# Attachment C Traffic Analysis Memorandum – Phase 1



### **MEMORANDUM**

**Date:** September 15, 2016

**To:** Andy Lee and Matt Brogan, Mark Thomas & Company

From: David Stanek, Fehr & Peers

Subject: SR 65 Capacity and Operational Improvements Project – Phase 1 (Revised)

RS14-3201

This memorandum describes the results of the State Route (SR) 65 Capacity and Operational Improvements (COI) project Phase 1 analysis. The separately-planned I-80/SR 65 Interchange Improvements Phase 1 project will reduce the majority of congestion that currently occurs on the SR 65 corridor in Roseville. This analysis looks at the additional benefit the SR 65 COI Phase 1 project would provide for SR 65 under construction year (2020) conditions.

Figure 1 shows the lane configuration for the SR 65 corridor between Roseville and Lincoln in Placer County. For information on the travel demand forecasts, please see the *State Route 65 Capacity and Operational Improvements Transportation Analysis Report* (Fehr & Peers, September 2015). The volumes used in this analysis are for the No Build Alternative. Under construction year conditions, the separate project for the Whitney Ranch Parkway/Placer Parkway interchange and I-80/SR 65 Interchange Improvements are assumed to have been constructed for the baseline conditions.

The SR 65 COI Phase 1 project would widen northbound SR 65 to provide an additional lane from the Pleasant Grove Boulevard off-ramp to the Pleasant Grove Boulevard on-ramp, resulting in three lanes from I-80 to Blue Oaks Boulevard. In the southbound direction, a lane would be added between the Pleasant Grove Boulevard off-ramp and the Pleasant Grove Boulevard loop on-ramp, resulting in three lanes from Blue Oaks Boulevard to I-80. In addition, the Galleria Boulevard/Stanford Ranch Road southbound off-ramp would be widened to two lanes, and auxiliary lanes would be constructed in both directions between Galleria Boulevard/Stanford Ranch Road and Pleasant Grove Boulevard.

The baseline conditions were analyzed as the Build Alternative for the *Stanford Ranch Road/Galleria Boulevard/State Route 65 Northbound Ramps Transportation Analysis Report* (Fehr & Peers, July 2015). This project was later incorporated into the I-80/SR 65 Interchange Improvements Phase 1 project. Under construction year (2020) conditions, the southbound direction during the AM peak period showed the most congestion. Minor congestion (about 40 mph for 15 minutes) occurred for the northbound direction during

the PM peak period, and no congestion occurred for the off-peak directions (southbound during the PM peak period and northbound during the AM peak period). For this analysis, the AM peak period was selected for analysis because it has the highest level of congestion.

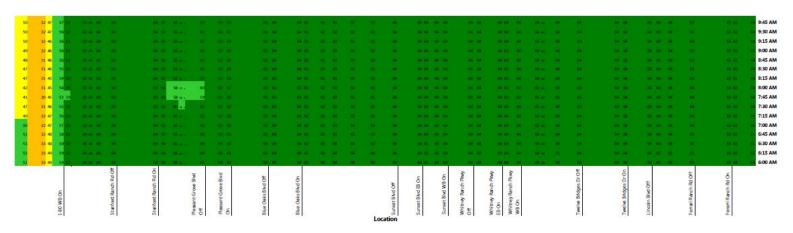
The AM peak period construction year conditions were be analyzed to determine the additional benefits to freeway operations provided by the SR 65 COI Phase 1 project. Overall network performance statistics for the Baseline and Phase 1 Alternatives are summarized in Table 1.

Performance		Existing	Construction Y	ear Conditions		
Measure			Baseline Alternative	Phase 1 Alternative		
Volume Served (% of total demand)			168,820 (99%)	168,860 (99%)		
Vehicle Miles of Travel (VM	T)	645,270	790,260	790,020		
Person Miles of Travel		786,260	967,870	967,450		
Vehicle Hours of Travel (VHT)		13,760	18,100	18,040		
Vehicle Hours of Delay (VH (% of VHT)	D)	2,670 (19%)	4,550 (25%)	4,490 (25%)		
Average Delay per Vehicle	(min)	1.12	1.62	1.60		
Person Hours of Delay		3,240	5,400	5,310		
Average Speed		46.9	43.7	43.8		
Average Speed for HOVs		47.0	46.0	46.2		
Travel Time: Southbound SR 65 from	304		5:11	4:21		
Sunset Blvd to I-80	HOV	-	5:11	4:21		

The results presented in Table 1 are summarized below.

