avoid and minimize effects related to hazardous materials.

Develop and Implement Plans to Address Worker Health and Safety

The contractor will be advised that lead-impacted soil is present on the site. A Lead Compliance Plan will be required. As necessary, and as required by Caltrans and federal and state regulations, additional plans, such as a health and safety plan, BMPs, and/or an injury and illness prevention plan will be prepared and implemented to address worker safety when working with potentially hazardous materials, including potential lead or chromium in traffic stripes.

If project components are removed that may contain TWW (e.g., sign posts, MBGR wood posts, and lagging on retaining walls), the contractor must prepare and submit a safety and health work practices plan for handling TWW approved by an American Board of Industrial Hygiene Certified Industrial Hygienist. TWW must be disposed of in an approved TWW facility. Construction workers who handle this material must be provided training that includes the following.

- All applicable requirements of Title 8 CCR;
- Procedures for identifying and segregating TWW;
- Safe handling practices;
- Requirements of Title 22 CCR, Division 4.5, Chapter 34; and
- Proper disposal methods.

Conduct Sampling, Testing, Removal, Storage, Transportation, and Disposal of Yellow/White Traffic Striping along Existing Roadways

As required by Caltrans' standard special provisions, the construction contractor will sample and test yellow/white traffic striping scheduled for removal to determine whether lead or chromium is present. All aspects of the project associated with removal, storage, transportation, and disposal will be in strict accordance with appropriate regulations of the California Health and Safety Code. The stripes will be disposed of at a Class 1 disposal facility. These grindings (which consist of the roadway material and the yellow color traffic stripes) will be removed and disposed of in accordance with Standard Special Provision 15-1.03B (Residue Containing High Lead Concentration Paints) (http://www.dot.ca.gov/hq/env/haz/hw_sp.htm) which requires a Lead Compliance Plan. Non-hazardous levels of lead are known to exist in the white traffic striping. As such, these grindings will be removed and disposed of in accordance with the same specification.

The responsibility of implementing this measure will be outlined in the contract between Caltrans and the construction contractor. Implementing this measure will minimize potential effects from these hazardous materials.

Hydrology and Water Quality

Regulatory Setting

Federal

Clean Water Act

In 1972, Congress amended the federal Water Pollution Control Act, making the addition of pollutants to waters of the United States from any point source[22] unlawful unless the discharge is in compliance with an NPDES permit. This act and its amendments are known today as the CWA. Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections.

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request.
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the United States. RWQCBs administer this permitting program in California. Section 402(p) requires permits for

[22] A *point source* is any discrete conveyance such as a pipe or a man-made ditch.

discharges of stormwater from industrial/construction and municipal separate storm sewer systems (MS4s).

- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by USACE.

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

USACE issues two types of 404 permits: General and Standard Permits. There are two types of General Permits: Regional Permits and Nationwide Permits. Regional permits are issued for a general category of activities when they are similar and cause minimal environmental effect. Nationwide Permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard Permits. There are two types of Standard Permits: Individual Permits and Letters of Permission. For Standard Permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404 (b)(1) Guidelines (40 CFR § 230), and whether the permit approval is in the public interest. The Guidelines were developed by U.S. EPA in conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the United States) only if no practicable alternative exists that would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects to waters of the United States and not cause any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[23] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the United States. In addition, every permit from the USACE, even if not subject to the Guidelines, must meet general requirements. See 33 CFR Part 320.4.

State

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation in California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. The act predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the United States, such as groundwater and surface waters not considered waters of the United States. Additionally, the Porter-Cologne Act prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by

[23] The EPA defines *effluent* as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

WDRs and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Board and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and for regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, the RWQCBs designate beneficial uses for all water body segments and then set the criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the State Water Board identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and that the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Board administers water rights, sets water pollution control policy, issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires issuance of NPDES permits for five categories of stormwater discharges, including MS4s. An *MS4* is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that is designed or used for collecting or conveying stormwater." The State Water Board has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans' MS4 Permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The State Water Board or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit (Order No. 2012-0011-DWQ, as amended by 2014-0006-EXEC, 2014-0077-DWQ and 2015-0036-EXEC) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit has three basic requirements.

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the state to effectively control stormwater and non-stormwater discharges; and

3. Caltrans' stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs, to the maximum extent practicable, and other measures the State Water Board determines necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the statewide Storm Water Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including selection and implementation of BMPs. Further, in recent years, hydromodification control requirements and measures to encourage low impact development have been included as a component of new development permit requirements. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The Construction General Permit was amended by 2010-0014-DWQ and 2012-0006-DWQ on February 14, 2011 and July 17, 2012, respectively. The permit regulates stormwater discharges from construction sites that result in a land disturbance of 1 or more acre and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the Construction General Permit. Construction activity that results in soil disturbances of less than 1 acre is subject to this Construction General Permit if the activity has the potential to result in significant water quality impairment, as determined by the RWQCB. Operators of regulated construction sites are required to develop SWPPPs; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the risk level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and before-construction and after-construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with Caltrans' Standard Specifications, a Water Pollution Control Program is necessary for projects with land disturbance of less than 1 acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Water Quality Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Water Quality Certification are CWA Section 404 permits issued by USACE. The 401 Water Quality Certification is obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a Section 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Waste Discharge Requirements for Dewatering and Other Low-Threat Discharges to Surface Waters

While small amounts of construction-related dewatering are covered under the CGP, the CVWB has also adopted a General Dewatering Permit. General Waste Discharge Requirements/NPDES Permit for Dewatering and Other Low-Threat Discharges to Surface Waters (Low-Threat General Order) (Order R5-2013-0074).The Low Threat General Order contains waste discharge limitations and prohibitions similar to those in the CGP. To obtain coverage, the applicant must submit a NOI and a Pollution Prevention and Monitoring and Reporting Plan (PPMRP) to the CVWB. The PPMRP must include a description of the discharge location, discharge characteristics, primary pollutants, receiving water, treatment systems, spill prevention plans, and other measures necessary to comply with discharge limits. A representative sampling and analysis program must be prepared as part of the PPMRP and implemented by the permittee, along with recordkeeping and quarterly reporting requirements during dewatering activities. For dewatering activities not covered by the Low-Threat General Order, an individual NPDES permit and WDRs must be obtained from the CVWB.

Low-threat discharges are currently regulated by the CVWB under the regional Low-threat General Order. Discharges covered by this Low-Threat General Order are either 4 months or less in duration or have a daily average discharge flow less than 0.25 million gallons per day. A Notice of Intent (NOI) and Report of Waste Discharge must be submitted to the CVWB to comply with this Low-Threat General Order. Effluent limitations for all discharges are specified for total suspended solids, turbidity, biological oxygen demand, oil and grease, settleable solids, and residual chlorine. There are several other effluent limitations for specific compounds.

In addition, Caltrans has a *Field Guide to Construction Site Dewatering* that provides the Resident Engineer with step-by-step instructions for overseeing dewatering operations on the construction site (California Department of Transportation 2014). All aspects of dewatering are addressed, from the selection of an appropriate dewatering management option to ensure compliance with NPDES permit requirements for operations, maintenance, and reporting. The

Field Guide is available online at http://www.dot.ca.gov/hq/construc/stormwater/field-guide-to-construction-site-dewatering.pdf.

Central Valley Flood Protection Plan

The CVFPP was developed under a process implemented by the Central Valley Flood Management Program (CVFMP), which was established in 2008 to guide, manage and implement integrated flood management actions in the Central Valley. The CVFPP, as set forth in CWC Section 9614, was adopted on June 29, 2012. The CVFPP proposes a "systemwide investment approach" for integrated, sustainable flood management in areas currently protected by facilities of the State Plan of Flood Control. The *2012 Central Valley Flood Protection Plan* fulfills the intent and requirements of the CVFPA of 2008 (SB 5). The plan is required to be updated every 5 years beginning in 2017 (California Department of Water Resources 2011). The 2017 CVFPP is currently undergoing public review and stakeholder participation.

Regional

Placer County Stormwater Quality Program

Placer County is a designated municipal permittee under the U.S. EPA's NPDES, which regulates stormwater and non-stormwater flows into natural water bodies. The NPDES regulations require permitted areas to implement specific activities and actions to eliminate or control stormwater pollution. Under the Phase I NPDES program, Placer County shares a permit with El Dorado County and the City of South Lake Tahoe for the Lake Tahoe watershed area. Under the Phase II NPDES program, Placer County is permitted in the western county area and in the Truckee River Basin.

Local

The cities of Rocklin, Roseville, and Lincoln have each prepared a SWMP in order to comply with the requirements of the U.S. EPA's NPDES. The SWMP provides the frameworks for public outreach, public involvement, illicit discharge and detection, management of construction site runoff, new development and redevelopment, and municipal operation in each jurisdiction.

Affected Environment

The affected environment and subsequent analysis for hydrology and water quality is based on the Water Quality Assessment Report (WQAR) prepared for the proposed project (ICF International 2016e).

Regional Hydrology

The project area is located in the Lower Sacramento watershed (Hydrologic Unit Code 18020109). The entire Sacramento River Basin covers 27,210 square miles. This includes all watersheds tributary to the Sacramento River that are north of the Cosumnes River watershed, including the closed basin of Goose Lake, the drainage subbasins of Cache and Putah Creeks and the Yolo and Sutter Bypasses.

The Sacramento River drains the northern part of the Central Valley. The principal streams are the Sacramento River and its larger tributaries: the Pit, Feather, Yuba, Bear, and American Rivers to the east; and Cottonwood, Stony, Cache, and Putah Creeks to the west. Major reservoirs and lakes include Shasta, Oroville, Folsom, Clear Lake, and Lake Berryessa. The remaining inputs (approximately 25% of the flow) come from streams entering from smaller watersheds along the river and from agricultural and storm drain systems. The Sacramento River Watershed Basin supplies more than 80% of the freshwater flows to the Sacramento-San Joaquin Delta. There are 10 hydrologic sub-regions in the Sacramento River Watershed Basin. Five sub-regions are located in the upper (Redding) watershed, and five sub-regions are located in the lower Sacramento watershed of the Basin.

Local Hydrology

Generally, the topography of the area is gradually sloping grasslands. The existing drainage systems consist of cross culverts, bridge crossings over Pleasant Grove Creek, earthen and concrete- or asphalt-lined ditches, and roadway drainage systems with pipes and inlets. Throughout the corridor, surface runoff flows across pavement and down to the toe ditch/gutter on both sides of the highway, carried into cross culverts and ultimately discharging to either one of the bridge crossings. Runoff within the median is collected through drop inlets, transported through a series of culverts, and discharged to the cross culverts on both sides of the highway. In addition, a variety of concentrated flow conveyance devices are present along the length of the project, including unlined ditches, drainage inlets, culverts, asphalt concrete dikes and overside drains, flared end sections and RSP pads. These flow conveyance devices are stabilized to carry runoff without causing erosion.

In the project vicinity, erosion from stormwater runoff is the dominant natural erosion process. The susceptibility of soils to water erosion is described by factors estimated by the Natural Resources Conservation Service. Soils within the project limits have moderate susceptibility to water erosion.

Precipitation and Climate

The project is located in California's Central Valley, which has a typical Mediterranean climate with hot, dry summers and cool, moist winters. The mean annual maximum and minimum air temperature is 74.7 degrees Fahrenheit and 45.4 degrees Fahrenheit, respectively. Although precipitation in the watershed varies annually and seasonally, the rainy season generally occurs between October and April. Average annual precipitation in the area is estimated as 23 inches. Nearby stations in the central portion to eastern edge of the Sacramento Valley, such as Sacramento Metro and Nicolaus 2, also record average annual rainfall in the 22 to 24 inch range.

Surface Streams

The project crosses approximately six tributaries, and there are four lakes and two potential wetlands within 0.5 mile of the project. The six crossings are part of two major waterbodies: Orchard Creek and Pleasant Grove Creek. Orchard Creek is the receiving waterbody from watershed areas in the northern portion of the project limits (0.5 miles south of Placer Parkway to Lincoln Boulevard), while Pleasant Grove Creek is the receiving waterbody for the watershed

areas in the southern portion of the project limits (Galleria Boulevard to 0.5 miles south of Placer Parkway). The South Branch Pleasant Grove Creek, which serves the area south of Galleria Boulevard, lies approximately 0.6 miles southwest of the project area. Orchard Creek and its tributaries, including North Branch Orchard Creek, cross SR 65 through several cross culverts. The existing watershed map can be found in Appendix B of the *Preliminary Drainage Analysis* (Mark Thomas & Company, Inc. 2015a). Orchard Creek is a tributary to Auburn Ravine, the East Side Canal, and the Cross Canal, which ultimately discharges to the Sacramento River via the Natomas North Canal and the Natomas Cross Canal. Pleasant Grove Creek discharges to the Sacramento River via the Pleasant Grove Canal and the Natomas Cross Canal (Mark Thomas & Company, Inc. 2015).

Other waterbodies adjacent to the project site include Orchard Creek Tributary 2, Orchard Creek Tributary 2-2, Orchard Creek Tributary 3, Pleasant Grove Tributary 1, and Pleasant Grove Tributary 2, all of which ultimately flow to the Sacramento River. The project site is located approximately 0.5 mile west of Antelope Creek, which flows south approximately 1.5 miles before draining into Dry Creek (formerly known as Linda Creek). The head of Dry Creek is at the junction of Antelope Creek and Miners Ravine, and flows southwest to Natomas East Main Drainage Canal 2.3 miles southwest of Rio Linda. Dry Creek and the Natomas East Main Drainage Canal flow into the American River before its confluence with the Sacramento River.

Municipal Supply

The Placer County Water Agency (PCWA) Water Systems supply irrigation and treated drinking water in four service zones in central and western Placer County, generally located along the I-80 corridor between Roseville and Alta; and one service zone in the Martis Valley, south of Truckee, in eastern Placer County. The primary sources of water supply for the PCWA are surface water diversions from the American River, the Yuba River, and the Bear River, although the agency also has access to groundwater resources.

Environmental Consequences

Potential Water Quality Impacts

Construction activities would include grading, paving, striping, material stockpiling and storage at staging areas, and installing drainage facilities and roadside signs. The work will require relocating existing utilities and including overhead electric lines over both of the proposed Pleasant Grove Creek bridges. Although most of the cross culverts would not be affected by the proposed project, a few of the culverts would need to be extended to accommodate the proposed auxiliary lanes. Operation-related hydrology and water quality impacts would primarily be related to vehicle use and maintenance activities along the roadway.

Potential sources of water pollution associated with this project include stormwater runoff containing sediment from soil erosion, petroleum and wear products from motor vehicle operation, accidental spills of hazardous materials during construction activities, and accidental spills during normal roadway operation. Contaminants in runoff from the road include sediment, oils and grease, and heavy metals. However, implementing commonly used construction BMPs

would minimize potential impacts to the maximum extent practicable. The drainage patterns would be maintained as much as possible. The project will also comply with all construction site BMPs developed from Caltrans' Construction Site BMP Manual and specified in the SWPPP. Drainage would be directed to storm drain facilities, including asphalt concrete gutters and earth ditches. Therefore, these impacts, discussed further below, are considered less than significant.

Substrate

Substrate refers to the structure and composition of a river bed. Orchard Creek and Pleasant Grove Creek are perennial drainages, and contain natural substrate that could be affected by the project. Although there are also ephemeral drainages, seasonal, riparian and emergent wetlands, vernal pools, and ditches within the project area, they are isolated and do not provide adequate connection to the Sacramento or American Rivers or drain into any other surface waterbody.

Currents, Circulation or Drainage Patterns

The project would modify existing drainage patterns due to the proposed paving in the median and the construction of concrete barrier between the Galleria Boulevard/Stanford Ranch Road interchange and the Blue Oaks Boulevard interchange. The project may also modify the water volume, depth, and flow rate. The project is designed to direct runoff from watershed areas into the existing discharge points. By using this approach, the project minimizes the impact on the hydrology of cross culverts, and drain facilities and drainage patterns will be maintained as much as possible. Orchard Creek is the receiving waterbody for watersheds in the northern portion and Pleasant Grove Creek is the receiving waterbody for watersheds in the southern portion of the project.

New impervious surfaces can increase the volume and rate of surface runoff. A total area of 15.89 acres and 17.03 acres of new impervious surfaces would result from the Carpool Lane Alternative and the General Purpose Lane Alternative, respectively. With new impervious surfaces, post-project flows may exceed the pre-project flows and could result in downstream erosion or flooding. To address the additional flows and ensure that the project does not exceed existing flow conditions, the project would include stormwater runoff BMPs to collect and retain or detain the additional flows within the project limits, as required by the Caltrans NPDES MS4 Permit and SWMP. Potential permanent treatment BMPs include biofiltration strips and biofiltration swales.

There are no proposed improvements outside of the Caltrans right-of-way and the flow pattern of upstream off-site drainage areas flowing through cross culverts would be maintained. Impacts to downstream drainage systems are minimal. Post construction storm water treatment requirements are achievable.

Suspended Particulates (Turbidity)

Construction of the project would involve roadway construction and widening, bridge widening, creation and use of construction staging areas, operation of heavy construction equipment (e.g., graders, excavators) alongside Orchard Creek and Pleasant Grove Creek, extension of existing culverts, reconstruction of drainage facilities, relocating existing utilities, and other related

activities. As currently designed, roadway construction associated with the project would be expected to result in fill material being placed in Pleasant Grove Creek and Orchard Creek. The placement of fill in Pleasant Grove Creek and Orchard Creek may result in temporary increases in turbidity, or turbidity spikes, and sediments could be transported to downstream portions of the creeks outside the project footprint.

Construction activities on land adjacent to waterways could cause erosion of sediments and contribute to short-term increases in turbidity in the aquatic environment. Land-disturbing activities (e.g., excavation and grading) could result in erosion and subsequent soil deposition to the Sacramento River, which would increase turbidity. Construction of the road adjacent to Orchard Creek and Pleasant Grove Creek and their tributaries could result in debris falling into the creeks, which could directly increase turbidity. The approximate areas of disturbed soil for the build alternatives are shown in Table 30. As a result of sediment discharge, temporary increases in turbidity may occur in Orchard Creek and Pleasant Grove Creek and potentially downstream in ephemeral drainages, emergent wetlands, and vernal pool habitats. However, sediments likely would settle and the turbidity likely would dissipate before reaching the Sacramento River. Therefore, it is unlikely that the potential temporary increase in sediments in the creeks could violate water quality standards or WDRs related to turbidity, or have the potential to result in physiological, behavioral, and habitat effects on aquatic life.

Table 30. Disturbed Soil Area

Alternative	Disturbed Soil Area (acres)
Carpool Lane Alternative	52.87
General Purpose Lane Alternative	55.51

Oil, Grease and Chemical Pollutants

The use of heavy construction equipment or construction-related materials or post-construction roadway operations on the project site can introduce pollutants of concern or toxic chemicals, which have the potential to violate water quality standards or waste discharge requirements. Pollutants of concern are toxic chemicals from heavy construction equipment or construction-related materials (e.g., diesel fuel, cement, paint, asphalt).

Washwater from equipment and tools and other waste dumped or spilled on the construction site can easily lead to introduction of pollutants into surface waters or seepage into groundwater. Also, there is a potential for construction chemicals to be accidentally spilled into watercourses. Because of low precipitation, construction occurring in the dry season is less likely to cause soil and channel erosion or runoff of toxic chemicals into a stream. However, low summer flows are less able to dilute pollutants entering a watercourse.

Construction Impacts

Short-term or temporary construction impacts on water quality have the potential to occur during grading, demolition, and other construction activities related to the project. Potential short-term impacts during construction on the aquatic environment include temporary increases in sediments, oil, grease, and chemical pollutants generated during construction. Construction

activities would comply with a variety of restrictions and agency requirements, such as permits from the State Water Resources Control Board (SWRCB), Central Valley Regional Water Quality Control Board (CVRWQCB), USACE, and CDFW. Implementation of an SWPPP and the performance standards of Caltrans grading, erosion, and sediment control ordinances would minimize the potential for construction-related surface water pollution and would ensure that water quality in Orchard Creek and Pleasant Grove Creek would not be compromised by erosion and sedimentation during construction. Therefore, this impact is considered less than significant.

Effects during Operations and Maintenance

Following completion of the project, a potential exists for long-term water quality impacts to result from operation and maintenance activities, such as highway, bridge, and culvert maintenance and inspections. Long-term impacts include alterations in drainage patterns on overcrossings, roadways, and polluted surface runoff. Stormwater runoff may contain sediment from soil erosion, oils and grease generated from motor vehicles, and heavy metals.

The project would comply with the Statewide Caltrans NPDES Permit and SWMP and would ensure that stormwater pollution during operation and maintenance of the project would be minimal by implementing post-construction BMPs. Standard facilities used to handle stormwater on site would be an array of structural elements or facilities that would serve to manage, direct, and convey the stormwater.

Existing drainage from the highway consist of cross culverts, earthen and concrete or asphalt lined ditches, and roadway drainage systems with pipes and inlets. After corridor improvements, stormwater would be drained by a combination of new and existing pipes, drainage inlets, and other storm drain facilities. The median paving would redirect runoff from the new impervious surface at the median and sheet flow across pavement. The project is required to consider treatment BMPs because it involves new construction and the creation of more than one acre of impervious area. Biofiltration swales are the preferred permanent treatment BMPs for this project. The biofiltration swales will be designed to meet treatment criteria under water quality flow and to carry runoff during peak event. There would be no impact.

The following permit conditions must be met as part of the project to avoid and minimize effects related to hydrology and water quality.

Implementation of water quality measures (management measures and BMPs) are required to address project-related water quality impacts during construction, operation, and maintenance of the culvert. Key management measures include the following.

- Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss.
- Minimize the potential for erosion via limiting land disturbances such as clearing and grading and cut/fill.
- Preserve any existing terrain providing desirable drainage courses or effective filtration.
- Limit disturbance of natural drainage features and vegetation.

- Prepare and implement an approved SWPPP.
- Ensure proper storage and disposal of potential hazardous material.
- Incorporate pollution prevention into operation and maintenance procedures to reduce pollutant loadings to surface runoff.

The project would be designed in accordance with the objectives of Caltrans's NPDES permit, Construction General Permit, and other regulatory agency requirements. Potential temporary impacts to water quality can be avoided or minimized by implementing standard BMPs recommended for a particular construction activity. Compliance with the requirements of these permits, and adherence to the conditions, would reduce or avoid potentially significant construction-related impacts.

The project involves more than 1 acre of added impervious area, and therefore appropriate treatment BMPs would need to be implemented for areas within Caltrans' right-of-way. The Caltrans MS4 Permit contains provisions to reduce, to the maximum extent practicable, pollutant loadings from the facility once construction is complete. The permit stipulates that permanent measures that control pollutant discharges must be considered and implemented for all new or reconstructed facilities. Permanent control measures located within Caltrans' right-of-way reduce pollutants in stormwater runoff from the roadway. These measures reduce the suspended particulate loads, and thus pollutants associated with the particles, from entering waterways. The measures required by the permit would be incorporated into the final engineering design or landscape design of the project and would take into account expected runoff from the roadway. In addition, the permit also stipulates that an operation and maintenance program be implemented for permanent control measures. This category of water quality control measures can be identified as including both design pollution prevention BMPs and treatment BMPs.

Noise

Regulatory Setting

Under CEQA, a significant impact is generally defined as a substantial adverse change in the physical environment. The noise analysis for CEQA is focused on the project-related change to baseline conditions, and therefore impact significance is based on the design-year with-project increase in noise levels relative to existing conditions, as determined by Caltrans and the project-development team. Caltrans defines a substantial increase in noise as a 12 dB increase from existing to design-year with-project conditions (Caltrans 2011). A substantial increase under this definition would be considered to result in a significant impact.

If a proposed project is determined to cause a significant noise impact under CEQA, CEQA requires that mitigation measures must be incorporated into the project unless those measures are not feasible.

Affected Environment

The affected environment and subsequent analysis for noise is based on the *Noise Study Report* prepared for the proposed project (ICF International 2016f).

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed project. The project area consists of residential areas, schools, a place of worship, a jail, a hospital, a hotel, and several commercial uses that include no apparent outdoor areas of frequent human use, and undeveloped land. The residential subdivisions in the study area are generally set back from SR 65 and buffered by commercial uses or undeveloped lands. The locations of receptors and monitoring sites are shown on Figures 6a-6h).

The existing noise environment was characterized based on short- and long-term noise monitoring conducted in the project area.

Long-term monitoring was conducted at three locations. The purpose of the long-term noise monitoring was to determine the changes in noise levels within the project area throughout a typical day. Sound level data were collected from Tuesday, October 27 to Thursday October 29, 2015. Long-term monitoring site locations are shown on Figures 6a through 6h.

Long-term monitoring site LT-1 was mounted on a lighting pole at Staybridge Suites hotel in Rocklin. There was a clear line of sight to SR 65 at this location. The worst-hour noise level measured was 71.6 dBA L_{eq}(h) during the 7 a.m. hour. Long-term monitoring site LT-2 was mounted on a fence in a residential subdivision on Ashford Lane in Lincoln. There was no line of sight to SR 65 at this location, as the freeway is elevated and includes a soundwall with a height of 8 to 10 feet. The worst-hour noise level measured was 62.3 dBA L_{eq}(h) during the 5 p.m. hour. Long-term monitoring site LT-3 was mounted on a lighting pole at the end of Tinker Road in a commercial area in Rocklin. There was a clear line of sight to SR 65 at this location. The worst-hour noise level measured was 66.8 dBA L_{eq}(h) during the 7 a.m. and 8 a.m. hours.

Results of short-term monitoring are shown in Table 31. All measurements were 15 minutes in duration. Traffic noise from SR 65 was observed to be the dominant ambient noise source at all sites. Short-term monitoring site locations are shown on Figures 6a through 6h.

Table 31. Summary of Short-Term Noise Monitoring Measurements

Monitoring Site	Location	Date / Time	Measured L_{eq} (dBA)
M02	Fairway Drive	10/27/15 2:30 p.m.	73.4
M04	Fairway Drive	10/28/15 9:43 a.m.	64.3
M08	Adams Drive	10/28/15 10:48 a.m.	58.9
M09	Adams Drive	10/28/15 10:48 a.m.	65.1
M10	Industrial Avenue	10/28/15 11:46 a.m.	64.7
M11	Atherton Road	10/28/15 11:46 a.m.	65.1
M12A	Dresden Drive	10/28/15 3:21 p.m.	57.9
M12B	Dresden Drive	10/28/15 3:21 p.m.	63.6
M15A	Technology Way	10/28/15 2:15 p.m.	66.7
M15B	Atherton Road	10/28/15 2:15 p.m.	64.4
M17	Highland Pointe Drive	10/28/15 9:42 a.m.	71.8

Figure 6a. Noise Monitoring and Prediction Locations

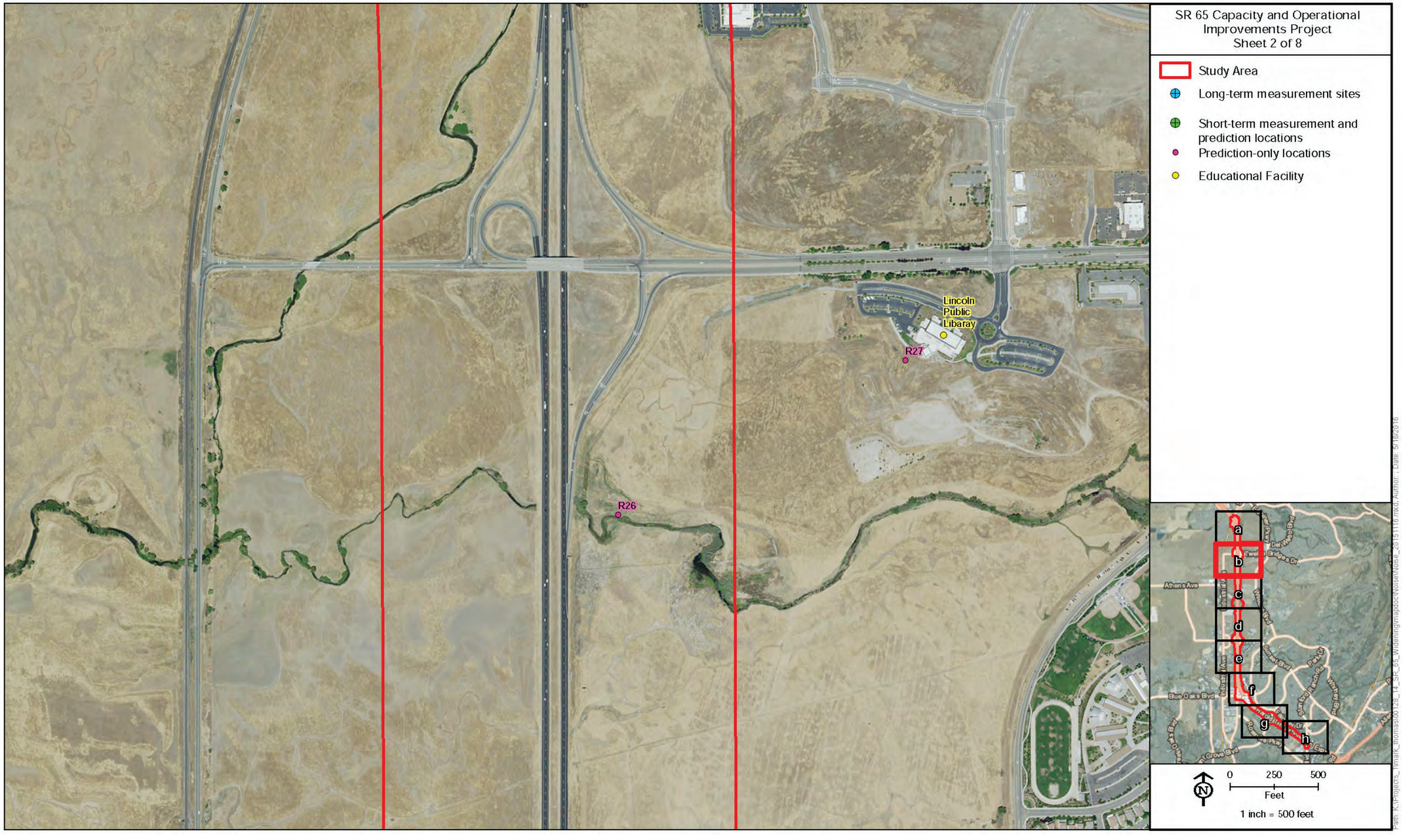


Figure 6b. Noise Monitoring and Prediction Locations

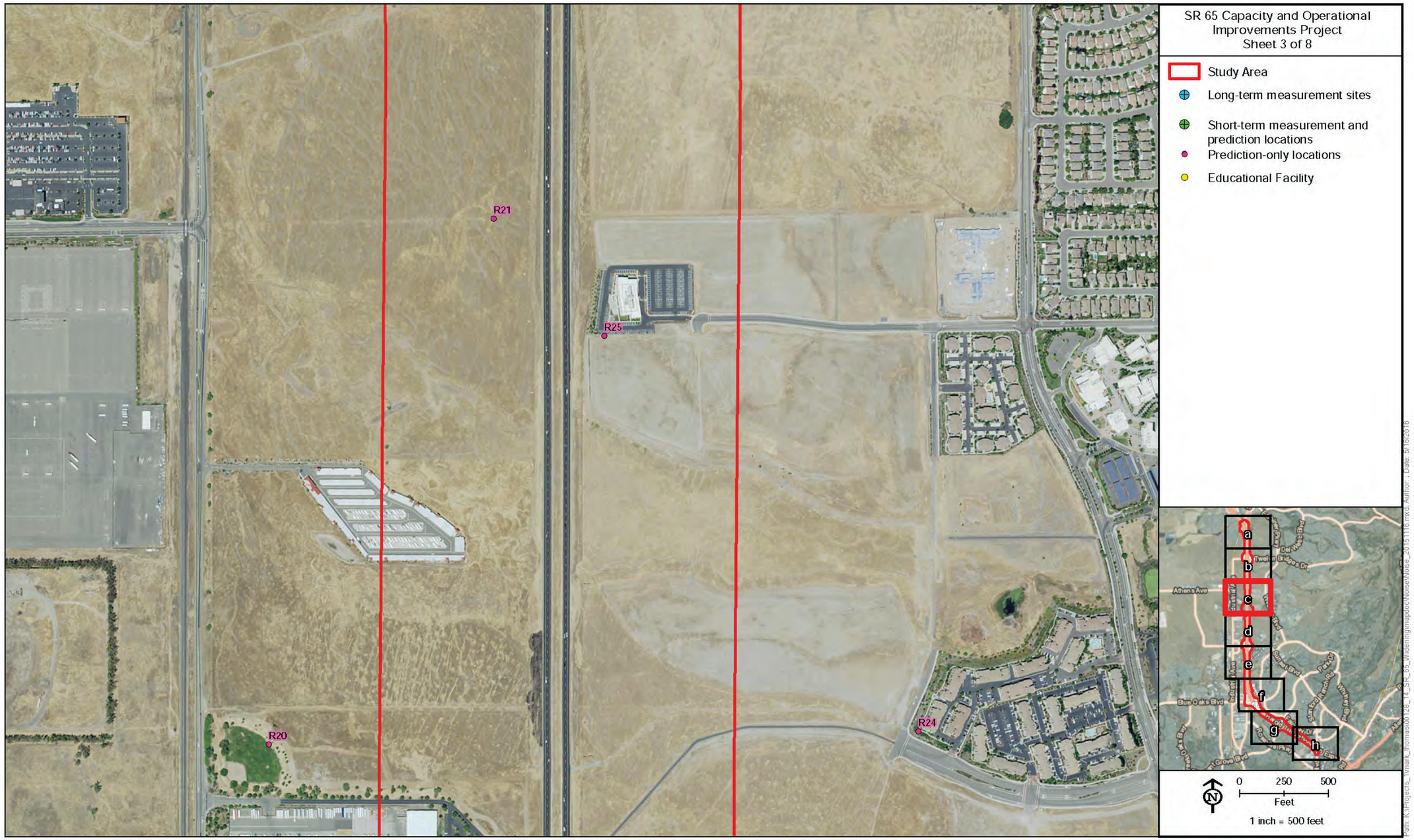


Figure 6c. Noise Monitoring and Prediction Locations

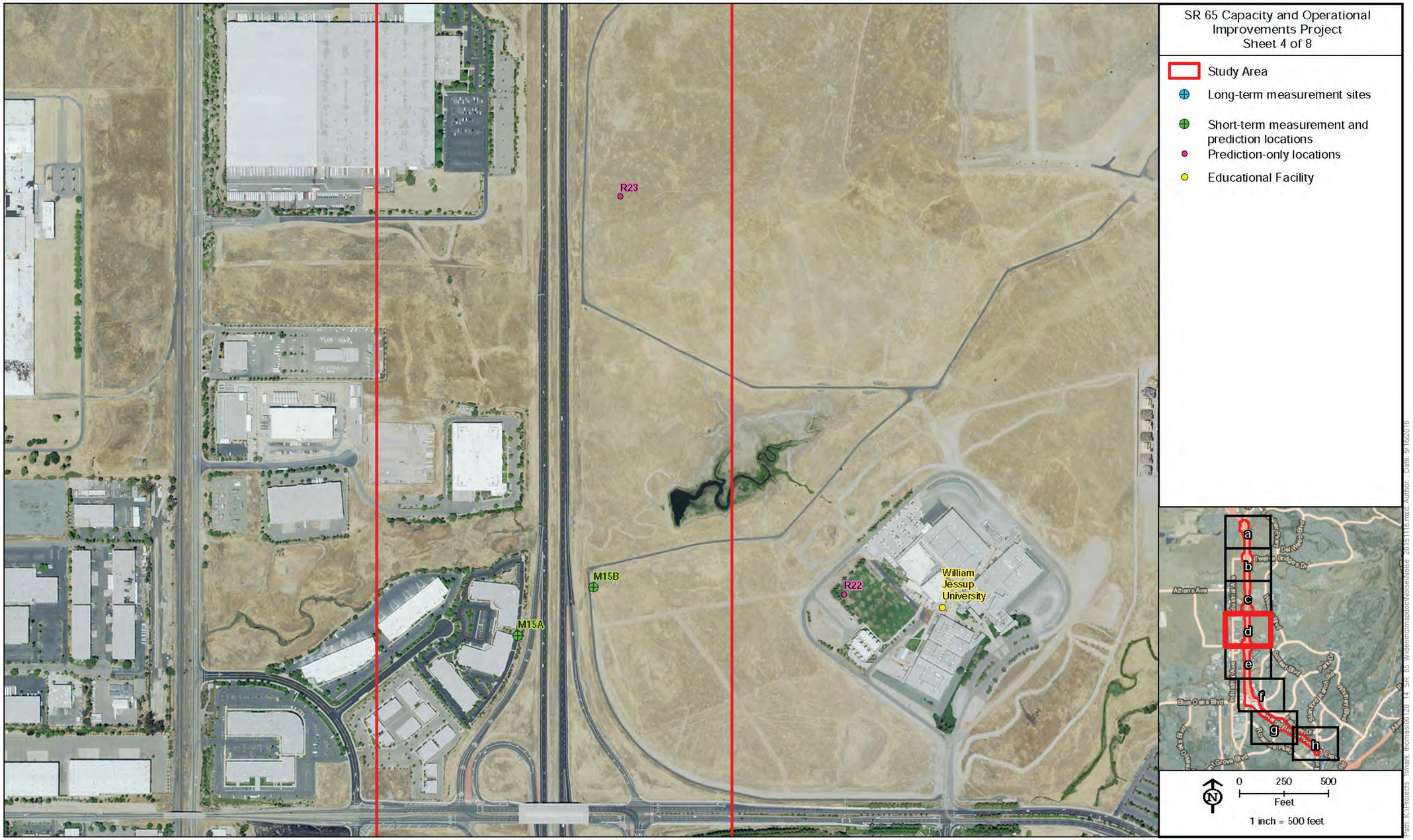


Figure 6d. Noise Monitoring and Prediction Locations

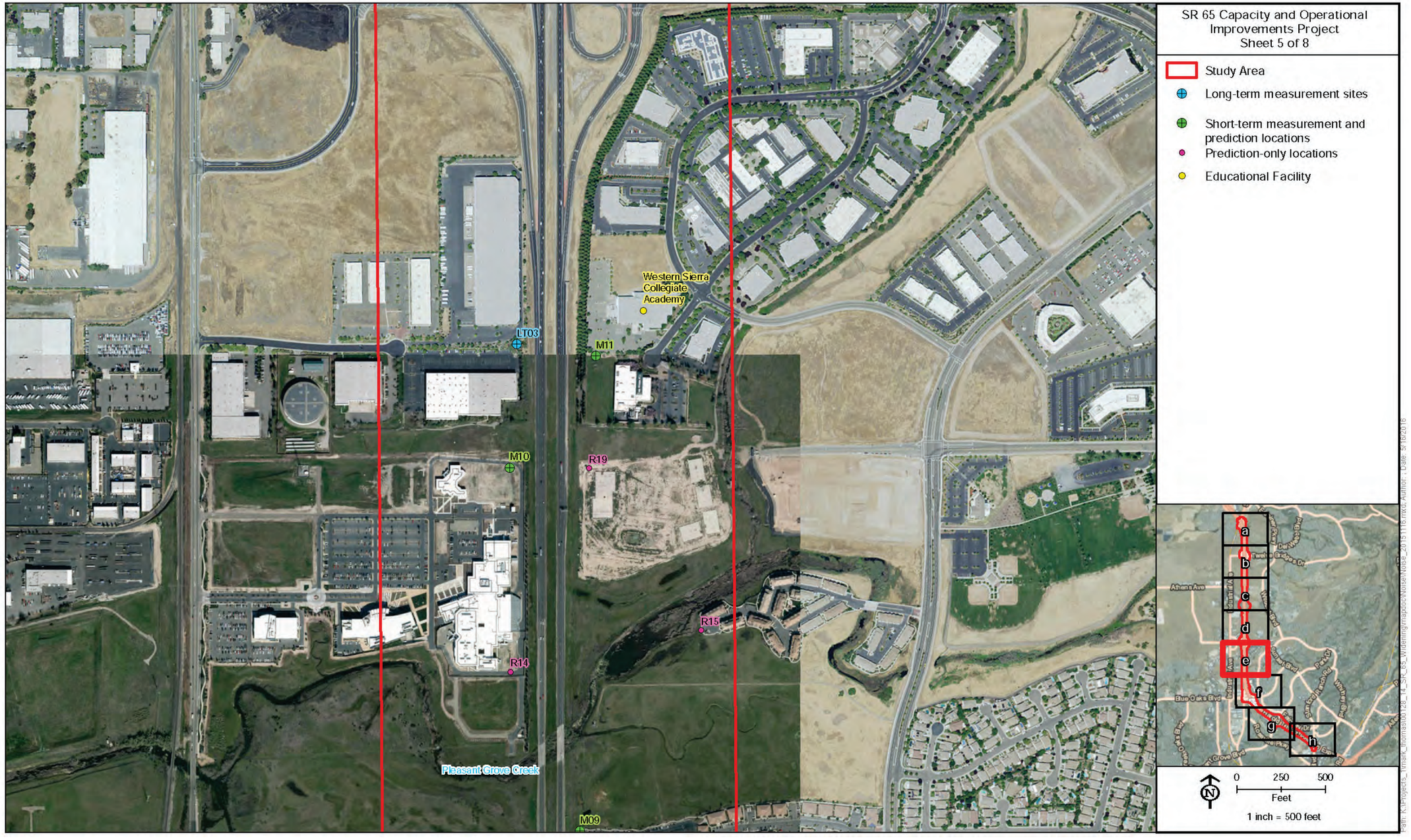


Figure 6e. Noise Monitoring and Prediction Locations

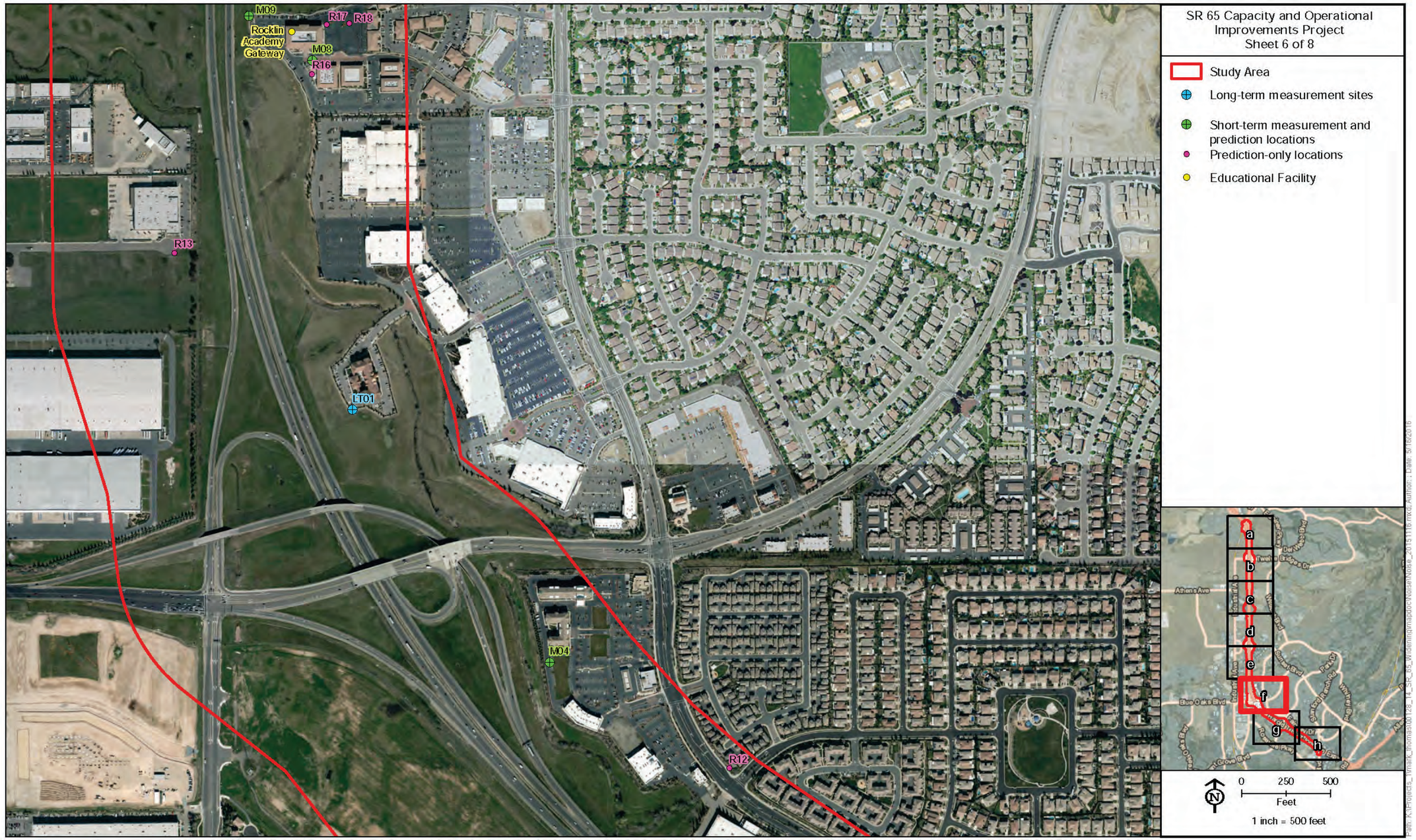


Figure 6f. Noise Monitoring and Prediction Locations

Figure 6g. Noise Monitoring and Prediction Locations

Figure 6h. Noise Monitoring and Prediction Locations

Environmental Consequences

The FHWA Traffic Noise Model (TNM) Version 2.5 was used in this analysis to evaluate traffic noise conditions for existing (2012) and design-year (2040) conditions. Key inputs to the model include the locations of roadways, shielding features (e.g., topography and buildings), noise barriers, receptors, and ground type. Traffic data for the project was obtained from field observations and from the Transportation Analysis Report prepared by Fehr & Peers (2015) for the project.