- The project alternatives would have similar network performance during the AM peak period.
- The Phase 1 Alternative would have a higher volume served and a lower overall delay although the difference would be small.
- The Baseline Alternative would have a higher average travel time for southbound SR 65. The average travel time savings under the Phase 1 Alternative would be about 50 seconds.

### **BASELINE ALTERNATIVE**



### **PHASE 1 ALTERNATIVE**

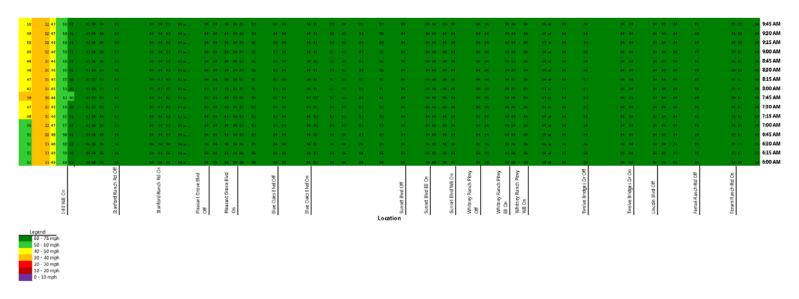
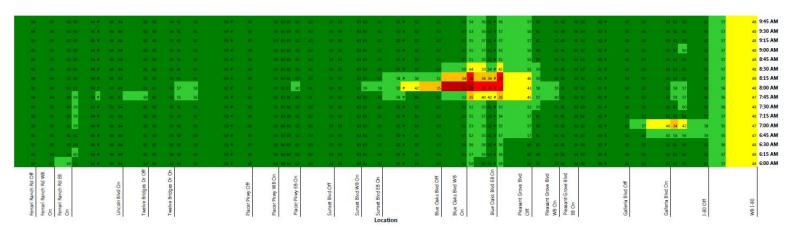


Figure 2 – Northbound SR 65 Construction Year AM Peak Period Speed Contour Map

### **BASELINE ALTERNATIVE**



### **PHASE 1 ALTERNATIVE**

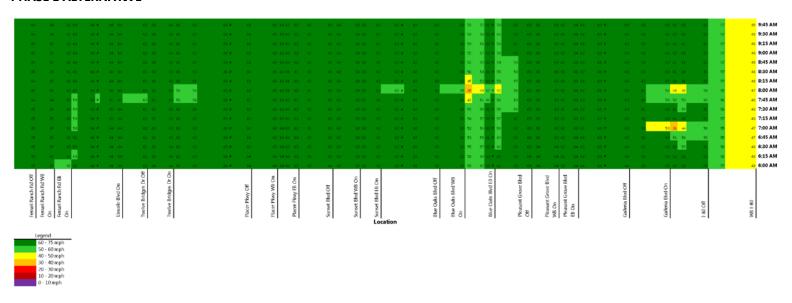


Figure 3 – Southbound SR 65 Construction Year AM Peak Period Speed Contour Map

TABLE 2: SELECTED FREEWAY OPERATIONS RESULTS – CONSTRUCTION YEAR AM PEAK HOUR **Baseline Alternative** Phase 1 Alternative LOS / Density LOS / Density Freeway Location Type Type I-80 to Stanford Ranch Rd Basic D / 27 Basic D / 26 Stanford Ranch Rd Off-ramp Diverge C / 24 Diverge C / 24 D/31 Stanford Ranch Rd On-ramp Merge Pleasant Grove Blvd Off-ramp Diverge E/36**NB SR 65** Stanford Ranch Rd to Pleasant Grove Blvd Weave C / 23 Pleasant Grove Blvd Off to On-ramp Basic E/36Basic C/23\_ Pleasant Grove Blvd to Blue Oaks Blvd Weave C / 27 Pleasant Grove Blvd On-ramp Merge D/31 Blue Oaks Blvd Off-ramp C / 25 Diverge Blue Oaks Blvd WB On-ramp E / 40 Merge F / 78 Merge Blue Oaks Blvd to Pleasant Grove Blvd Weave F / 54 Blue Oaks Blvd EB On-ramp D/32 Merge Pleasant Grove Blvd Off-ramp Diverge C / 27 Pleasant Grove Blvd Off to On-ramp Basic E / 36 Basic C / 24 SB SR 65 Pleasant Grove Blvd WB On-ramp Merge D / 30 Merge C / 22 D / 29 C / 24 Pleasant Grove Blvd EB On-ramp Merge Merge D/31 D / 28 Pleasant Grove Blvd to Galleria Blvd Basic Basic Galleria Blvd Off-ramp D / 32 C / 27 Diverge Diverge E / 37 Galleria Blvd On-ramp Merge Merge F / 46 I-80 Off-ramp Diverge D / 33 Diverge D / 33 Bold and underline font indicate LOS F conditions. Shaded cells indicate a project impact. The level of service and Notes:

average density for the study segment are reported.

The results for all locations are contained in the appendix.

Source: Fehr & Peers, 2016

Detailed freeway operations analysis was completed for the peak hour (7:30 to 8:30 AM) of the four-hour AM peak period. Figures 2 and 3 display the average speed in the mixed-flow lanes for SR 65 during the peak periods for each alternative. The AM peak hour level of service (LOS) results for selected locations are reported in Table 2.

### Northbound SR 65

The northbound speed contour map (Figure 2) shows a half hour of slower speeds (50 to 60 mph) from 7:45 to 8:15 AM under the Baseline Alternative between Stanford Ranch Road and Pleasant Grove Boulevard. Under the Phase 1 Alternative, all segments of northbound SR 65 north of I-80 have speeds greater than 60

mph for the entire peak period. The freeway operations results in Table 2 show that the LOS E conditions at Pleasant Grove Boulevard under the Baseline Alternative would improve to LOS C conditions under the Phase 1 Alternative. While both alternatives would have uncongested conditions during the AM peak hour, the widening under the Phase 1 Alternative would provide additional capacity and result in better freeway operations.

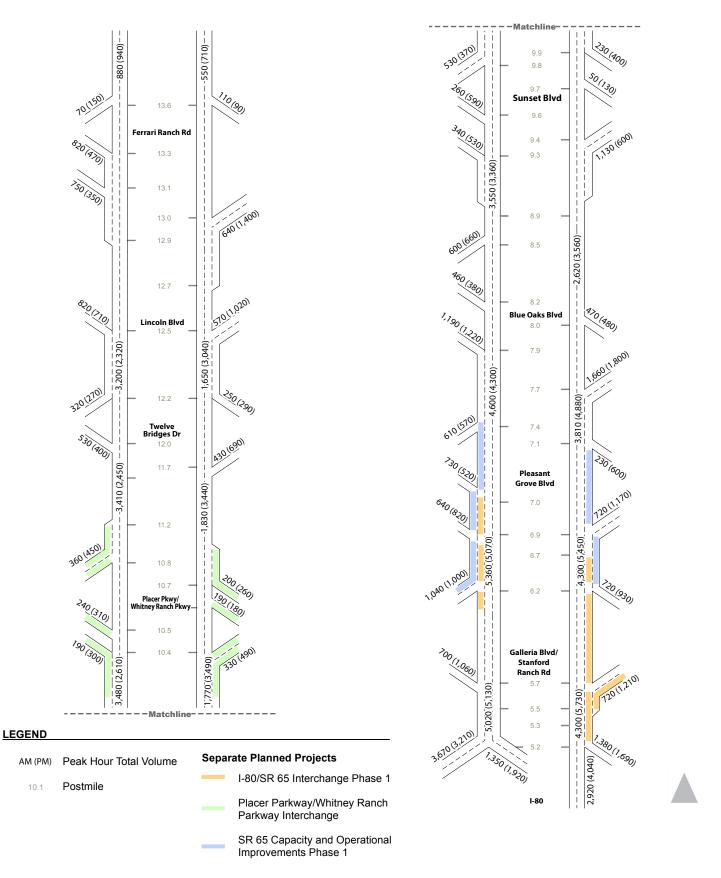
### Southbound SR 65

The southbound speed contour map for the Baseline Alternative (Figure 3) shows congested conditions (speeds less than about 40 mph) for 45 minutes at the Blue Oaks Boulevard interchange that extend about half-way to the Sunset Boulevard interchange. With the Phase 1 Alternative, the congested conditions would be reduced to 15 minutes at the Blue Oaks Boulevard on-ramps. However, lower speeds (50 to 60 mph) would occur downstream at the Galleria Boulevard on-ramp during the peak interval from 8:00 to 8:15 AM. The freeway operations results (Table 2) show a similar pattern. The LOS F conditions at Blue Oaks Boulevard would improve to LOS E or better under the Phase 1 Alternative, but conditions at the Galleria Boulevard on-ramp would worsen from LOS E to F.