Construction

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction activities include demolition of existing structures, building of new structures, and implementation of detours. Equipment operations associated with demolition and building activities will be a source of noise. Implementation of detours may increase noise in some areas as a result of temporarily diverted traffic. Construction noise is controlled by Caltrans Standard Specifications Section 14-8.02 Noise Control, which states:

- Do not exceed 86 A-weighted decibels (dBA) at 50 feet from the job site activities from 9 p.m. to 6 a.m.
- Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

Table 32 summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Each piece of standard construction equipment is expected to generate noise levels ranging from 80 to 90 decibels (dB) at a distance of 50 feet, which would be reduced over distance at a rate of about 6 dB per doubling of distance. Pile drivers can produce noise levels up to 96 dBA.

Table 32. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82
Pile Driver	96
Source: Federal Transit Administration 2006.	

Each piece of construction equipment operates as an individual point source. The worst-case noise level would most likely occur during roadway grading, during which composite equipment noise levels would be up to 91 dBA L_{max} at a distance of 50 feet from an active construction area.

In addition to standard equipment used during roadway construction, bridge construction would require the use of pile drivers. As shown in Table 32, pile-driving generates noise levels of up to 96 dBA L_{max} at 50 feet.

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Caltrans Standard Specifications Section 14-8.02 and applicable local noise standards. Construction noise would be short term, intermittent, and overshadowed by local traffic noise. This impact is considered less than significant.

Construction of the project may intermittently result in perceptible levels of groundborne vibration in buildings immediately adjacent to, or within 50 feet of vibration-generating sources. However, groundborne vibration from heavy-duty equipment is not likely to be perceptible inside buildings adjacent to the project. There is no potential for building damage from use of non-impact equipment at distances of greater than 50 feet. Therefore impacts from groundborne vibration from construction of the project are considered to be less than significant.

Operations

Traffic noise levels for design year (2040) no-build conditions range from 48 to 76 dBA Leq(h). Under design year build conditions (both build alternatives), predicted traffic noise levels range from 50 to 77 DBA Leq(h) (Table 33). In general, the difference in traffic volume between alternatives was 2% or less, and geometric differences were minor, so noise levels were nearly the same between alternatives (only 2 receivers differed by 1 dB between alternatives). For the build alternatives, design year with-project noise levels were predicted to increase by up to 6 dB relative to existing conditions, based on the 43 receiver locations modeled in the analysis. This project-related increase is less than the Caltrans substantial increase threshold of 12 dB. Therefore, noise impacts are predicted to be less than significant.

Table 33. Predicted Traffic Noise Levels by Land Use Category, Existing and Future Conditions

Land Use	Existing Conditions Traffic Noise Levels, dBA Leq(h)	Future No-Build Conditions Traffic Noise Levels, dBA Leq(h)	Future Build Conditions Traffic Noise Levels, dBA Leq(h)
Residential	47 to 60	51 to 62	52 to 64
Place of worship, jail (institutional), schools, hospital	46 to 72	48 to 73	50 to 76
Hotel	63	66	67
Commercial areas	57 to 73	58 to 76	59 to 77
Undeveloped land	54 to 69	56 to 72	57 to 74
Note: Leq(h) = hourly equivalent sound level			

Avoidance and Minimization Measures

Construction would be conducted in accordance with Caltrans Standard Specifications Section 14-8.02 and applicable local noise standards. Although not required, implementing the following minimization measures would minimize the temporary noise impacts from construction.

Implement Additional Construction Noise-reducing Measures

- All equipment will have sound control devices that are no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.
- As directed by Caltrans, the contractor will implement appropriate additional noise minimization measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

Transportation/Traffic

Regulatory Setting

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during development of federal-aid highway projects (see 23 CFR § 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the U.S. Department of Transportation regulations (49 CFR § 27) implementing Section 504 of the Rehabilitation Act (29 USC § 794). FHWA has enacted regulations for implementation of the 1990 Americans with Disabilities Act, including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the Americans with Disabilities Act requirements to federal-aid projects, including Transportation Enhancement Activities.

Affected Environment

The affected environment and subsequent analysis for transportation and traffic is based on the Transportation Analysis Report prepared for the proposed project (Fehr & Peers 2015). Detailed information regarding the methodology used in the analysis is included in the report.

Study Area

The project study area for transportation analysis extends beyond the immediate vicinity of the SR 65 project corridor and includes areas of Roseville, Rocklin, Lincoln, Citrus Heights, and Loomis. Within the study area SR 65 is an important interregional route that serves 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.

Methodology and Limitations

The *Transportation Analysis Report* used an integrated modeling approach with three different levels of detail: macro, meso, and micro. Traffic volume forecasts were developed for construction year (2020) and design year (2040) conditions. The forecasts relied on modified inputs to the Sacramento Area Council of Governments' (SACOG's) Sacramento Regional Travel Demand model based on refinements to land use projects and the planned roadway network. The traffic volume forecasts are influenced by modifications to the existing transportation network according to planned improvement projects anticipated to be constructed by the construction and design years. 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. Therefore, a 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 were incorporated into the network (e.g., posted speed limits, grades) 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 matched the traffic counts.

Additional detail regarding the methodology used for the traffic analysis is contained in the *Transportation Analysis Report.*

Acceptable Traffic Operating Conditions

Level of service (LOS) is a qualitative measure of traffic operations from a driver's perspective; it varies from LOS A (the best) to LOS F (the worst), and is one of the main evaluation criteria for the *Transportation Analysis Report*. Tables 34 and 35 describe the LOS thresholds from the *Highway Capacity Manual* (Transportation Research Board 2011) for freeway sections and signalized intersections, respectively.

Table 34. Freeway LOS Descriptions

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 2015.
Note: vplpm = vehicles per lane per mile

Table 35. Signalized Intersection LOS Descriptions

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 2015.
Note: sec/veh = seconds per vehicle

The project has the potential to affect traffic operations across multiple jurisdictions. LOS is used to assess effects because each affected agency has established policies and thresholds related to LOS expectations. The acceptable traffic operating conditions for each jurisdiction in the study area is described below.

California Department of Transportation

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 minimum acceptable 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 on state highway mainline segments, ramp junctions, weaving segments, and ramp terminal intersections. For locations with LOS F under the No Build Alternative, an impact would occur if the three build alternatives would worsen the LOS F condition based on the quantitative performance measure associated with the specific type of analysis.

City of Lincoln

For study intersections within the city of Lincoln, the *City of Lincoln General Plan* (Adopted March 2008) LOS policies state:

- 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.

City of Roseville

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

- Maintain 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 the conditions identified in the General Plan in year 2025. 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/SR 65 Northbound Ramps, Galleria Boulevard/SR 65 Southbound Ramps, Roseville Parkway/Taylor Road, and Douglas Boulevard/Sunrise Avenue intersections will have a LOS D threshold, and the Galleria Boulevard/Roseville Parkway, Roseville Parkway/Sunrise Avenue, 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.

City of Rocklin

For study intersections within the city of Rocklin, the *City of Rocklin General Plan* (Adopted October 2012), Section C (Circulation Element) Policy C-10 states (in part):

- A.: Maintain a minimum traffic Level of Service "C" for all signalized intersections during the p.m. peak hour on an average weekday
- Based on this standard, LOS C is the minimum acceptable LOS for intersections in the City of Rocklin during both AM and PM peak hours.

Existing Conditions

Network performance and traffic operations were analyzed for existing (2012) conditions under AM and PM peak-period conditions.

Existing Network Performance

Table 36 summarizes the overall traffic operations performance of the network. The PM peak period has the highest level of travel and delay with the most congestion, lasting up to 3 hours for select segments.

Table 36. Network Performance Summary—Existing (2012) Peak Period Conditions

Measure of Effectiveness	AM Peak Period (6:00 to 10:00)	PM Peak Period (3:00 to 7:00)
Vehicle miles of travel	645,270	730,100
Vehicle hours of travel	13,760	16,850
Vehicle hours of delay	2,670	3,950
Average travel speed (mph)	46.9	43.3
Source: Fehr & Peers 2015. *Note:* mph = miles per hour		

Arterial Intersection Operations (2012)

Table 37 shows the LOS and average delay under existing (2012) conditions at selected intersections. Based on the evaluation criteria for this study, all but two of the study intersections operate acceptably.

Table 37. Selected Intersection Operations Results—Existing (2012) Conditions

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

Source: Fehr & Peers 2015
Note: Bold and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported.

Freeway Operations (2012)

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 for SR 65 are reported in this section. Selected freeway operation results are shown in Table 38. During the AM peak hour, congested LOS F conditions occur on northbound SR 65 at the I-80 on-ramp and on 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 38. Selected Freeway Operations Results—Existing (2012) Conditions

Freeway	Location	Type	AM Peak Hour	PM Peak Hour
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
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

Source: Fehr & Peers 2015
Note: Bold and underline font indicate LOS F conditions. The level of service and average density for the study segment are reported.

Traffic Safety

Table 39 summarizes the traffic accident data compiled by the Caltrans Traffic Accident Surveillance and Analysis System (TASAS). The data shown are for the 3-year period between October 1, 2009 and September 30, 2012 for SR 65 and summarize collisions on SR 65 from Stanford Ranch Road/Galleria Boulevard to Ferrari Ranch Road (PM 6.2 to T12.9) by direction.

The actual collision rate for fatalities was higher than statewide average for southbound SR 65. The three fatalities occurred in three separate collisions located on freeway sections, not at an intersection, and all had different locations. The remaining collision rates were lower than the statewide averages.

Table 39. Mainline Accident History (October 1, 2009 – September 30, 2012)

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate[a]			Average Collision Rate[a]		
			F	F&I	Total	F	F&I	Total
Northbound	116	0	0.000	0.14	0.36	0.007	0.23	0.66
Southbound	131	3	**0.008**	0.14	0.38	0.007	0.23	0.66
Total	247	3	0.004	0.14	0.37	0.007	0.23	0.66

Table 40 categorizes the collisions by type. The most frequent collision type (50 percent) is a rear end collision, which is typical of congested conditions. The next most frequent collision types are hit object and side-swipe. The other collision types are collectively less than 15 percent of all collisions. The southbound direction has both a higher number of collisions and a higher number of rear end collisions.

Table 40. Mainline Collisions by Type (October 1, 2009 – September 30, 2012)

Location	Head On	Side Swipe	Rear End	Broad-side	Hit Object	Overturn	Auto-Ped	Other
Northbound	0	20	53	2	31	8	1	1
Southbound	1	17	71	6	26	5	4	1
Total	1 (0.4%)	37 (15%)	124 (50%)	8 (3%)	57 (23%)	13 (5%)	5 (2%)	2 (1%)
Source: Fehr & Peers 2015, Table 10.								

Environmental Consequences

A traffic impact resulting from the proposed project would occur when first, a study location operates at a worse LOS than the acceptable traffic operating conditions identified above; and second, when the study location operates at a worse condition (higher delay for intersections or higher density for freeway segments) under one of the build alternatives than the similar case for the No Build Alternative. The following sections describe the overall network performance and provide a comparison of the traffic operations of the build and no build alternatives at selected arterial intersections and freeway segments in the project area.

Design Year (2040) Network Performance

Overall network performance statistics for AM and PM peak period operations are summarized for each alternative in Tables 41 and 42 below, respectively. The results presented in Tables 41 and 42 are summarized below.

- Overall, the build alternatives improve network performance compared to the No Build Alternative, including for local and regional transit services.
- The volume served in the network is about the same across alternatives, but the freeway peak hour volumes are lower for the No Build Alternative. This means that the build alternatives would have lower local street volume and congestion.

- Alternative 2 (General Purpose Lane) has higher VMT compared to Alternative 1 (Carpool Lane). For the AM peak period, the overall travel time and delay is lower for Alternative 1, but the reverse is true for the PM peak period.
- SOV travel time in the peak direction on SR 65 improves by more than 3 minutes with the build alternatives (both Alternatives 1 and 2 have similar travel times).
- In general, design year travel time through the I-80/SR 65 interchange would be better than existing conditions for all alternatives due to the separate I-80/SR 65 Interchange Improvements project.

Table 41. Comparison of Overall Network Performance—Design Year (2040) AM Peak Period

Performance Measure		Existing Conditions	Design Year Conditions		
			Build Alternative		No Build Alternative
			Alternative 1	Alternative 2	
Volume Served (% of total demand)		143,450 (100%)	208,160 (99%)	207,470 (99%)	208,800 (99%)
Vehicle Miles of Travel (VMT)		645,270	940,220	950,660	917,290
Person Miles of Travel		786,260	1,113,340	1,133,470	1,094,920
Vehicle Hours of Travel (VHT)		13,760	21,710	21,960	22,140
Vehicle Hours of Delay (VHD) (% of VHT)		2,670 (19%)	5,540 (26%)	5,620 (26%)	6,330 (29%)
Average Delay per Vehicle (min)		1.12	1.60	1.63	1.82
Person Hours of Delay		3,240	6,320	6,490	7,320
Average Speed		46.9	43.3	43.3	41.4
Average Speed for HOVs		47.0	46.4	45.9	44.2
Travel Time: Northbound SR 65 from I-80 to Ferrari Ranch Rd	SOV	-	7:49	7:53	11:11
	HOV	-	7:43	7:50	11:02
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	8:35	8:37	9:41
	HOV	9:27	8:23	8:29	9:37

Source: Fehr & Peers 2015

Table 42. Comparison of Overall Network Performance—Design Year (2040) PM Peak Period

Performance Measure		Existing Conditions	Design Year Conditions		
			Build Alternative		No Build Alternative
			Alternative 1	Alternative 2	
Volume Served (% of total demand)		198,170 (101%)	300,780 (100%)	300,820 (100%)	302,580 (99%)
Vehicle Miles of Travel (VMT)		730,100	1,160,700	1,166,400	1,106,390
Person Miles of Travel		880,180	1,402,510	1,402,330	1,328,540
Vehicle Hours of Travel (VHT)		16,850	30,890	30,920	32,920
Vehicle Hours of Delay (VHD) (% of VHT)		3,950 (23%)	10,470 (34%)	10,430 (34%)	13,380 (41%)
Average Delay per Vehicle (min)		1.20	2.09	2.08	2.65
Person Hours of Delay		4,670	12,230	12,160	15,450
Average Speed		43.3	37.6	37.7	33.6
Average Speed for HOVs		44.7	40.5	40.4	37.3
Travel Time: Northbound SR 65 from I-80 to Ferrari Ranch Rd	SOV	-	7:52	7:53	11:07
	HOV	-	7:51	7:51	9:34
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:16	6:31	6:32	11:47
	HOV	9:11	6:20	6:20	6:34
Source: Fehr & Peers 2015					

Construction Year (2020) Network Performance

The overall network performance results presented in Tables 43 and 44 for the build and no build alternatives during the construction year (2020) are summarized below.

- The build alternatives improve network performance compared to the No Build Alternative during the AM peak period, including for local and regional transit services.
- During the AM peak period, Alternative 2 (General Purpose Lane) has the lowest delay and highest average speed. However, the difference between alternatives would be small.
- During the PM peak period, Alternative 2 (General Purpose Lane) has the lowest delay and highest average speed. The worst performing alternative is Alternative 1 (Carpool Lane). The bottleneck at the eastbound I-80 connector ramp to northbound SR 65 operates worst under Alternative 1, although all three alternatives (including the no build) have the same lane configuration at this location.
- The PM peak hour travel time for northbound SR 65 is about the same for all alternatives. The Auburn Boulevard to Blue Oaks Boulevard travel time is lowest for Alternative 2 and highest for Alternative 1.
- The AM peak hour travel times through the I-80/SR 65 interchange are better than existing conditions for all alternatives due to the separate I-80/SR 65 Interchange Improvements Phase I project.

Table 43. Comparison of Overall Network Performance—Construction Year (2020) AM Peak Period

Performance Measure		Existing Conditions	Construction Year Conditions		
			Build Alternatives		No Build Alternative
			Alternative 1	Alternative 2	
Volume Served (% of total demand)		143,450 (100%)	167,490 (99%)	167,510 (99%)	168,620 (99%)
Vehicle Miles of Travel (VMT)		645,270	799,520	797,360	788,490
Person Miles of Travel		786,260	982,670	979,180	965,810
Vehicle Hours of Travel (VHT)		13,760	18,060	18,000	18,270
Vehicle Hours of Delay (VHD) (% of VHT)		2,670 (19%)	4,350 (24%)	4,330 (24%)	4,730 (26%)
Average Delay per Vehicle (min)		1.12	1.56	1.55	1.68
Person Hours of Delay		3,240	5,160	5,140	5,600
Average Speed		46.9	44.3	44.3	43.2
Average Speed for HOVs		47.0	46.7	46.6	45.7
Travel Time: Northbound SR 65 from I-80 to Ferrari Ranch Rd	SOV	-	8:09	8:09	8:47
	HOV	-	8:04	8:08	8:46
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:44	8:51	8:50	9:16
	HOV	9:27	8:33	8:33	8:54
Source: Fehr & Peers 2015					

Table 44. Comparison of Overall Network Performance—Construction Year (2020) PM Peak Period

Performance Measure		Existing Conditions	Construction Year Conditions		
			Build Alternative		No Build Alternative
			Alternative 1	Alternative 2	
Volume Served (% of total demand)		198,170 (101%)	231,400 (99%)	232,110 (99%)	233,870 (99%)
Vehicle Miles of Travel (VMT)		730,100	924,670	930,140	909,560
Person Miles of Travel		880,180	1,146,120	1,150,200	1,123,280
Vehicle Hours of Travel (VHT)		16,850	27,210	25,890	25,870
Vehicle Hours of Delay (VHD) (% of VHT)		3,950 (23%)	10,940 (40%)	9,520 (37%)	9,840 (38%)
Average Delay per Vehicle (min)		1.20	2.84	2.46	2.52
Person Hours of Delay		4,670	12,770	11,220	11,520
Average Speed		43.3	34.0	35.9	35.2
Average Speed for HOVs		44.7	39.1	39.8	39.5
Travel Time: Northbound SR 65 from I-80 to Ferrari Ranch Rd	SOV	-	7:56	7:59	7:56
	HOV	-	7:56	7:59	7:55
Travel Time: Blue Oaks Blvd to Antelope Rd	SOV	9:16	20:03	14:05	17:23
	HOV	9:11	9:03	9:09	9:38
Source: Fehr & Peers 2015					

Design Year (2040) Traffic Operations

The locations of operational deficiencies in the design year (2040) are shown by alternative in Tables 45 through 47 to support the traffic avoidance and minimization discussions below. The

improved performance of the No Build Alternative compared to the build alternatives at some of the freeway segment locations is caused in part by different forecast assumptions used for the Build versus No Build Alternatives in the *Transportation Analysis Report*, and in part by upstream congestion that affects downstream operations. An operational deficiency occurs where the design year LOS threshold is exceeded and the conditions are worse than the No Build Alternative. As shown in the tables, significant impacts would occur.

Table 45. Selected Freeway Operations Results—Design Year (2040)
AM Peak Hour Conditions

Freeway	Location	Type[a]	Alternative 1	Alternative 2	No Build Alternative
NB SR 65	I-80 to Stanford Ranch Rd	Weave	C / 28	C / 28	C / 26
	Stanford Ranch Rd to Pleasant Grove Blvd	Weave	D / 30	D / 30	E / 40
					E / 40
	Pleasant Grove Blvd On-ramp	Merge	D / 31	D / 31	C / 23
	Blue Oaks Blvd Off-ramp	Diverge	C / 27	C / 28	
	Blue Oaks Blvd to Sunset Blvd	Basic	C / 19	C / 19	C / 21
	Whitney Ranch Pkwy to Twelve Bridges Dr	Weave	B / 15	B / 16	C / 19
SB SR 65	Lincoln Blvd to Twelve Bridges Dr	Weave	D / 34	D / 33	D / 28
	Twelve Bridges Dr to Placer Pkwy	Weave	D / 30	D / 29	D / 30
	Sunset Blvd to Blue Oaks Blvd	Weave	D / 34	D / 34	**F / 102**
	Blue Oaks Blvd WB On-ramp	Merge	D /32	D / 32	**F / 107**
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	D / 33	D / 32	**F / 79**
				D / 32	
	Pleasant Grove Blvd EB On-ramp	Merge	D / 33	**F / 46**	**F / 82**
	Pleasant Grove Blvd to Galleria Blvd	Basic	E / 35	E / 36	E / 37
EB I-80	Auburn Blvd to Douglas Blvd	Basic	E / 39	D / 32	E / 42
	Douglas Blvd to Eureka Rd	Weave	C / 27	C / 23	C / 27
	SR 65 Off-ramp	Diverge	C / 24	C / 22	C / 24
	SR 65 to Rocklin Rd	Basic	C / 26	C / 24	C / 24
WB I-80	Rocklin Rd to Carpool Lane Start	Basic	D / 31	D / 27	D / 30
	SR 65 to Atlantic St	Weave	C / 27	C / 24	C / 25
	Atlantic St On-ramp	Merge	E / 41	E / 36	E / 38
	Douglas Blvd Off-ramp	Diverge	E / 36	D / 32	D / 34
	Douglas Blvd EB On-ramp	Merge	E / 39	D / 31	E / 35
	Riverside Ave Off-ramp	Diverge	D / 35	D / 33	D / 34
	Antelope Rd to Truck Scales	Weave	**F / 48**	**F / 59**	**F / 70**
	Truck Scales On-ramp	Merge	**F / 79**	**F / 88**	**F / 87**
	Elkhorn Blvd EB On-ramp	Merge	**F / 91**	**F / 54**	**F / 61**

Source: Fehr & Peers 2015

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.

[a] The facility type reported is for Alternative 1. The other results are contained in the Transportation Analysis Report Technical Appendix.

Table 46. Selected Freeway Operations Results—Design Year (2040) PM Peak Hour Conditions

Freeway	Location	Type[a]	Alternative 1	Alternative 2	No Build Alternative
NB SR 65	I-80 to Stanford Ranch Rd	Weave	D / 33	D / 32	**F / 79**
	Stanford Ranch Rd to Pleasant Grove Blvd	Weave	D / 33	D / 34	**F / 67**
					E / 40
	Pleasant Grove Blvd On-ramp	Merge	D / 33	D / 35	C / 22
	Blue Oaks Blvd Off-ramp	Diverge	D / 31	D / 32	
	Blue Oaks Blvd to Sunset Blvd	Basic	C / 26	C / 26	C / 21
	Whitney Ranch Pkwy to Twelve Bridges Dr	Weave	C / 24	C / 24	C / 24
SB SR 65	Lincoln Blvd to Twelve Bridges Dr	Weave	B / 17	B / 17	B / 17
	Twelve Bridges Dr to Placer Pkwy	Weave	B / 17	C / 22	C / 19
	Sunset Blvd to Blue Oaks Blvd	Weave	C / 24	C / 24	D / 29
	Blue Oaks Blvd WB On-ramp	Merge	C / 27	C / 27	**F / 48**
	Blue Oaks Blvd to Pleasant Grove Blvd	Weave	C / 28	D / 28	**F / 48**
				D / 29	
	Pleasant Grove Blvd EB On-ramp	Merge	D / 30	D / 34	**F / 89**
	Pleasant Grove Blvd to Galleria Blvd	Basic	D / 34	D / 33	E / 37
EB I-80	Auburn Blvd to Douglas Blvd	Basic	D / 32	E / 36	E / 35
	Douglas Blvd to Eureka Rd	Weave	C / 27	C / 27	E / 41
	SR 65 Off-ramp	Diverge	C / 24	C / 25	**F / 58**
	SR 65 to Rocklin Rd	Basic	C / 26	D / 27	D / 26
WB I-80	Rocklin Rd to Carpool Lane Start	Basic	D / 30	D / 33	D / 30
	SR 65 to Atlantic St	Weave	C / 23	C / 24	C / 24
	Atlantic St On-ramp	Merge	E / 37	E / 38	E / 39
	Douglas Blvd Off-ramp	Diverge	D / 34	D / 32	D / 32
	Douglas Blvd EB On-ramp	Merge	D / 33	E / 35	E / 36
	Riverside Ave Off-ramp	Diverge	D / 33	D / 34	D / 35
	Antelope Rd to Truck Scales	Weave	C / 26	C / 26	C / 28
	Truck Scales On-ramp	Merge	C / 27	D / 29	D / 29
	Elkhorn Blvd EB On-ramp	Merge	C / 27	C / 28	C / 28

Source: Fehr & Peers 2015

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.

[a] The facility type reported is for Alternative 1. The other results are contained in the Transportation Analysis Report Technical Appendix.

Table 47. Intersection Operations Results—Design Year (2040) Peak Hour Conditions

Intersection	Threshold	Alternative 1		Alternative 2		No Build Alternative	
		AM	PM	AM	PM	AM	PM
Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	**E / 57**	**F / 140**	**E / 59**	**F / 153**	**F / 90**	**F / 214**
Blue Oaks Blvd / SR 65 NB Ramps	C	B / 17	**D / 45**	B / 16	**D / 49**	B / 17	**F / 94**
Stanford Ranch Rd / Five Star Blvd	C	C / 27	**F / 82**	C / 26	**E / 57**	C / 26	**F / 85**
Stanford Ranch Rd / SR 65 NB Ramps	D	B / 11	D / 36	B / 12	B / 19	B / 19	C / 21
Galleria Blvd / SR 65 SB Ramps	D	B / 19	C / 25	B / 17	B / 19	D / 55	C / 27
Galleria Blvd / Antelope Creek Dr	C	A / 10	C / 28	A / 10	C / 29	A / 8	C / 28
Galleria Blvd / Roseville Pkwy	E	D / 47	**F / 93**	D / 45	**F / 82**	D / 41	**F / 93**
Roseville Pkwy / Creekside Ridge Dr	C	A / 8	**D / 50**	A / 8	**D / 47**	A / 8	**D / 50**
Roseville Pkwy / Taylor Rd	D	**E / 70**	D / 52	**E / 66**	D / 52	**E / 60**	**E / 55**
Roseville Pkwy / Sunrise Ave	E	C / 33	E / 70	C / 35	E / 57	C / 33	**F / 89**
Eureka Rd / Taylor Rd / I-80 EB Ramps	E	C / 30	E / 75	C / 30	**F / 81**	C / 30	**F / 99**
Eureka Rd / Sunrise Ave	C	**D / 41**	**F / 94**	**D / 41**	**F / 103**	**D / 41**	**F / 104**
Douglas Blvd / Harding Blvd	E	C / 26	**F / 91**	C / 28	**F / 96**	C / 26	E / 69
Douglas Blvd / I-80 WB Ramps	C	C / 21	C / 28	B / 19	C / 33	C / 22	C / 20
Douglas Blvd / I-80 EB Ramps	C	C / 28	**D / 37**	C / 24	**D / 37**	C / 29	**D / 39**
Douglas Blvd / Sunrise Ave	D	D / 54	**F / 254**	D / 44	**F / 241**	D / 43	**F / 239**
Rocklin Rd / Granite Dr	C	C / 29	**F / 95**	C / 28	**F / 84**	C / 26	**F / 101**
Rocklin Rd / I-80 WB Ramps	C	C / 23	**E / 68**	C / 24	**E / 63**	C / 22	**D / 54**
Rocklin Rd / I-80 EB Ramps	C	C / 30	C / 21	C / 26	B / 20	**D / 41**	C / 21

Source: Fehr & Peers 2015
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.

Construction Year (2020) Traffic Operations

The operational deficiencies in the construction year (2020) are shown by alternative in Tables 48 through 50 to support the traffic avoidance and minimization discussions below. An operational deficiency occurs where the LOS threshold is exceeded and the conditions are worse than the No Build Alternative. As shown in the tables, significant impacts would occur.

Table 48. Selected Freeway Operations Results—Construction Year (2020)
AM Peak Hour Conditions

Freeway	Location	Type[a]	Alternative 1	Alternative 2	No Build Alternative
NB SR 65	I-80 EB Connector Ramp	Basic	**F / 45**	**F / 47**	E / 44
	Stanford Ranch Rd to Pleasant Grove Blvd	Weave	C / 24	C / 24	D / 31
					E / 36
	Pleasant Grove Blvd On-ramp	Merge	D / 33	D / 33	C / 27
	Blue Oaks Blvd Off-ramp	Diverge	C / 27	C / 27	
	Blue Oaks Blvd to Sunset Blvd	Basic	C / 19	C / 19	C / 25
	Whitney Ranch Pkwy to Twelve Bridges Dr	Weave	B / 13	B / 13	B / 16
					B / 17
SB SR 65	Twelve Bridges Dr to Placer Pkwy	Weave	C / 28	D / 28	D / 33
					D / 31
	Sunset Blvd WB On-ramp	Merge	**F / 68**	**F / 75**	D / 29
	Blue Oaks Blvd WB On-ramp	Merge	D / 30	C / 24	**F / 56**
	Pleasant Grove Blvd to Galleria Blvd	Basic	D / 29	C / 27	D / 31
	Galleria Blvd On-ramp	Merge	**F / 54**	E / 42	E / 39
	I-80 Westbound Connector Ramp	Basic	E / 41	E / 40	E / 38
EB I-80	Auburn Blvd to Douglas Blvd	Basic	D / 34	E / 35	E / 39
	Eureka Rd Off-ramp	Diverge	D / 30	D / 30	D / 29
	SR 65 Off-ramp	Diverge	D / 33	D / 32	D / 31
	SR 65 to Rocklin Rd	Basic	C / 22	C / 22	C / 21
WB I-80	Rocklin Rd to Carpool Lane Start	Basic	D / 29	D / 28	D / 29
	Atlantic St On-ramp	Merge	E / 37	E / 37	E / 38
	Douglas Blvd Off-ramp	Diverge	D / 33	D / 33	D / 33
	Douglas Blvd EB On-ramp	Merge	E / 35	E / 37	E / 39
	Riverside Ave Off-ramp	Diverge	D / 34	D / 33	D / 33
	Antelope Rd Off-ramp	Diverge	**F / 53**	**F / 53**	**F / 61**
	Truck Scales On-ramp	Merge	**F / 92**	**F / 94**	**F / 95**
	Elkhorn Blvd EB On-ramp	Merge	**F / 77**	**F / 77**	**F / 77**

Source: Fehr & Peers 2015

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.

[a] The facility type reported is for Alternative 1. The other results are contained in the Transportation Analysis Report Technical Appendix.

Table 49. Selected Freeway Operations Results—Construction Year (2020)
PM Peak Hour Conditions

Freeway	Location	Type[a]	Alternative 1	Alternative 2	No Build Alternative
NB SR 65	I-80 Eastbound Connector Ramp	Basic	**F / 61**	**F / 63**	**F / 61**
	Stanford Ranch Rd to Pleasant Grove Blvd	Weave	C / 26	C / 26	D / 32
					E / 36
	Pleasant Grove Blvd On-ramp	Merge	E / 39	E / 40	D / 29
	Blue Oaks Blvd Off-ramp	Diverge	D / 32	D / 32	
	Blue Oaks Blvd to Sunset Blvd	Basic	D / 26	D / 27	D / 29
	Whitney Ranch Pkwy to Twelve Bridges Dr	Weave	C / 23	C / 23	D / 29
					D / 30
SB SR 65	Twelve Bridges Dr to Placer Pkwy	Weave	B / 16	B / 16	B / 19
					B / 19
	Sunset Blvd WB On-ramp	Merge	C / 25	C / 25	C / 21
	Blue Oaks Blvd WB On-ramp	Merge	C / 26	C / 21	C / 26
	Pleasant Grove Blvd to Galleria Blvd	Basic	C / 25	C / 24	D / 27
	Galleria Blvd On-ramp	Merge	D / 34	D / 33	D / 33
	I-80 Westbound Connector Ramp	Basic	D / 32	D / 32	D / 32
EB I-80	Auburn Blvd to Douglas Blvd	Basic	**F / 108**	D / 34	**F / 81**
	Eureka Rd Off-ramp	Diverge	**F / 118**	**F / 110**	**F / 106**
	SR 65 Off-ramp	Diverge	**F/ 91**	**F / 95**	**F / 92**
	SR 65 to Rocklin Rd	Basic	C / 22	C / 23	C / 23
WB I-80	Rocklin Rd to Carpool Lane Start	Basic	C / 24	C / 24	C / 24
	Atlantic St On-ramp	Merge	D / 30	D / 30	D / 30
	Douglas Blvd Off-ramp	Diverge	C / 27	C / 28	C / 27
	Douglas Blvd EB On-ramp	Merge	D / 33	D / 30	D / 31
	Riverside Ave Off-ramp	Diverge	D / 31	D / 31	D / 31
	Antelope Rd Off-ramp	Diverge	D / 29	D / 29	D / 29
	Truck Scales On-ramp	Merge	C / 26	C / 26	C / 27
	Elkhorn Blvd EB On-ramp	Merge	D / 28	D / 28	D / 28

Source: Fehr & Peers 2015

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.

[a] The facility type reported is for Alternative 1. The other results are contained in the Technical Appendix.

Table 50. Intersection Operations Results—Construction Year (2020) Peak Hour Conditions

Intersection	Threshold	Alternative 1		Alternative 2		No Build Alternative	
		AM	PM	AM	PM	AM	PM
Blue Oaks Blvd / Washington Blvd / SR 65 SB Ramps	C	C / 31	**D / 47**	C / 35	**D / 44**	**D / 52**	**F / 126**
Stanford Ranch Rd / Five Star Blvd	C	C / 27	**F / 92**	C / 27	**E / 76**	C / 29	**D / 48**
Stanford Ranch Rd / SR 65 NB Ramps	D	B / 15	C / 23	B / 20	C / 25	B / 18	B / 12
Galleria Blvd / SR 65 SB Ramps	D	B / 17	B / 16	B / 17	B / 17	B / 17	B / 16
Roseville Pkwy / Taylor Rd	D	D / 49	D / 51	D / 46	D / 53	**F / 133**	D / 42
Atlantic St / Wills Rd	C	C / 24	**D / 39**	C / 24	**D / 36**	B / 19	C / 22
Eureka Rd / Taylor Rd / I-80 EB Ramps	E	C / 25	D / 52	C / 25	E / 72	C / 22	D / 41
Eureka Rd / Sunrise Ave	C	C / 32	**D / 44**	C / 33	**D / 44**	C / 26	**E / 62**
Douglas Blvd / Harding Blvd	E	D / 51	E / 77	C / 30	**F / 128**	D / 36	**F / 92**
Douglas Blvd / I-80 WB Ramps	C	C / 23	C / 35	C / 24	C / 31	B / 20	C / 31
Douglas Blvd / I-80 EB Ramps	C	B / 20	**D / 41**	A / 10	**D / 35**	B / 12	C / 29
Douglas Blvd / Sunrise Ave	D	C / 33	D / 54	C / 33	**F / 86**	C / 28	D / 39
Pacific St / Sunset Blvd	C	C / 24	C / 30	C / 24	C / 29	C / 27	**F / 86**
Rocklin Rd / Granite Dr	C	B / 17	**F / 130**	B / 18	**F / 130**	B / 19	**F / 127**
Rocklin Rd / I-80 WB Ramps	C	C / 23	C / 27	C / 29	C / 25	C / 21	**D / 38**
Rocklin Rd / I-80 EB Ramps	C	**D / 42**	**E / 57**	**D / 49**	**D / 46**	**D / 37**	C / 33

Source: Fehr & Peers 2015
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.

Construction-Related Effects

Construction of the proposed project could result in temporary disruptions to traffic flow, where temporary lane shifts or closures are required. The majority of project work would be during the night; night work would be necessary to complete some key construction operations or to avoid high traffic volumes. During roadway construction, emergency vehicles may need to stop temporarily or slow down in order to ensure that they can safely pass through the study area.

In order to minimize traffic disruptions and emergency services during construction, preparation and implementation of a Transportation Management Plan (TMP) consistent with Caltrans' Standard Specifications, will be required throughout project construction. A TMP is a program of activities for alleviating or minimizing work-related traffic delays by applying traditional traffic handling practices and innovative strategies. The TMP program includes public awareness campaigns, motorist information, demand management, incident management, system management, construction methods and staging, and alternate route planning. TMP strategies

also strive to reduce the overall duration of work activities where appropriate. Typical components of a TMP can include measures such as implementation of staging, traffic handling, and detour plans; restricting construction work to certain days and/or hours to minimize impacts on traffic and pedestrians; coordination with other construction projects to avoid conflicts; and the use of portable changeable message signs to inform the public and emergency vehicles of construction activities.

Mitigation Measures

Implementation of the following mitigation measure as an addition to the project will reduce impacts to less-than-significant levels.

Mitigation Measure 11: Regional Coordination for Transportation Improvements

The *Transportation Analysis Report* prepared for the project assumed modifications to the existing transportation network according to improvement projects anticipated to be constructed by the construction (2020) and design (2040) years (refer to *Transportation Analysis Report* Figures 2 and 3). These projects are based on the financially constrained project list contained in the 2035 MTP/SCS, but also consider projects the project development team agreed would likely be constructed by the design year (2040).

The rationale for adding projects to the MTP/SCS list was that the design year is 5 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.

Based on results from the *Transportation Analysis Report*, it was determined that even with transportation improvements assumed through year 2040, the following specific location in the project area may operate below acceptable thresholds and potential future improvements are identified below.

Northbound SR 65:

- Improve construction year conditions at the I-80 eastbound connector ramp by constructing the ultimate phase of the I-80/SR 65 Interchange Improvements project.

Southbound SR 65:

- Improve construction year conditions at Sunset Boulevard by extending the proposed auxiliary lane upstream to start at the westbound on-ramp instead of the eastbound on-ramp at Sunset Boulevard.
- Improve construction year conditions at the Galleria Boulevard on-ramp by constructing the ultimate phase of the I-80/SR 65 Interchange Improvements project.
- An alternate improvement to the above options would be to operate the ramp meters on southbound SR 65 at a more restrictive rate. With a more restrictive rate, longer

ramp queues may cause a secondary operational deficiency on local streets. These restrictions would only be necessary under construction year conditions.

Eastbound I-80:

- Improve construction year conditions at Auburn Boulevard to SR 65 by constructing the ultimate phase of the I-80/SR 65 Interchange Improvements project.

Westbound I-80:

- Improve from the truck scales to Elkhorn Boulevard by providing a full auxiliary lane from the truck scales to Elkhorn Boulevard or adding a through lane at Elkhorn Boulevard.
- An alternate improvement 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 a more restrictive rate, longer ramp queues may cause a secondary operational deficiency on local streets.

Intersections:

- Improve the Stanford Ranch Road/Five Star Boulevard intersection by converting the eastbound middle lane from a shared left-turn/through lane to a shared left-turn/through/right-turn lane.
- Improve the Roseville Parkway/Taylor Road intersection by providing a third southbound left-turn lane. With the widening of the approach, the pedestrian crossing distance would increase.
- Improve the Atlantic Street/Wills Road intersection by modifying signal timing.
- Improve the Douglas Boulevard/Harding Boulevard intersection by modifying signal timing.
- An alternative to modifying signal timing at the Douglas Boulevard/Harding Boulevard intersection would be to add an additional eastbound through lane to increase capacity.
- Improve the Douglas Boulevard/I-80 eastbound ramps by modifying signal timing or adjusting the ramp meter timing to reduce queuing onto the local street.
- Improve the Douglas Boulevard/Sunrise Avenue intersection by modifying signal timing.
- An alternative to modifying signal timing at the Douglas Boulevard/Sunrise Avenue intersection would be to add a second southbound right-turn lane to increase capacity.
- Improve conditions at the Rocklin Road/Granite Drive intersection by constructing the planned I-80/Rocklin Road Interchange Improvements.
- Improve the Rocklin Road/I-80 westbound ramps by signal timing and/or providing additional storage for the ramp meter on the Rocklin Road on-ramp to westbound I-80 to reduce queuing onto the local street.

- Improve conditions at the Rocklin Road/I-80 eastbound ramps by constructing the planned I-80/Rocklin Road Interchange Improvements.

Some of the improvements identified above are already being considered as part of the I-80/SR 65 Interchange Improvements project (http://8065interchange.org/) and the I-80 Auxiliary Lanes (http://pctpa.net/projects/i-80-auxiliary-lanes/) project. Other improvements identified above are preliminary and need further study, including inclusion in the Placer County Regional Transportation Plan and SACOG MTP/SCS, environmental clearance and public outreach, project approval from Caltrans and/or FHWA, project design, and potential right-of-way acquisition, before the improvements can be constructed and open to the traveling public. Depending on the project size and cost, infrastructure improvements on federal and state highways can take an average of 16 years. If a project is not controversial, fully funded, and within existing right-of-way, then typically those projects can be constructed within 5–10 years.

The need for additional transportation improvements after year 2040 is based on growth in traffic demand from development over a wide area. Jurisdictions in Placer County currently have traffic impact fee programs both at the local jurisdiction and regional county levels. Traffic impact fees on new development are a potential source of funding for the above identified improvements. Placer County has a history of planning for both local and regional transportation improvements, including the South Placer Regional Transportation Authority (http://pctpa.net/sprta/). Caltrans, PCTPA, and local jurisdictions continuously update and add new projects that are identified to accommodate future population and employment growth. The specific intersection and roadway improvements identified above, which are all located on Caltrans facilities or within the City of Rocklin and City of Roseville, will be addressed as part of current ongoing projects, capital improvement program updates, and traffic impact fee updates.

Tribal Cultural Resources

Regulatory Setting

Assembly Bill (AB) 52 (Chapter 532, California Statutes of 2014) establishes a formal consultation process for California tribes as part of the CEQA review process and equates significant impacts on “tribal cultural resources” (TCRs) with significant environmental impacts (PRC 21084.2). AB 52 became law on January 1, 2015.

According to the AB 52 statement of legislative intent, tribes may have expertise in tribal history, and “tribal knowledge about land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources.” The legislative intent also makes clear that CEQA analyses must consider TCRs, including “the tribal cultural values in addition to the scientific and archaeological values when determining impacts and mitigation.”

A TCR must be listed or eligible for listing on the NRHP, the CRHR, or included in a local register (PRC 21074). When a resource is not already listed in the CRHR or a local register, the lead agency relies upon substantial evidence obtained during consultation to make a determination that the resource qualifies as a TCR.

Affected Environment

The area of potential effects (APE) for tribal cultural resources for the project is the same as that described under Cultural Resources. The APE is in areas that have been modified through construction of roads, highways, railroads, and urban commercial and residential infrastructure. The APE contains ephemeral drainages and narrow floodplains with the potential for sediment accumulation, which increases sensitivity for buried archaeological sites.

Environmental Consequences

An archival records search and an intensive archaeological field survey were conducted, and a request was made to the NAHC for a search of its Sacred Lands File and a list of tribal contacts (see Cultural Resources section). The cultural resources records search by the NCIC indicated that 16 archaeological resources have been previously recorded in the APE. However, the archaeological survey of the APE conducted in December 2014 did not relocate any of these 16 previously recorded resources; all archaeological resources previously recorded in the APE appear to have been destroyed or displaced by modern development, including the 1980s construction of SR 65. Additional research was performed to address the sensitivity for buried archaeological sites, and this geoarchaeological analysis indicated that the APE has low potential for intact buried archaeological deposits with no surface manifestation.

With respect to the current project vicinity, the nearest documented ethnographic village is *Pichiku*, on Dry Creek approximately 3 miles southwest of the southern end of the APE, and approximately 3 miles east of the APE north-south mid-point, in a location just north of the city of Rocklin.

Native American Consultation Regarding Tribal Cultural Resources

As described under Cultural Resources, the NAHC's 2014 search of the Sacred Lands File did not find records of any Native American cultural resources in, or in the immediate vicinity of, the APE.

On September 25, 2015, in accordance with AB 52, Caltrans sent letters to 13 Native American representatives identified by the NAHC, requesting information on any potential Tribal Cultural Resources, as defined by AB 52. Mr. Daniel Fonseca, THPO of the Shingle Springs Band of Miwok Indians, responded on October 6, 2015, again stating that Shingle Springs was not aware of any cultural resources in the APE, and requesting to be informed if human remains were encountered.

Mr. Marcus Guerrero of UAIC responded that UAIC had identified cultural resources in the APE and requested a meeting to discuss the resources and the project. Caltrans met with Mr. Guerrero and THPO Jason Camp, both of UAIC, at UAIC's tribal office on October 7, 2015. Mr. Guerrero and Mr. Camp stated that UAIC considers the SR 65 corridor to be a Traditional Cultural Place and that UAIC is gathering information to support this. (Mr. Guerrero and Mr. Camp had previously participated in a field visit with the consultant archaeologist and the Caltrans Environmental Planner on October 29, 2014, as described in the Cultural Resources section.) To date, UAIC has not provided further information to serve as "substantial evidence" regarding the presence of a potential Traditional Cultural Place or TCR that could be affected by the project. Although there is currently no substantial evidence of a significant cultural resource that could be affected by the project, tribal consultation is ongoing. Accordingly, the impact is evaluated as less than significant.

The standard specifications described under Cultural Resources will also apply to Tribal Cultural Resources.

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Attachment A Engineering Drawings

Alternative 1—Carpool Lane Alternative

CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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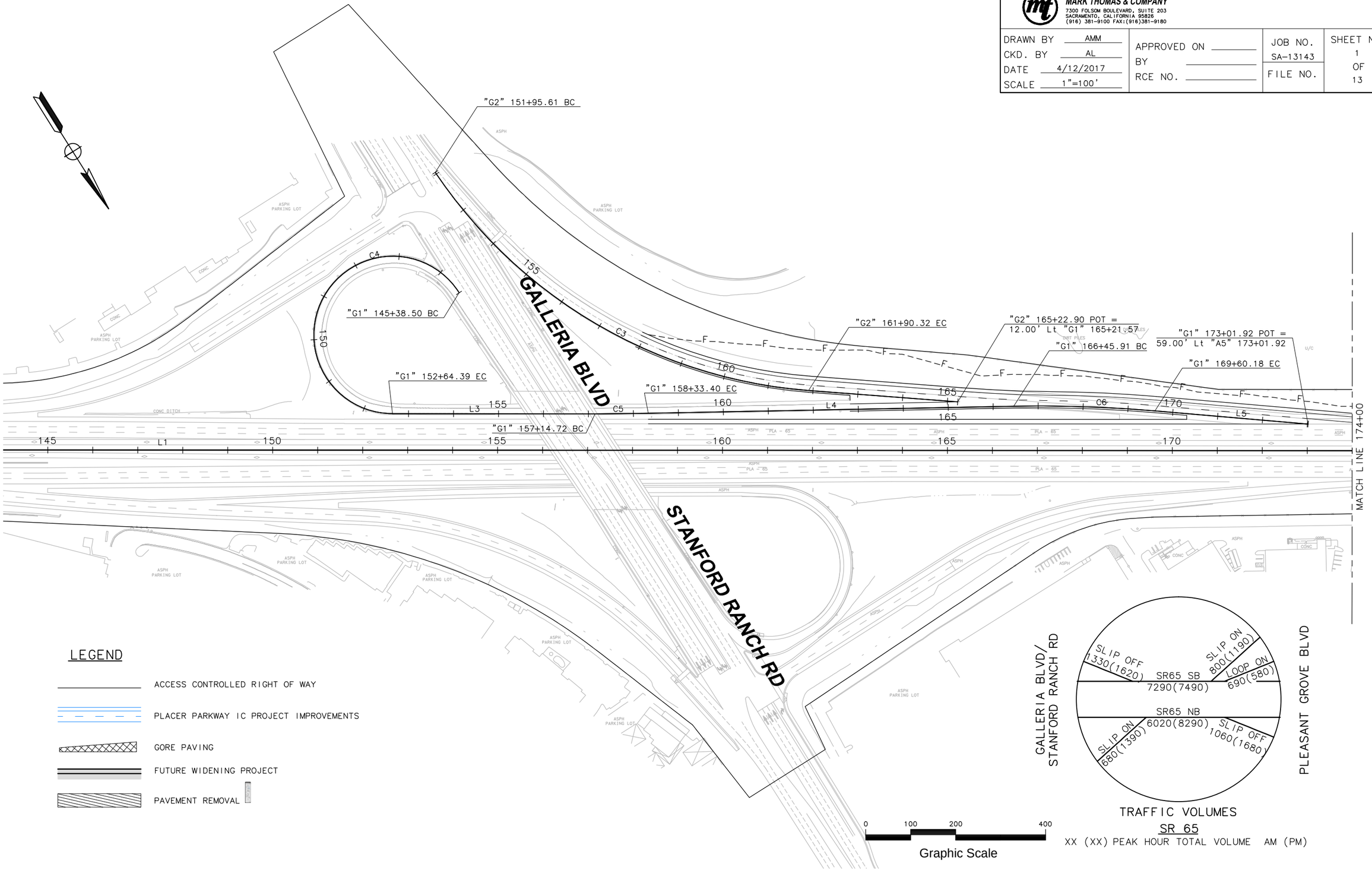

LEGEND

- ACCESS CONTROLLED RIGHT OF WAY
- PLACER PARKWAY IC PROJECT IMPROVEMENTS
- GORE PAVING
- FUTURE WIDENING PROJECT
- PAVEMENT REMOVAL

TRAFFIC VOLUMES
SR 65
XX (XX) PEAK HOUR TOTAL VOLUME AM (PM)

0 100 200 400
Graphic Scale

CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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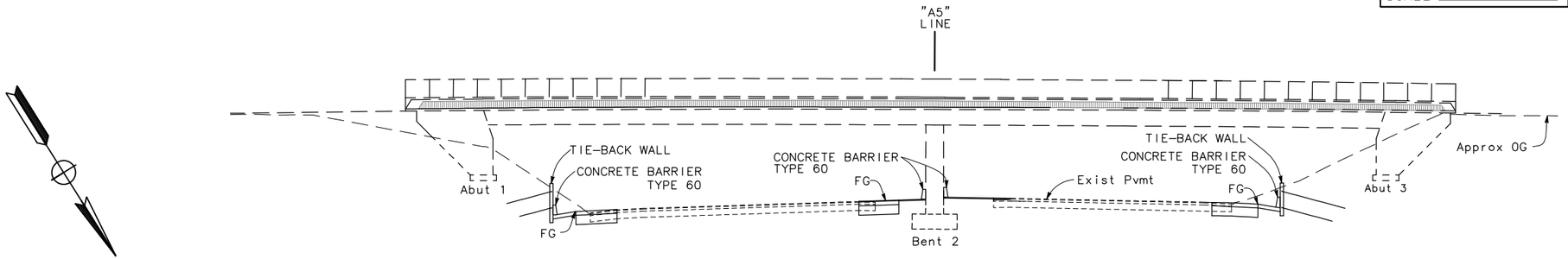

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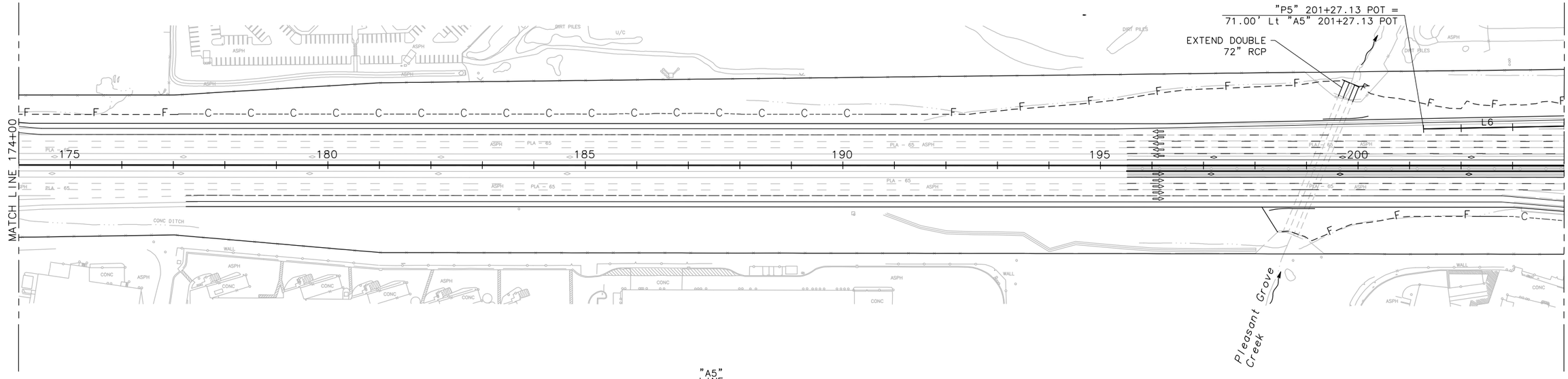

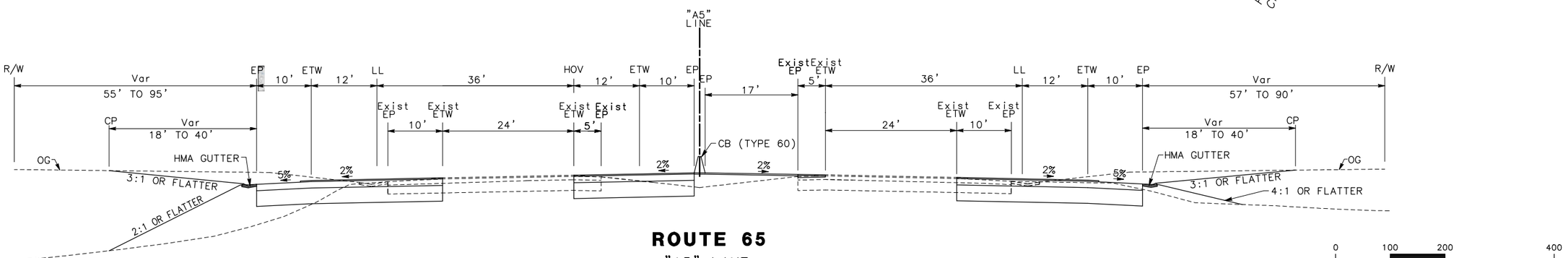

ROUTE 65

"A5" LINE

BETWEEN GALERIA BLVD TO PLEASANT GROVE BLVD

0 100 200 400

Graphic Scale

CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 3 OF 13
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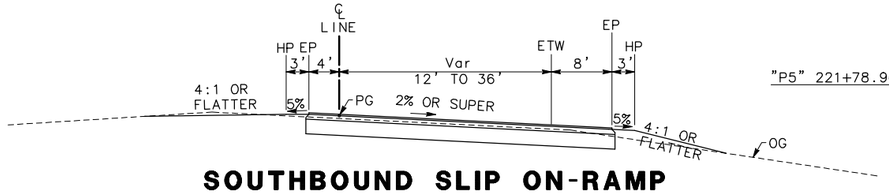
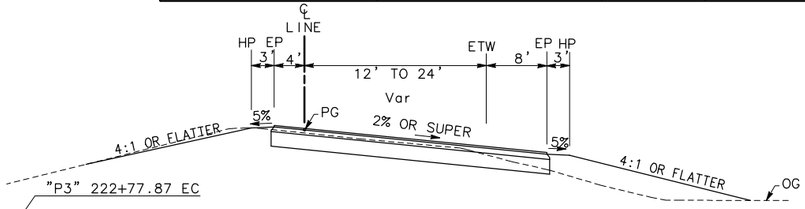


SOUTHBOUND SLIP ON-RAMP

"B4" & "P5" LINE

(LOOKING IN DIRECTION OF TRAVEL)



SOUTHBOUND SLIP OFF-RAMP

"P3" LINE

(LOOKING IN DIRECTION OF TRAVEL)

LOOP ON-RAMP

"P2","P4", "B1" & "B3" LINE

(LOOKING IN DIRECTION OF TRAVEL)

TRAFFIC VOLUMES

SR 65

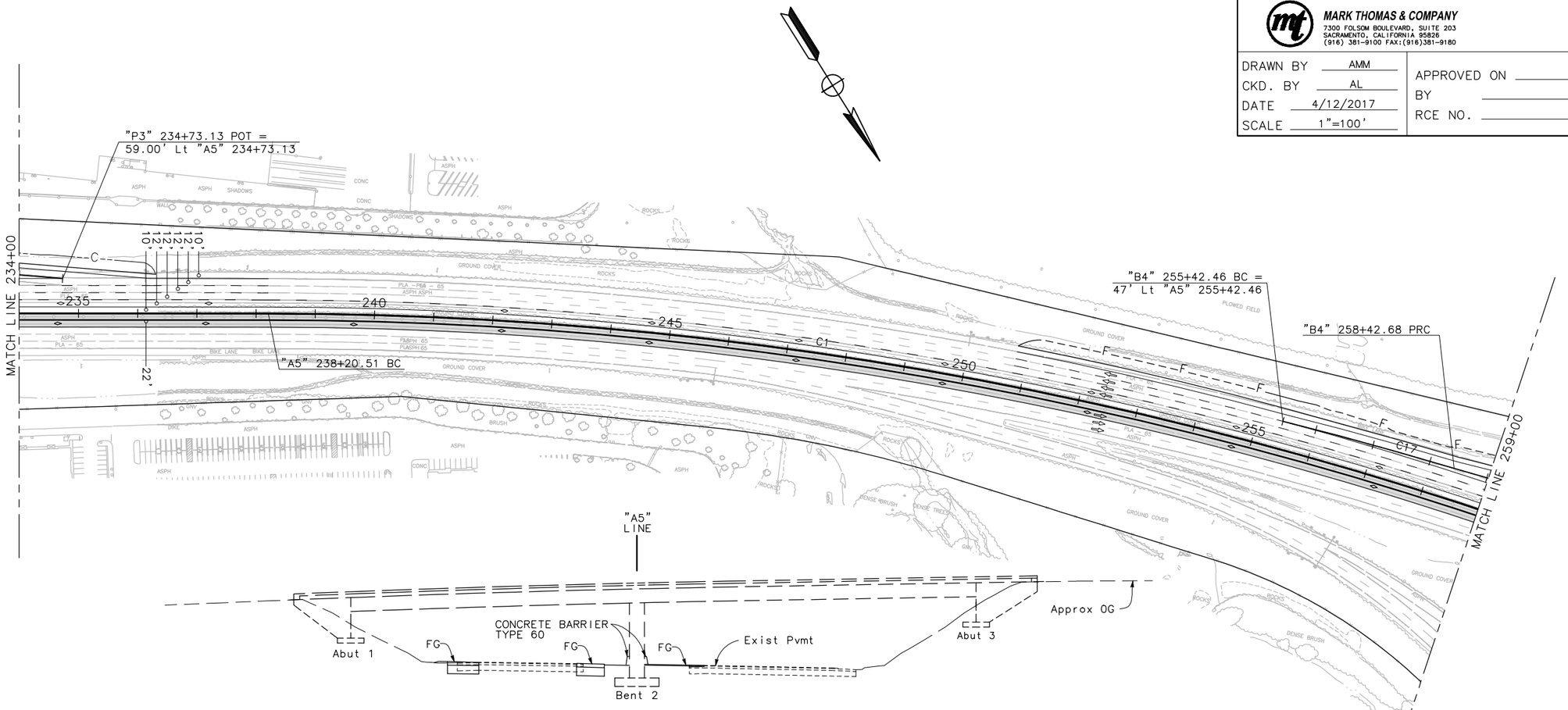
XX (XX) PEAK HOUR TOTAL VOLUME AM (PM)

CARPOOL LANE ALTERNATIVE

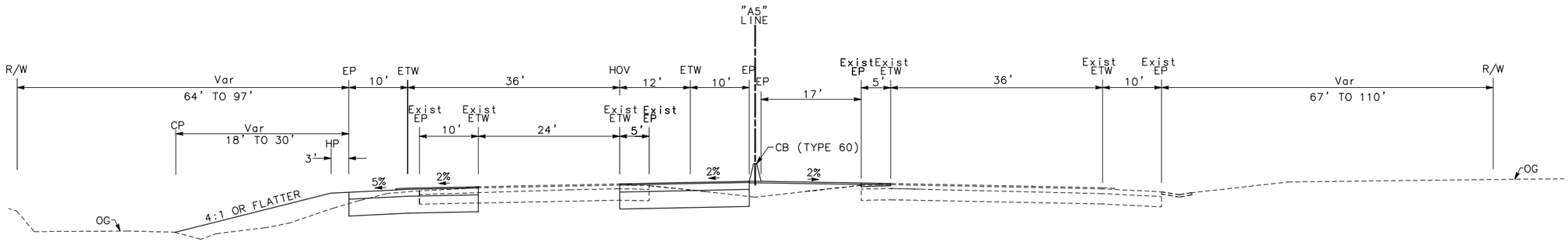
03–PLA–65 PM 6.2/12.8

MARK THOMAS & COMPANY
7300 FOLSOM BOULEVARD, SUITE 203
SACRAMENTO, CALIFORNIA 95826
(916) 381–9100 FAX:(916)381–9180

DRAWN BY AMM	APPROVED ON	JOB NO. SA–13143	SHEET NO. 4 OF 13
CKD. BY AL	BY		
DATE 4/12/2017	RCE NO.	FILE NO.	
SCALE 1"=100'			



BLUE OAKS OVERCROSSING



ROUTE 65

"A5" LINE

BETWEEN PLEASANT GROVE BLVD TO BLUE OAKS BLVD

0 100 200 400

Graphic Scale

CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 5 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			

"B4" 276+74.67 POT =
22.69' Rt "BO" 87+89.85

"B4" 276+05.10 EC

"BO" 88+77.63 POT =
"B3" 291+43.85 POT

"BO" 90+09.10 BC

"B3" 284+08.84 EC

"B4" 260+09.78 EC

GORE PAVING

"B4" 262+14.34 BC

"BO" 94+55.55 EC

"B3" 271+46.72 BC =
47.00' Lt "A5" 271+46.72

"B3" 274+46.82 PRC

"B3" 276+13.92 EC

GORE PAVING

"A5" 269+85.34 POC =
"BO" 97+68.13 POT

"B1" 267+28.07 PCC

"B3" 278+08.23 BC

250' TAPER

"B1" 269+86.65 EC

"B2" 259+27.03 POT =
24.65' Rt "BO" 99+21.37

"A5-1" 83+52.96 POT =
23.00' RT "A5" 283+52.96 POC

"B2" 260+64.49 BC

"BO" 101+26.73 BC

"B1" 262+80.86 BC

"B2" 262+80.86 EC =
12.00' Rt "B1" 262+80.86

"BO" 102+02.47 POC =
"B1" 261+00.60 POT

"BO" 106+42.21 EC

MATCH LINE 259+00

MATCH LINE 288+00

BLUE OAKS BLVD

"A5" LINE

CONCRETE BARRIER TYPE 60

Abut 1

Bent 2

Abut 3

Exist Pvmt

Approx OG

BLUE OAKS OFF-RAMP OVERCROSSING

0 100 200 400

Graphic Scale

CARPOOL LANE ALTERNATIVE

03–PLA–65 PM 6.2/12.8

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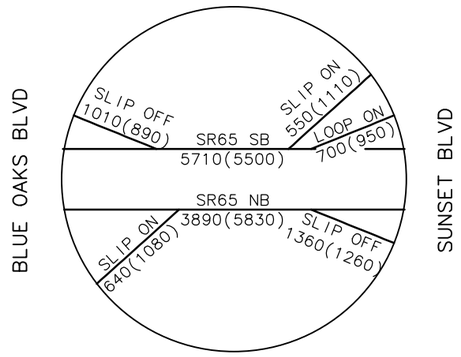
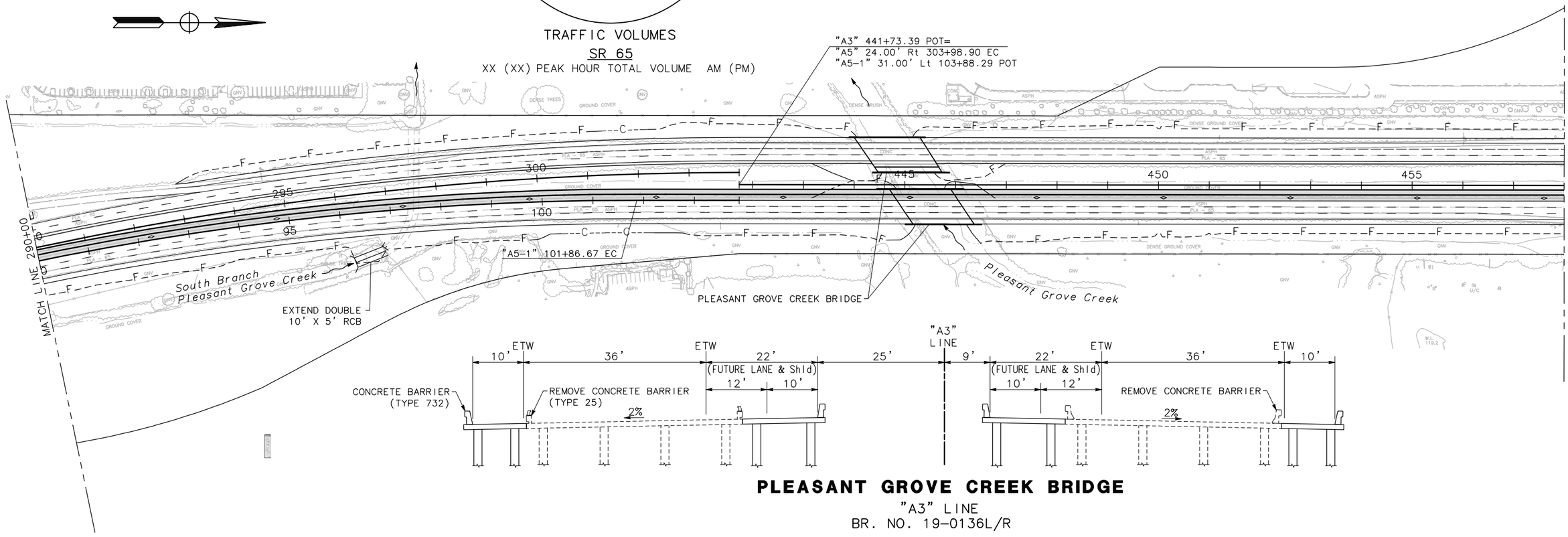
DRAWN BY AMM	APPROVED ON	JOB NO. SA–13143	SHEET NO. 6 OF 13
CKD. BY AL	BY		
DATE 4/12/2017	RCE NO.	FILE NO.	
SCALE 1"=100'			



TRAFFIC VOLUMES
SR 65
XX (XX) PEAK HOUR TOTAL VOLUME AM (PM)



PLEASANT GROVE CREEK BRIDGE

"A3" LINE
BR. NO. 19–0136L/R

0 100 200 400
Graphic Scale

CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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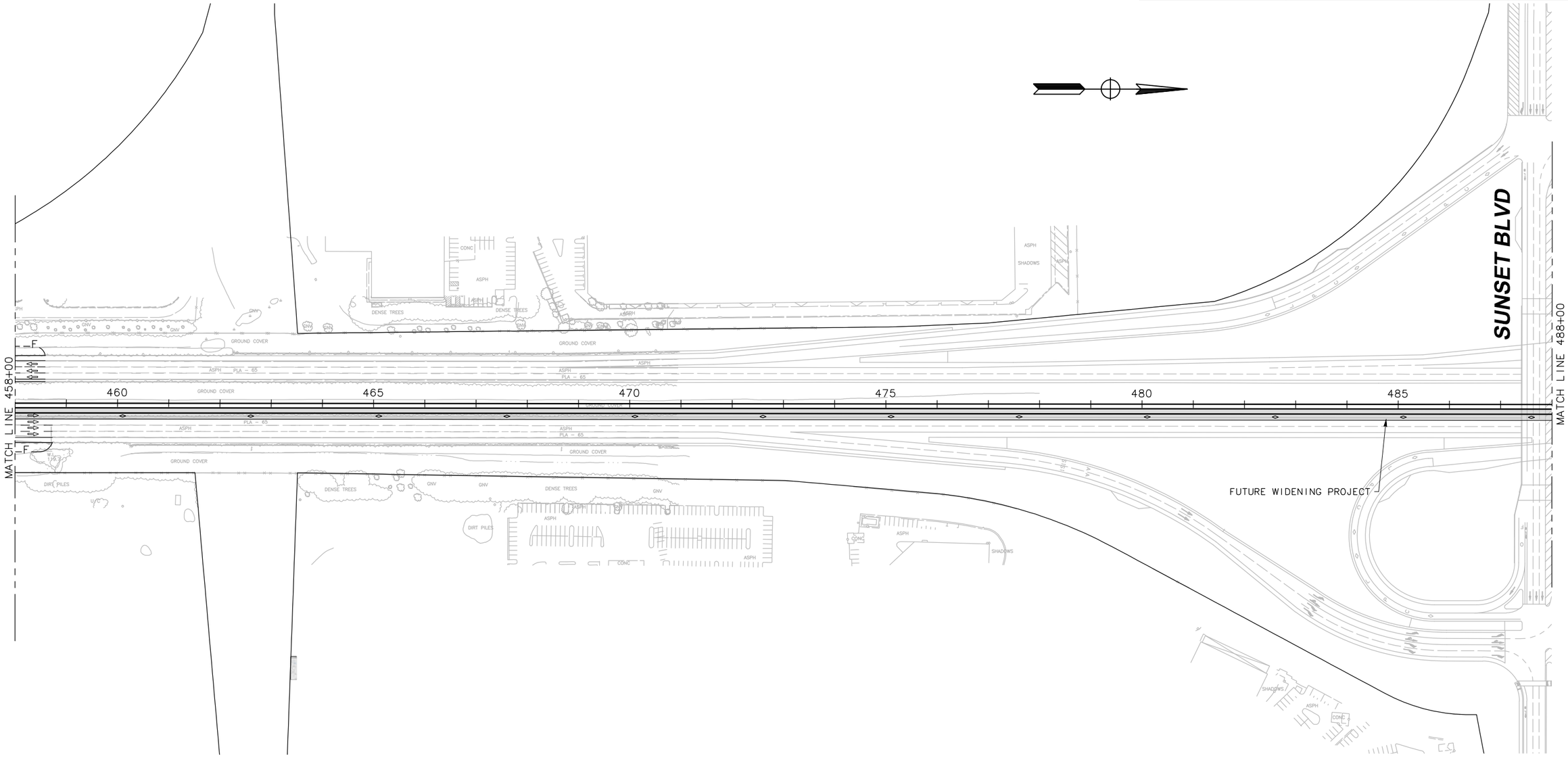
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 7 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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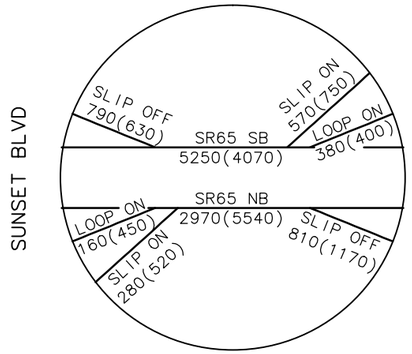
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 8 OF 13
CKD. BY AL	BY		
DATE 4/12/2017	RCE NO.	FILE NO.	
SCALE 1"=100'			



TRAFFIC VOLUMES

SR 65

XX (XX) PEAK HOUR TOTAL VOLUME AM (PM)

0 100 200 400

Graphic Scale

CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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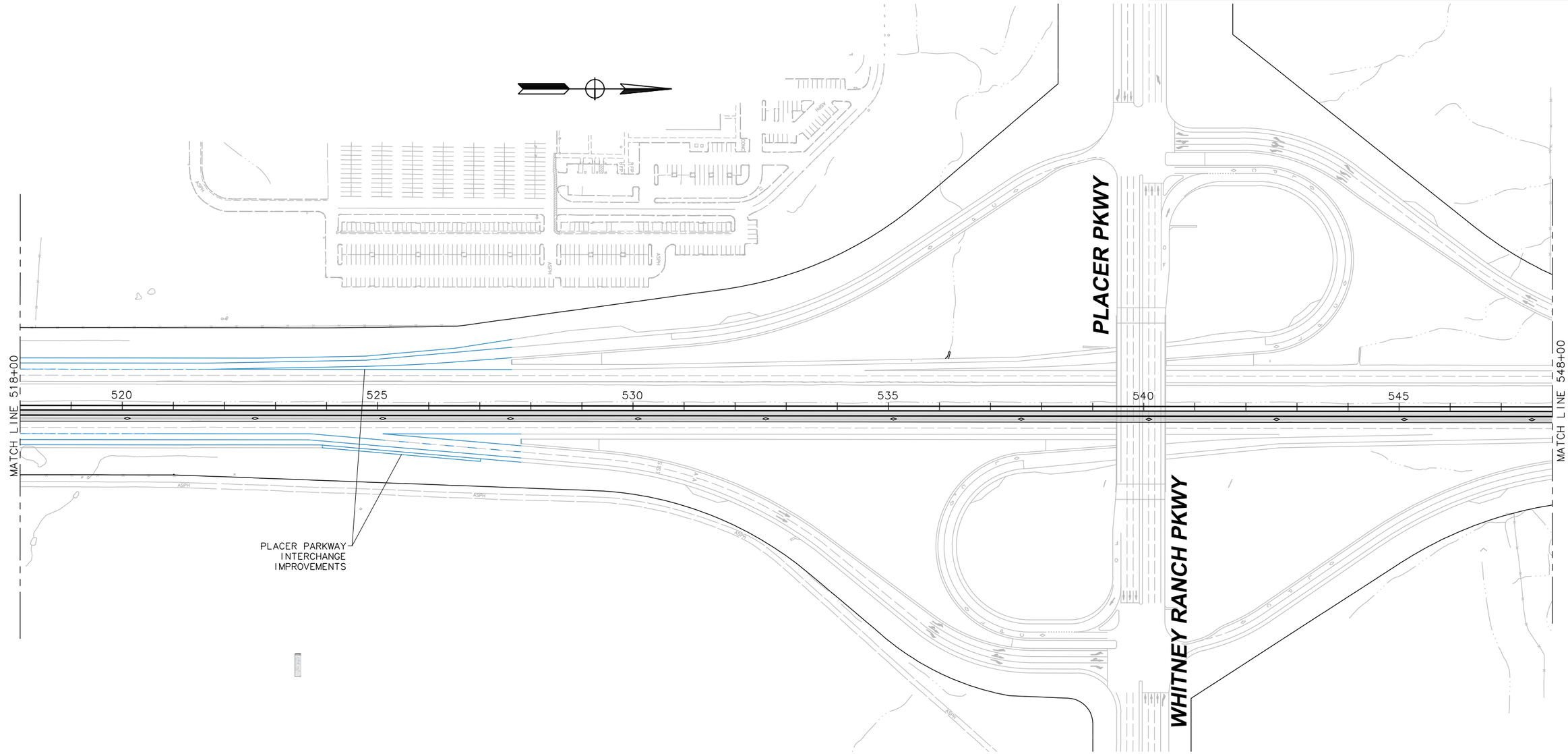
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 9 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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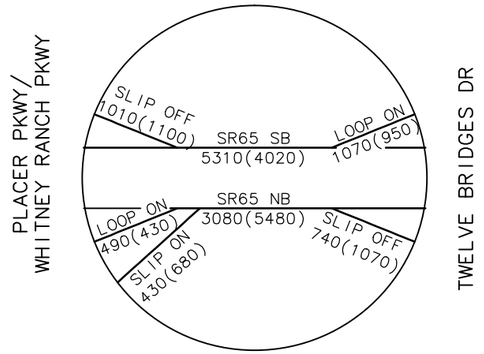
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 10 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



TRAFFIC VOLUMES

SR 65

XX (XX) PEAK HOUR TOTAL VOLUME AM (PM)

0 100 200 400

Graphic Scale

CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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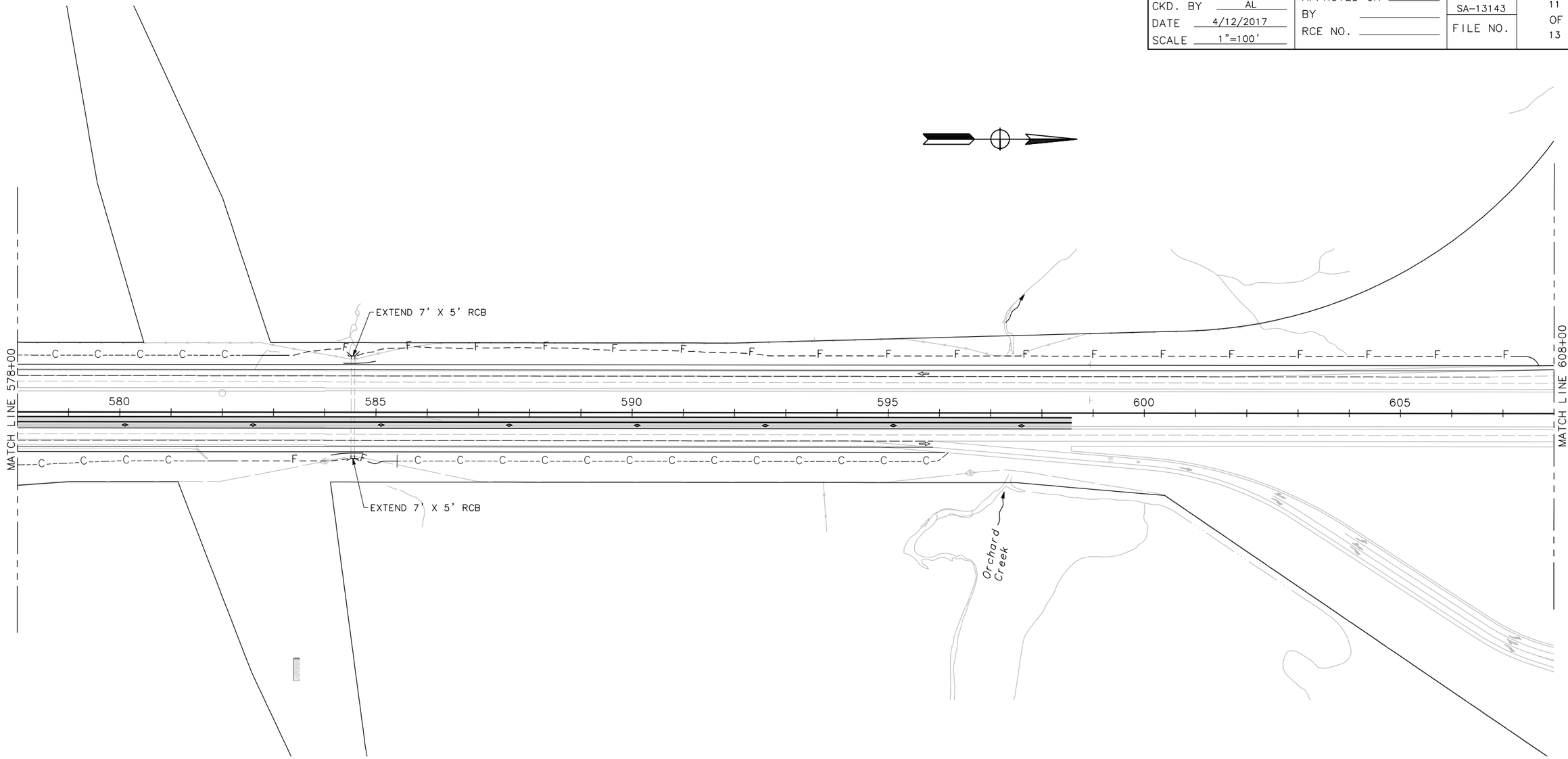
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 11 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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7300 FOLSOM BOULEVARD, SUITE 203
SACRAMENTO, CALIFORNIA 95826
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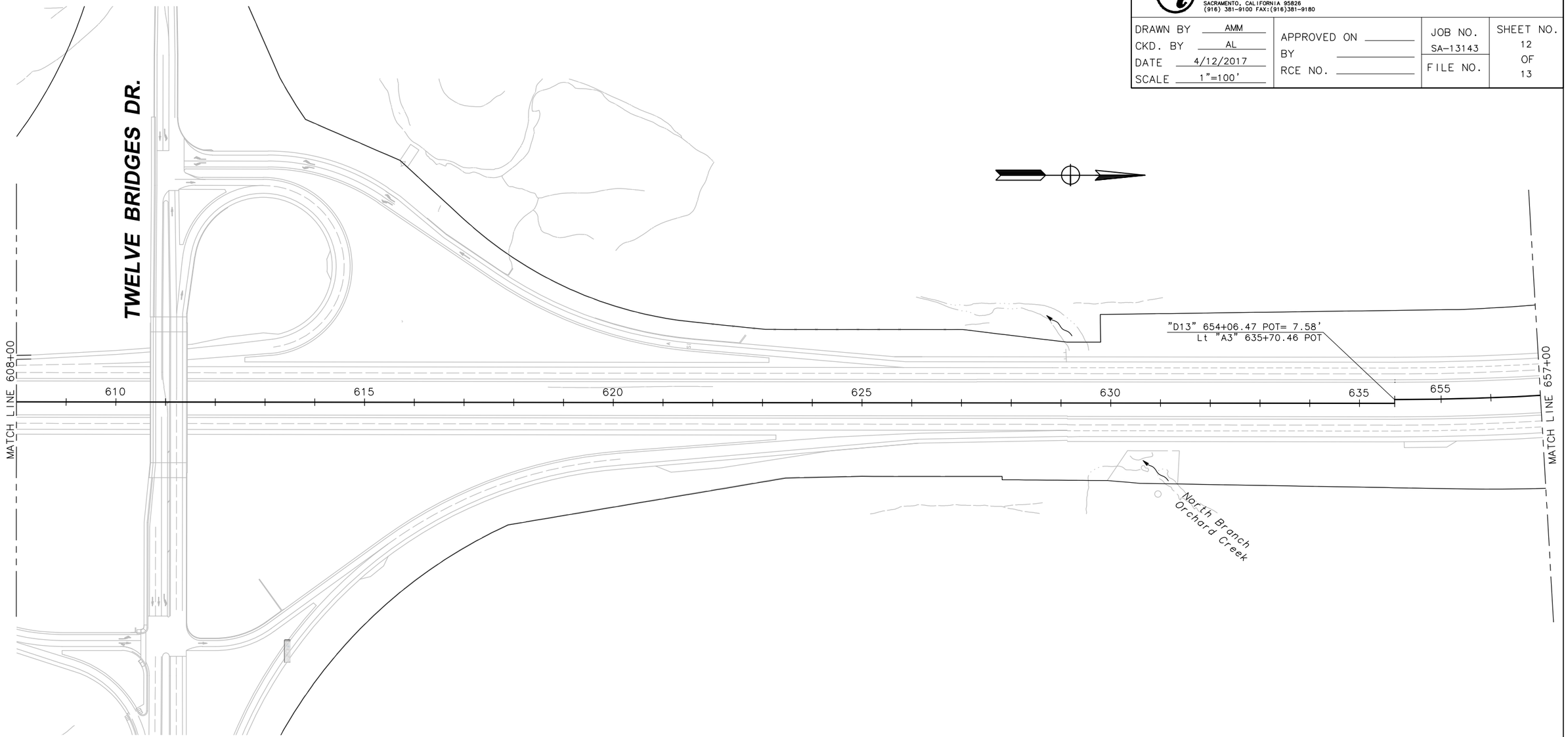
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 12 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



CARPOOL LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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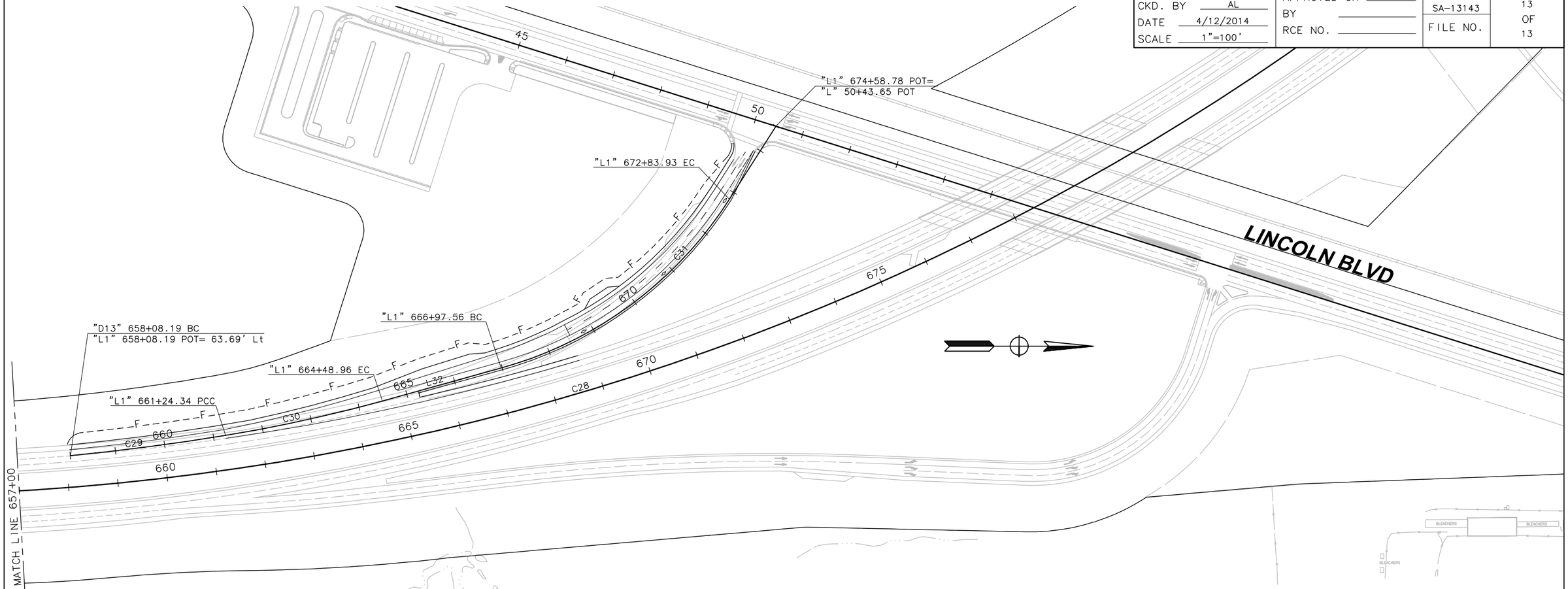
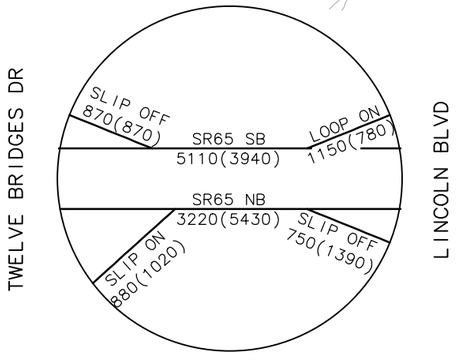
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 13
CKD. BY AL	BY	FILE NO.	OF 13
DATE 4/12/2014	RCE NO.		
SCALE 1"=100'			

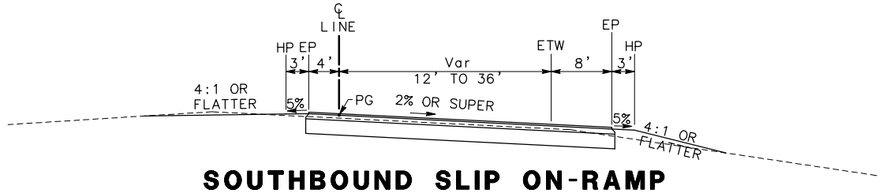




TRAFFIC VOLUMES

SR 65

XX (XX) PEAK HOUR TOTAL VOLUME AM (PM)



SOUTHBOUND SLIP ON-RAMP

"L1" LINE

(LOOKING IN DIRECTION OF TRAVEL)

0 100 200 400

Graphic Scale

Alternative 2—General Purpose Lane Alternative

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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7300 FOLSOM BOULEVARD, SUITE 203
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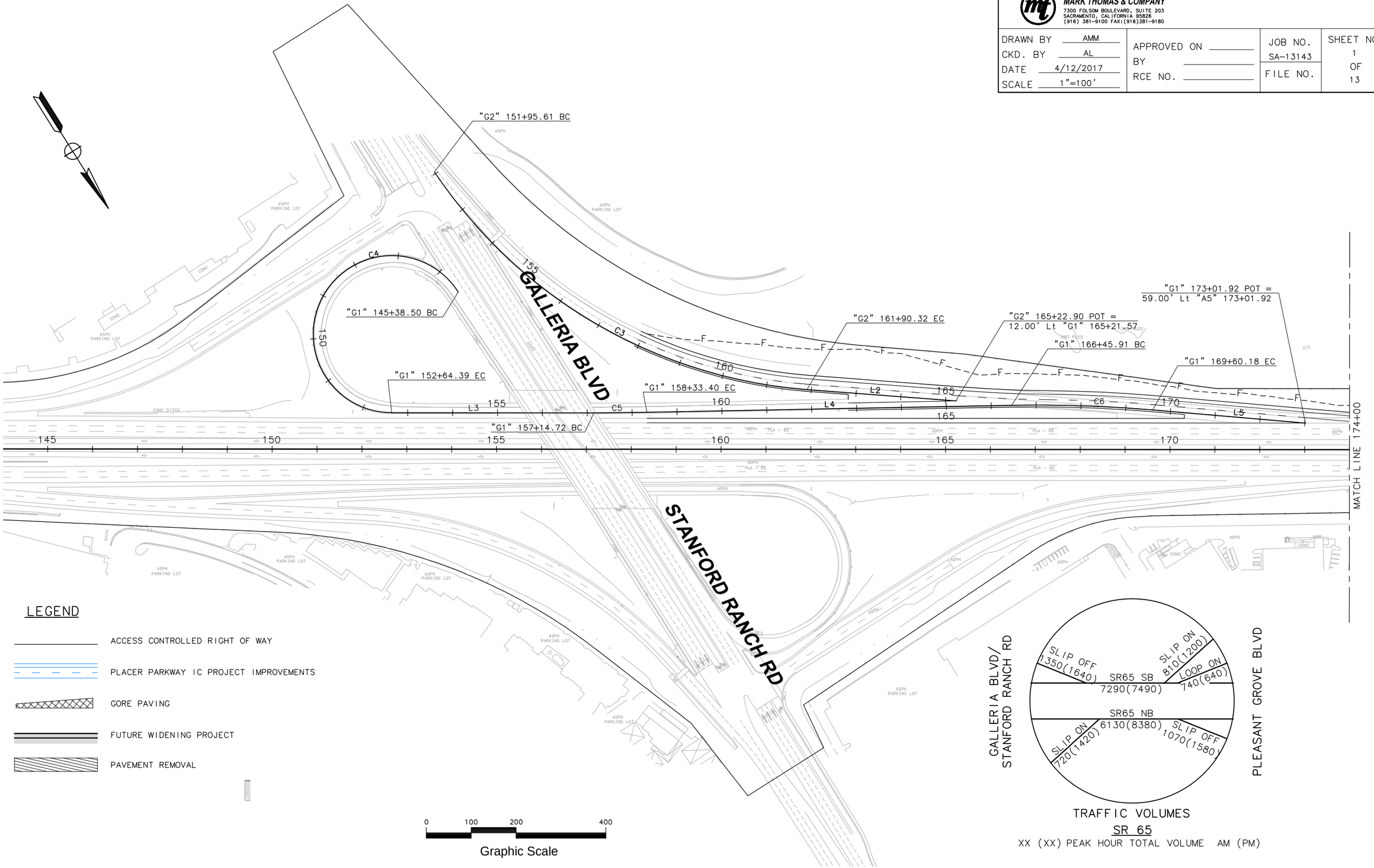
(916) 381-9100 FAX:(916)381-9180

DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 1 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



LEGEND

- ACCESS CONTROLLED RIGHT OF WAY
- PLACER PARKWAY IC PROJECT IMPROVEMENTS
- GORE PAVING
- FUTURE WIDENING PROJECT
- PAVEMENT REMOVAL

0 100 200 400

Graphic Scale

TRAFFIC VOLUMES

SR 65

XX (XX) PEAK HOUR TOTAL VOLUME AM (PM)

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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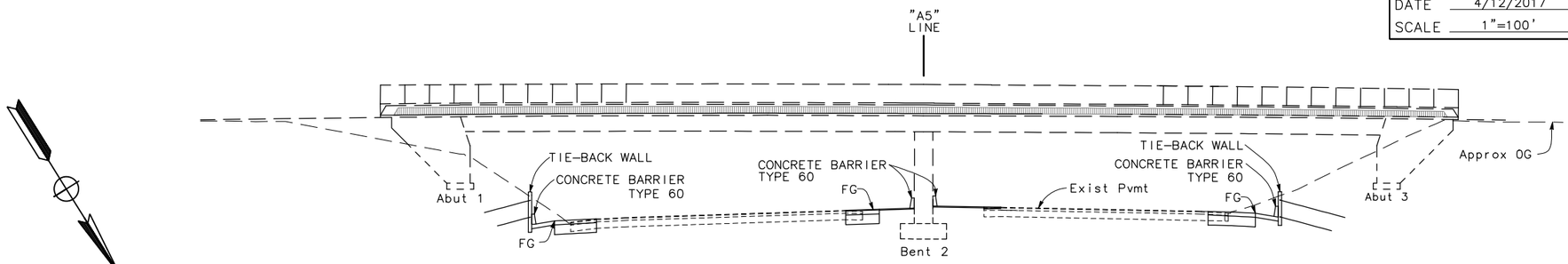
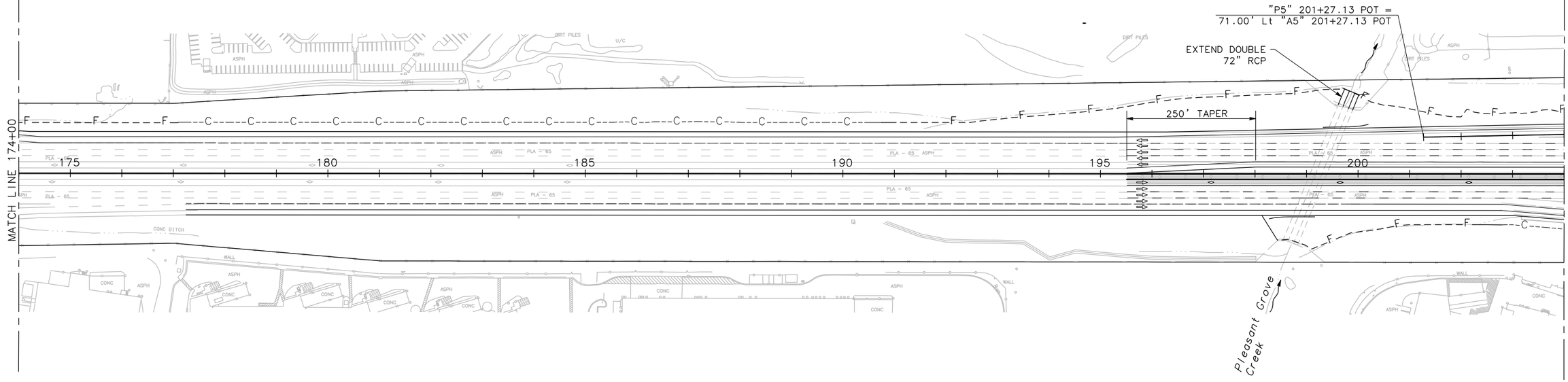
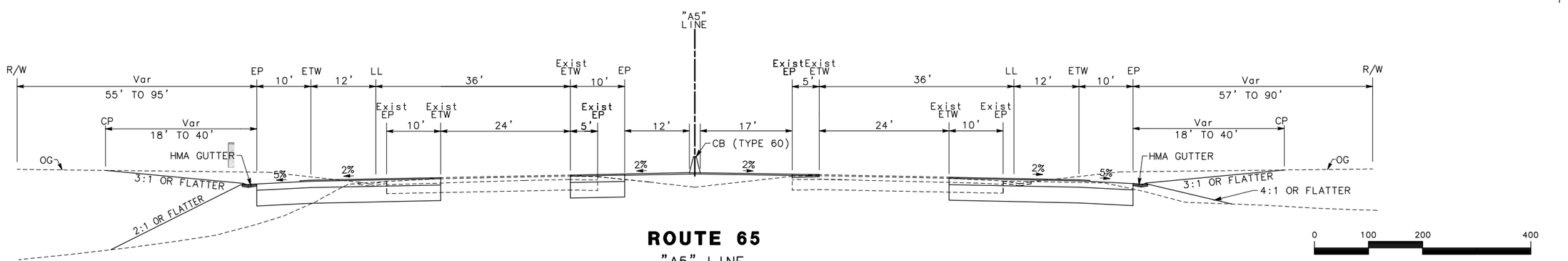
7300 FOLSOM BOULEVARD, SUITE 203
SACRAMENTO, CALIFORNIA 95826
(916) 381-9100 FAX:(916)381-9180

DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 2 OF 13
CKD. BY AL	BY		
DATE 4/12/2017	RCE NO.	FILE NO.	
SCALE 1"=100'			



PLEASANT GROVE OVERCROSSING





ROUTE 65

"A5" LINE

BETWEEN GALLERIA BLVD TO PLEASANT GROVE BLVD

0 100 200 400

Graphic Scale

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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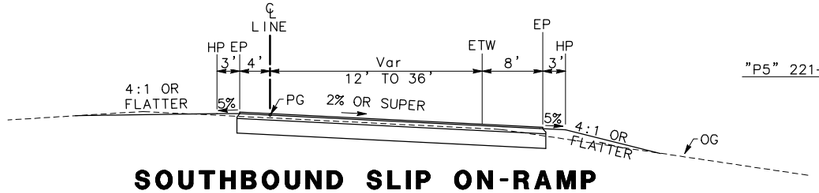
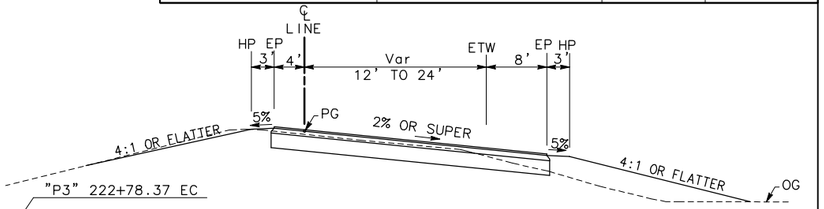
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 3 OF 13
CKD. BY AL	BY		
DATE 4/12/2017	RCE NO.	FILE NO.	
SCALE 1"=100'			



SOUTHBOUND SLIP ON-RAMP

"B4" & "P5" LINE

(LOOKING IN DIRECTION OF TRAVEL)



SOUTHBOUND SLIP OFF-RAMP

"P3" LINE

(LOOKING IN DIRECTION OF TRAVEL)

LOOP ON-RAMP

"P2","P4", "B1" & "B3" LINE

(LOOKING IN DIRECTION OF TRAVEL)

TRAFFIC VOLUMES

SR 65

PEAK HOUR (TOTAL VOLUME AM (PM)

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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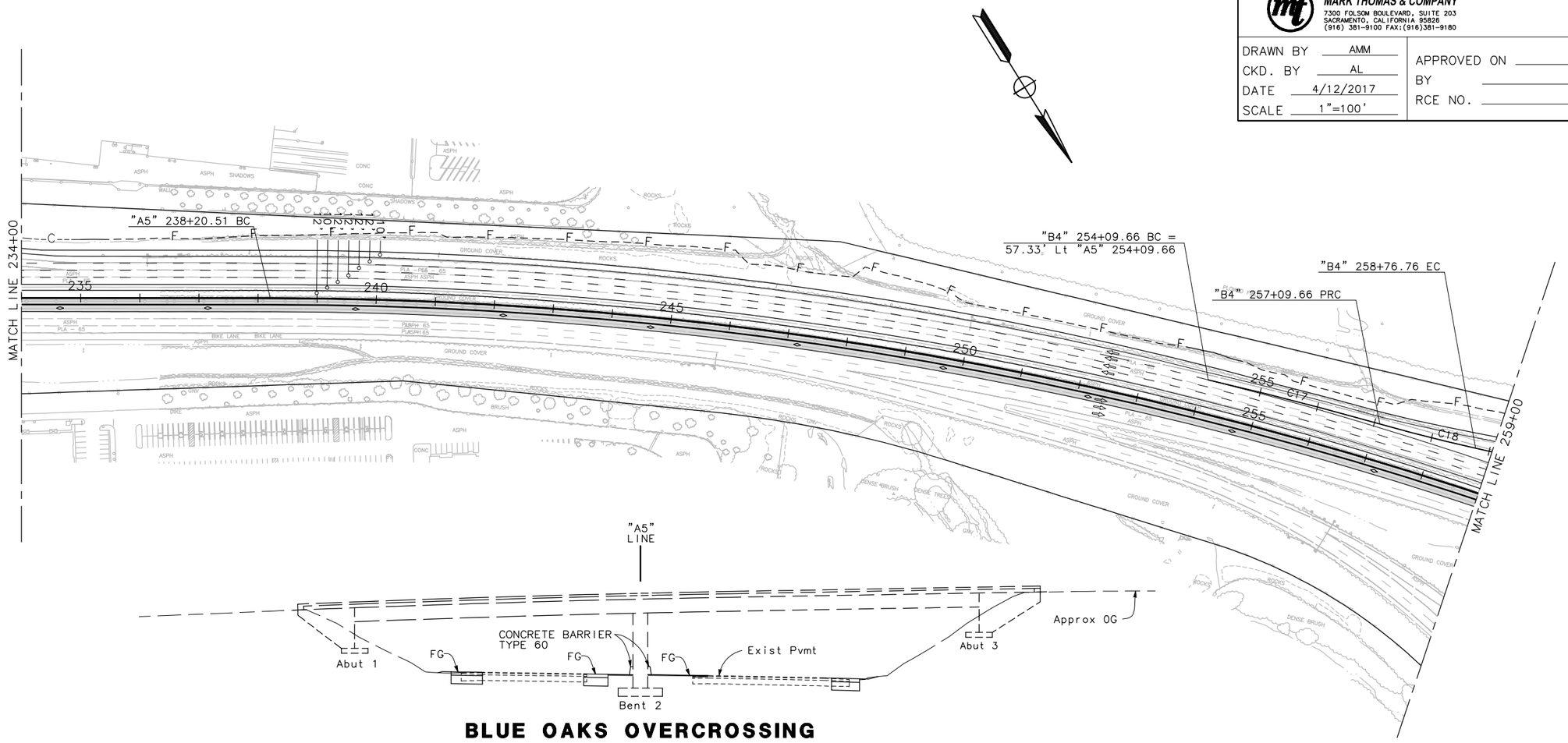
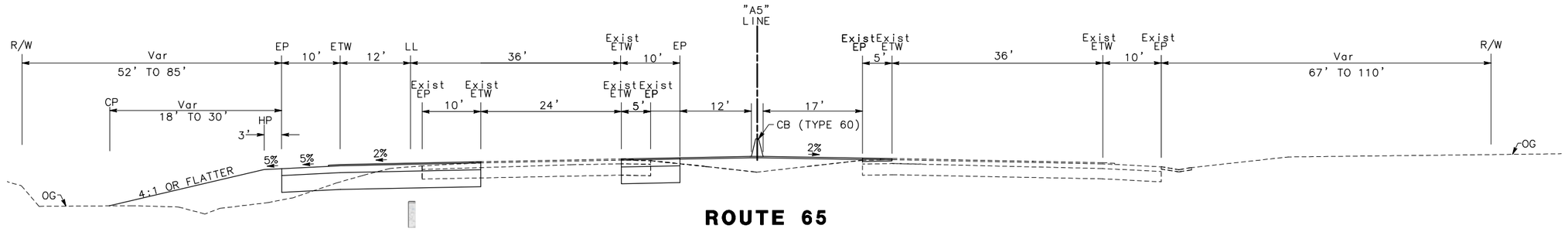
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 4 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



BLUE OAKS OVERCROSSING



ROUTE 65

"A5" LINE

BETWEEN PLEASANT GROVE BLVD TO BLUE OAKS BLVD

0 100 200 400

Graphic Scale

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 5 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			

"B4" 276+70.75 POT =
22.69' Rt "BO" 87+89.85

"B4" 275+76.06 EC

"BO" 88+77.63 POT =
"B3" 291+43.85 POT

"BO" 90+09.10 BC

"B3" 284+08.84 EC

"BO" 94+55.55 EC

"B4" 263+28.90 BC

GORE PAVING

"A5" 269+85.34 POC =
"BO" 97+68.13 POT

"B2" 259+27.03 POT =
24.65' Rt "BO" 99+21.37

"B1" 267+28.07 PCC

"B3" 271+46.72 BC =
47.00' Lt "A5" 271+46.72

"B3" 278+08.23 BC

"B3" 276+13.92 EC

"B3" 274+46.82 PRC

GORE PAVING

250' TAPER

MATCH LINE 259+00

MATCH LINE 288+00

BLUE OAKS BLVD

"B1" 269+86.65 EC

"B1" 272+86.63 POT =
47.00' Rt "A5" 272+86.63

"A5-1" 83+52.96 POT =
23.00' RT "A5" 283+52.96 POC

"B2" 260+64.49 BC

"BO" 101+26.73 BC

"B2" 262+80.86 EC =
12.00' Rt "B1" 262+80.86

"B1" 262+80.86 BC

"BO" 102+02.47 POC =
"B1" 261+00.60 POT

"BO" 106+42.21 EC

0 100 200 400
Graphic Scale

"A5" LINE

Abut 1 | Abut 3 | Bent 2

FG | CONCRETE BARRIER TYPE 60 | Exist Pvmt | Approx 0G

BLUE OAKS OFF-RAMP OVERCROSSING

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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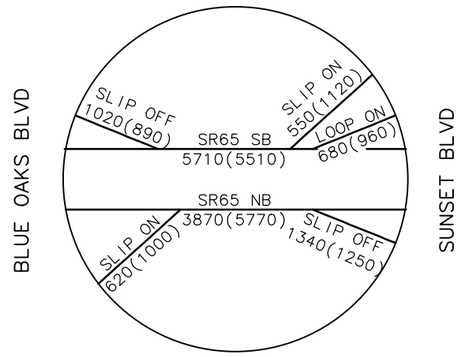
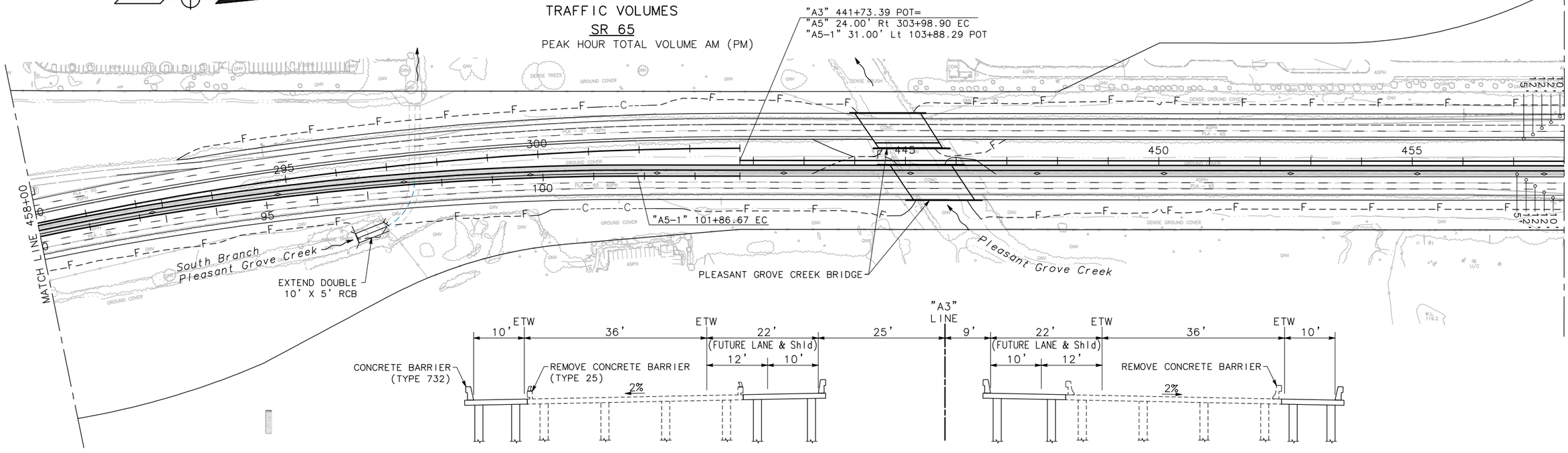
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 6 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



TRAFFIC VOLUMES
SR 65
PEAK HOUR TOTAL VOLUME AM (PM)



PLEASANT GROVE CREEK BRIDGE

"A3" LINE
BR. NO. 19-0136L/R

0 100 200 400
Graphic Scale

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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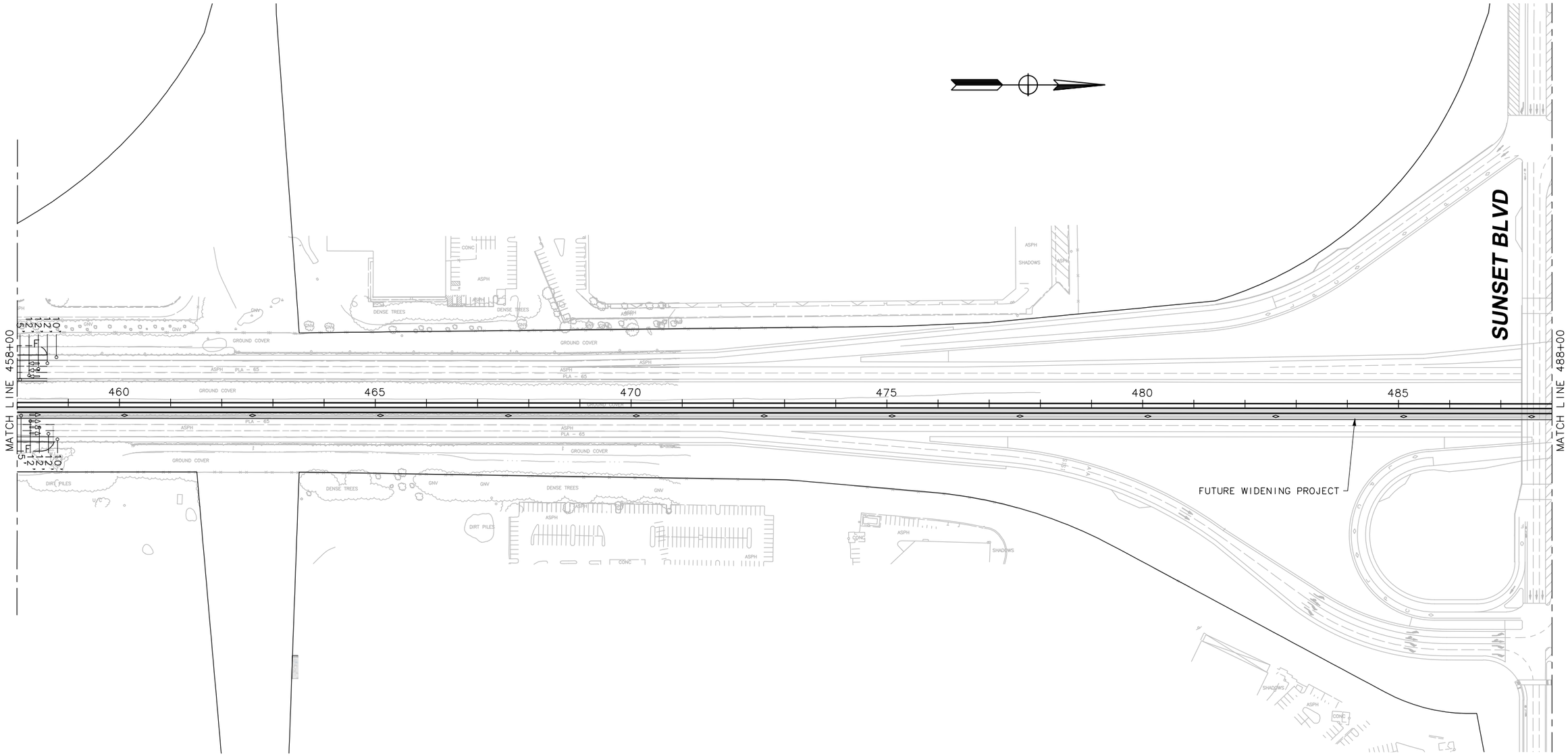
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 7 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



0 100 200 400

Graphic Scale

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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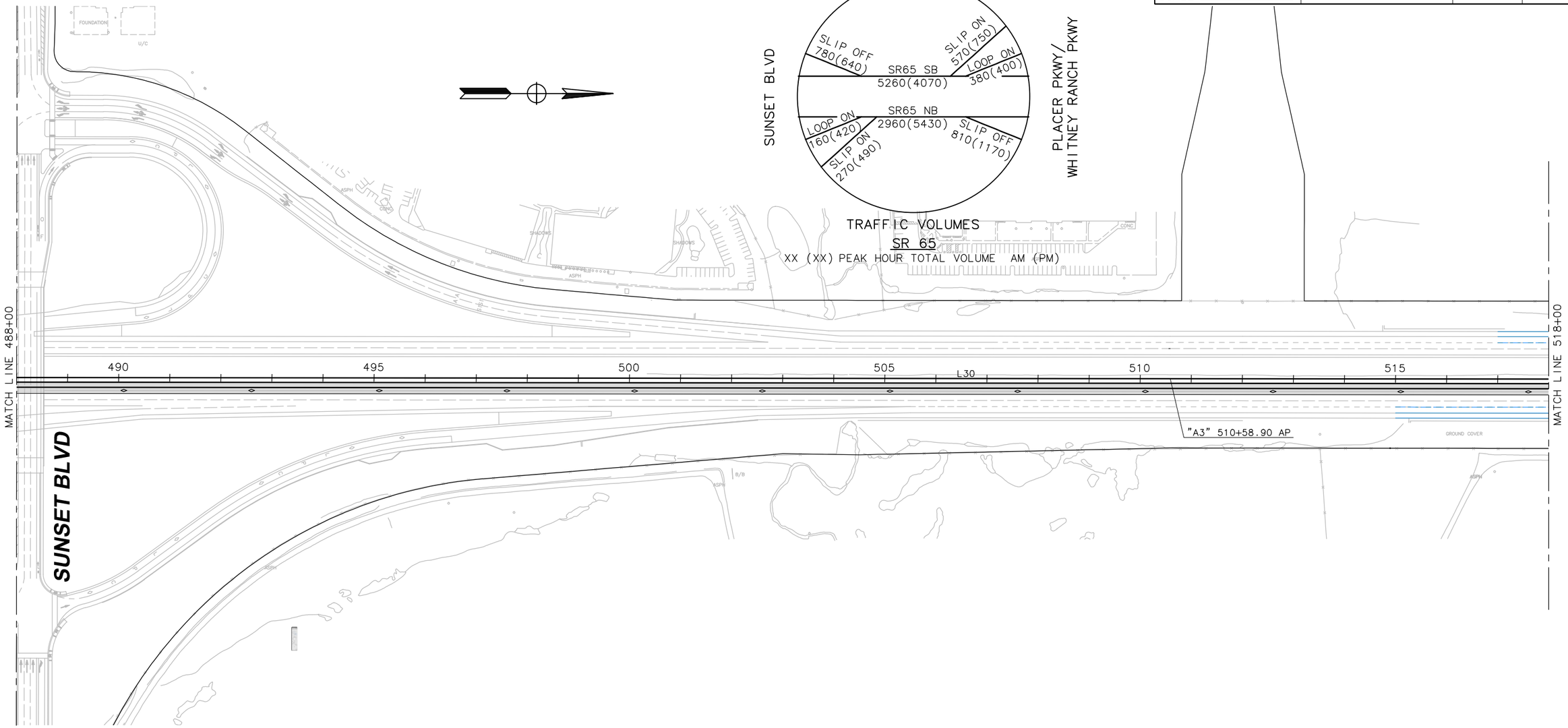
DRAWN BY AMM	APPROVED ON	JOB NO. SA-13143	SHEET NO. 8 OF 13
CKD. BY AL	BY	FILE NO.	
DATE 4/12/2017	RCE NO.		
SCALE 1"=100'			



0 100 200 400

Graphic Scale

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

MARK THOMAS & COMPANY
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DATE 4/12/2017	RCE NO.	FILE NO.	
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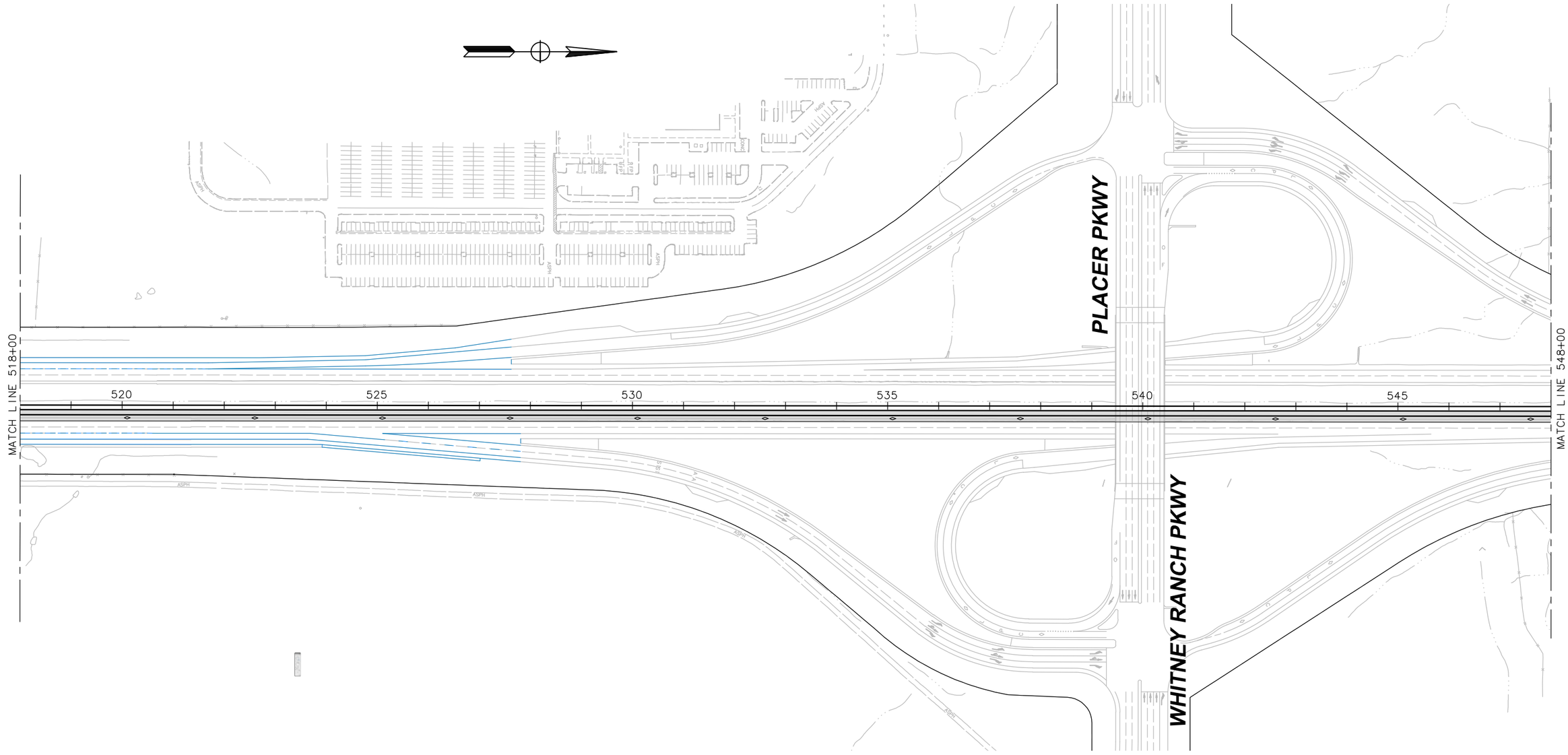

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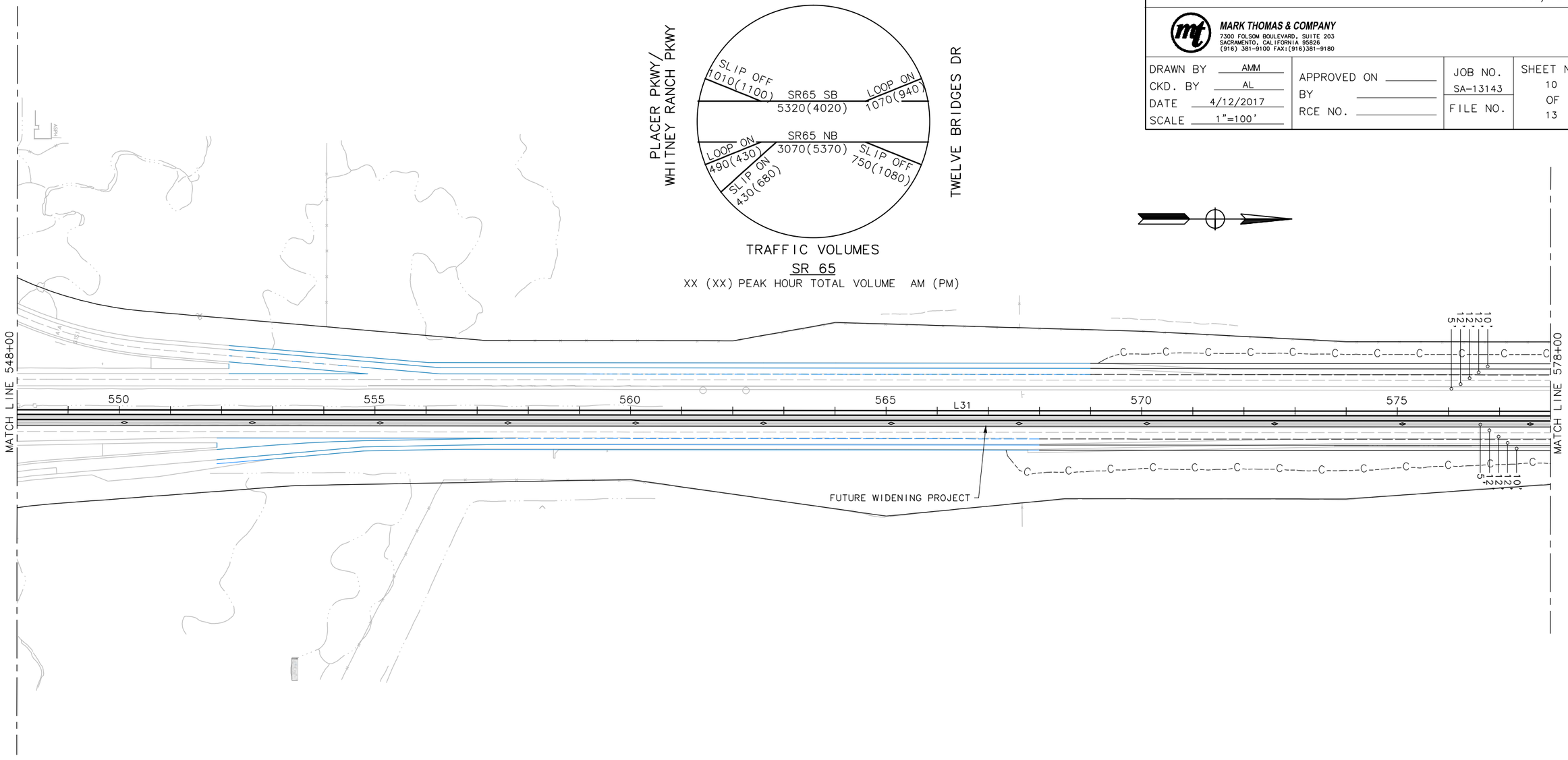

ROUTE 65

"A3" LINE
BETWEEN BLUE OAKS BLVD TO LINCOLN BLVD

0 100 200 400
Graphic Scale

GENERAL PURPOSE LANE ALTERNATIVE

03-PLA-65 PM 6.2/12.8

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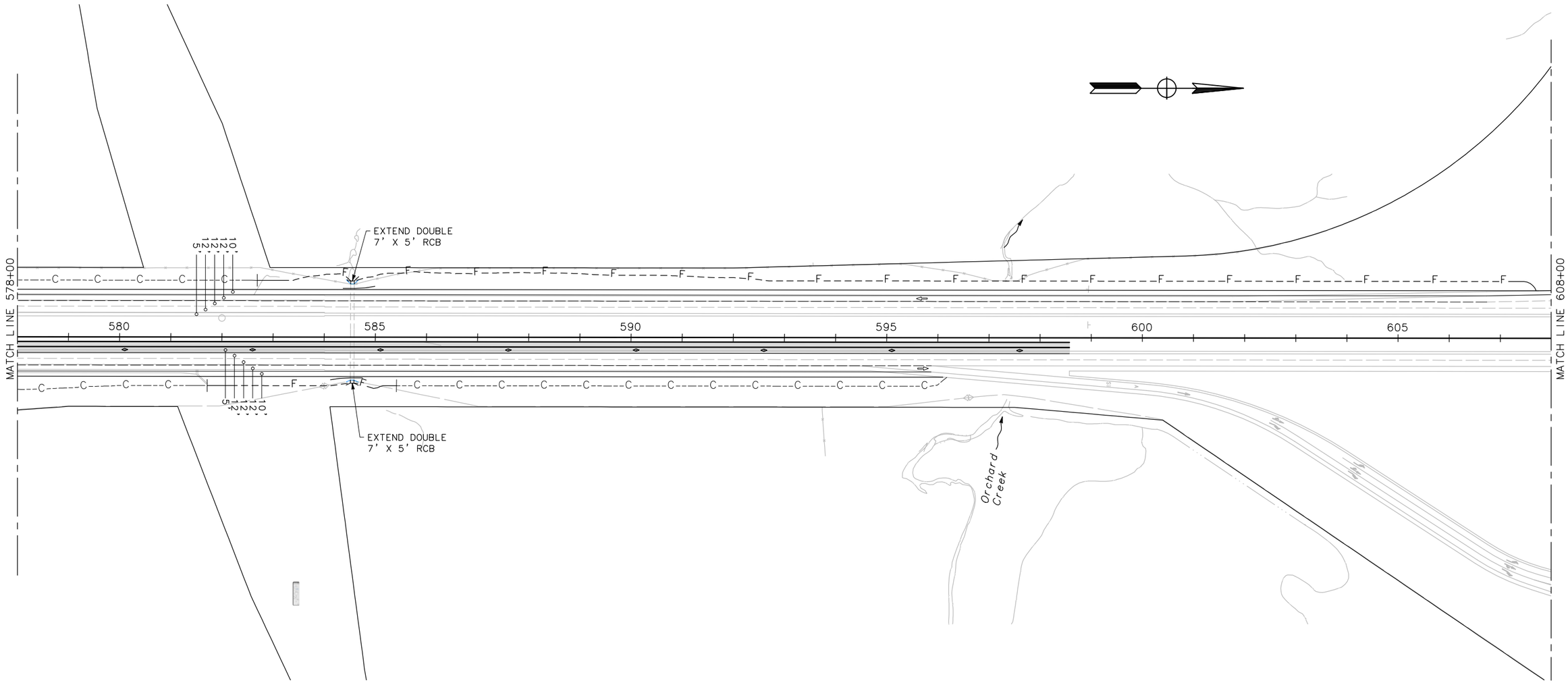

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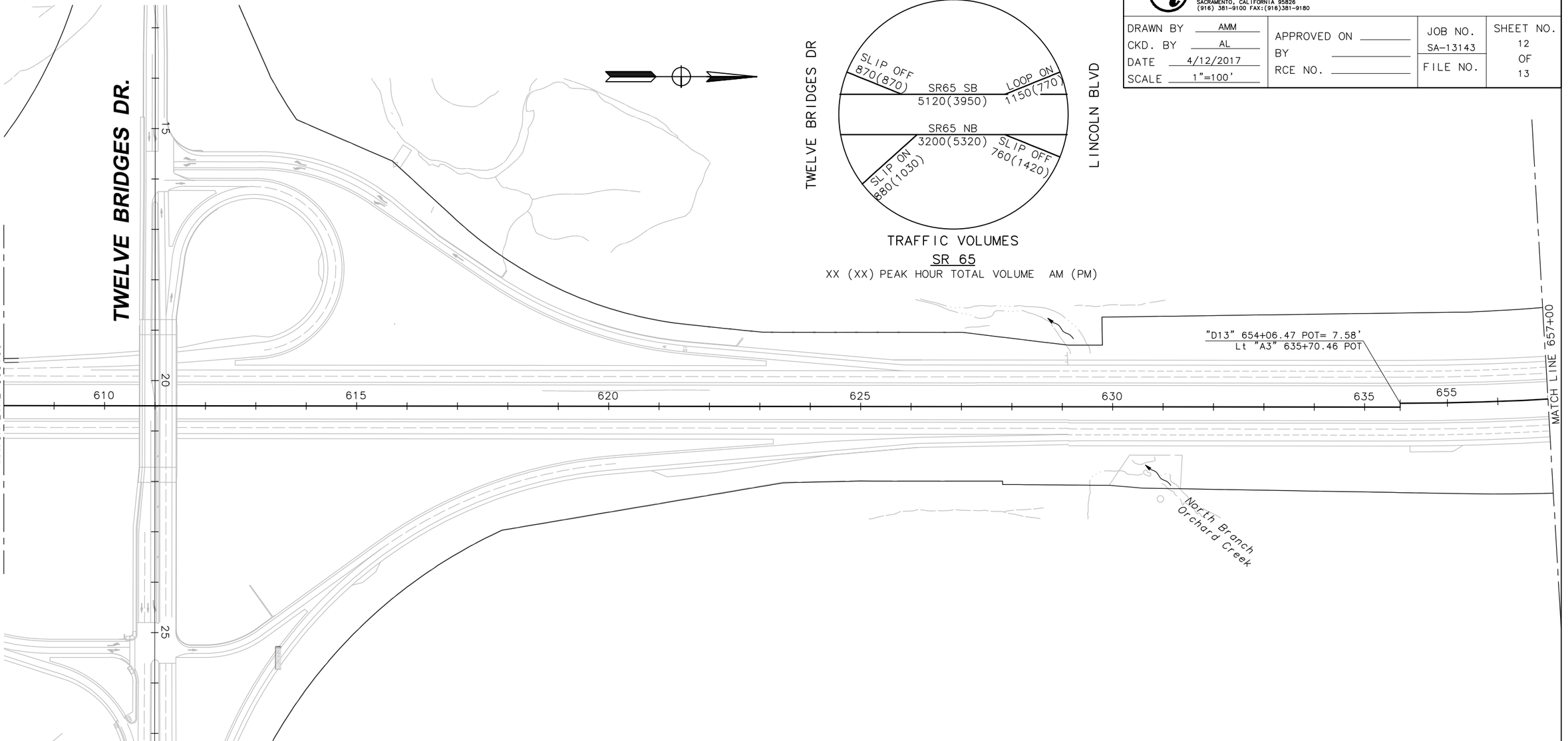

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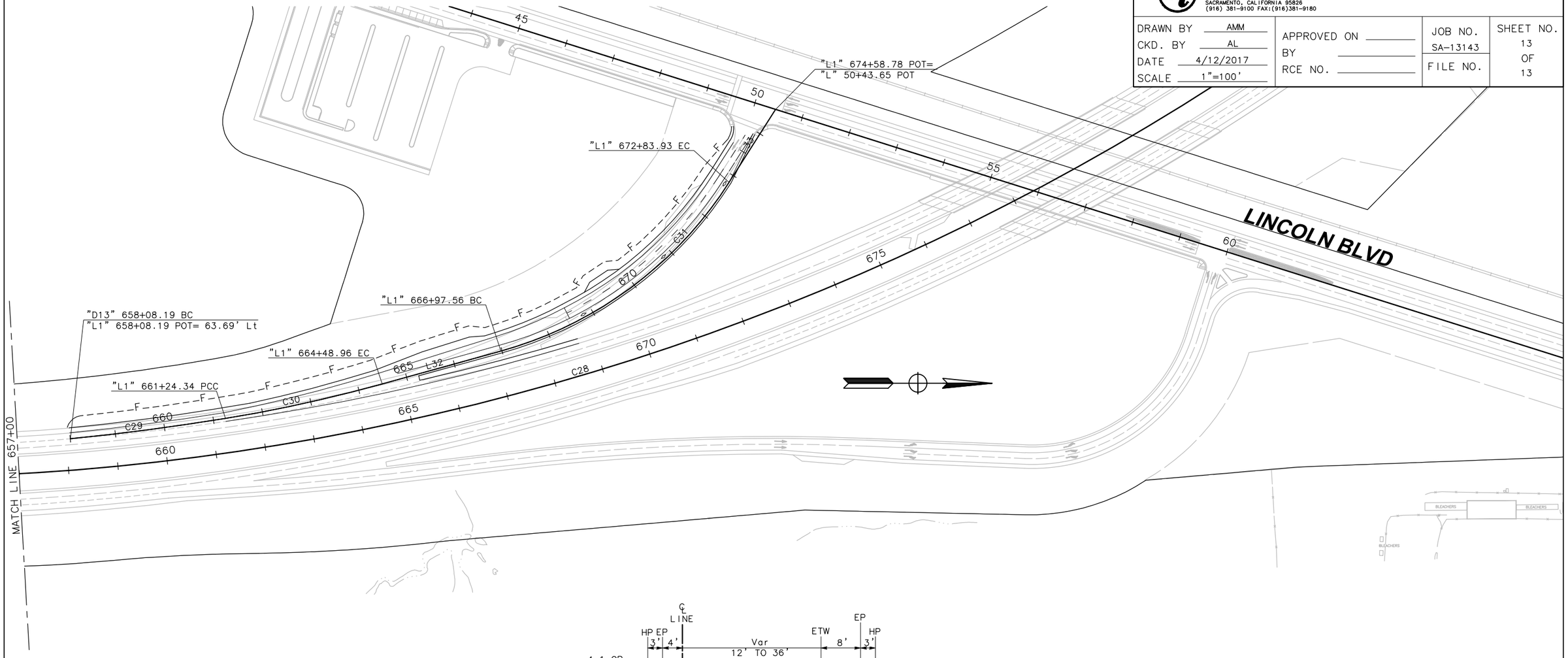

SOUTHBOUND SLIP ON-RAMP

"L1" LINE

(LOOKING IN DIRECTION OF TRAVEL)

0 100 200 400

Graphic Scale

Attachment B Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
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SACRAMENTO, CA 94273-0001
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March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

Attachment C Compliance with 40 CFR 1502.22

This text based on Appendix C from the FHWA's *Updated Interim Guidance on Air Toxic Analysis in NEPA Documents* (Federal Highway Administration 2016).

Sec. 1502.22 INCOMPETE OR UNAVAILABLE INFORMATION

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

(b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

1. a statement that such information is incomplete or unavailable;

2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;

3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and

4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

(c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxic (MSAT) emissions associated with a proposed set of highway alternatives. The outcome of such C-2 an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-reviewliterature-exposure-and-health-effects) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of C-3 occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxicscritical-review-literature-exposure-and-health-effects). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (https://www.epa.gov/iris)."

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD5985257800005 0C9DA/$file/07-1053-1120274.pdf).

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Due to the limitations cited, a discussion such as the example provided in this Appendix (reflecting any local and project-specific circumstances), should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)]. The FHWA Headquarters and Resource Center staff, Victoria Martinez (787) 771-2524, James Gavin (202) 366-1473, and Michael Claggett (505) 820-2047, are available to provide guidance and technical assistance and support.