The widening under the Phase 1 Alternative would provide capacity at Pleasant Grove Boulevard interchange to relieve the bottleneck under the Baseline Alternative. However, the additional capacity would deliver more traffic volume to the Galleria Boulevard interchange causing a minor bottleneck to form. This bottleneck will be addressed by a future phase of the I-80/SR 65 Interchange Improvements project.

### **Summary**

The Phase 1 Alternative would improve AM peak period operations by serving more volume with a lower vehicle delay. The improvement would primarily occur in the southbound direction, where the peak hour travel time would be reduced by 50 seconds and the LOS F conditions at Blue Oaks Blvd would be improved to LOS E or better. Although not analyzed here, PM peak period operations would likely improve in the northbound direction since the lane addition at the Pleasant Grove Boulevard interchange would increase capacity such that peak 15-minute average speed of 40 mph under the Baseline Alternative would increase.





Freeway Peak Hour Traffic Volumes and Lane Configurations -Construction Year Conditions



# Fehr∜Peers

## ATTACHMENT A

DETAILED ANALYSIS RESULTS

# VISSIM Post-Processor Average Values from 10 Runs Network Statistics

# SR 65 Widening Construction Year - Baseline Conditions AM Peak Period

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	168,819	78
Travel Distance [mi]	All Vehicles	790,257	1,123
Travel Time [h]	All Vehicles	18,104	67.4
Average Speed [mph]	All Vehicles	43.7	0.2
Total Delay [h]	All Vehicles	4,548	76.2
Average Delay per Vehicle [s]	All Vehicles	95	1.6
VHD/VMT [min/mile]	All Vehicles	0.35	0.01
Number of Vehicles Served	HOV	32,347	36
Travel Distance [mi]	HOV	159,735	454
Travel Time [h]	HOV	3,472	17
Average Speed [mph]	HOV	46.0	0.2
Total Delay [h]	HOV	756	14
Average Delay per Vehicle [s]	HOV	82	2
VHD/VMT [min/mile]	HOV	0.28	0.01
Number of Vehicles Served	Truck	7,562	17
Travel Distance [mi]	Truck	37,925	293
Travel Time [h]	Truck	897	3
Average Speed [mph]	Truck	42.3	0
Total Delay [h]	Truck	241	3
Average Delay per Vehicle [s]	Truck	112	1
VHD/VMT [min/mile]	Truck	0.38	0.01

		Vehicle Types								
Performance Measure	HOV	Truck	All							
Vehicles Served	32,350	7,560	168,820							
Demand Volume	33,520	8,150	170,610							
Percent Demand Served	96.5%	92.8%	99.0%							
Vehicle Miles of Travel	159,730	37,920	790,260							
Person Miles of Travel	335,440	39,820	967,870							
Vehicle Hours of Travel	3,470	900	18,100							
Vehicle Hours of Delay	760	240	4,550							
VHD % of VHT	21.9%	26.7%	25.1%							
Average Delay per Vehicle (min)	1.41	1.90	1.62							
Person Hours of Delay	1,600	250	5,400							
Average Travel Speed	46.0	42.3	43.7							

### VISSIM Post-Processor Average Values from 10 Runs Peak Hour Travel Time

SR 65 Widening Construction Year - Baseline Conditions AM Peak Period

		Distance	Volume	(vehicles)	Travel Time	e (min.:sec.)	Speed (mph)
Mode	Description	(ft)	Average	Std. Dev.	Average	Std. Dev.	Average
	SR-65 at Blue Oaks to I-80 at Antelope	43,046	836	10	09:08	00:17	21.4
	I-80 at Auburn to SR-65 at Blue Oaks	32,881	1,494	18	07:06	00:02	21.0
	I-80: Sierra College to Antelope I-80: Auburn to Sierra College SR-65: I-80 to Sunset SR-65: Sunset to Ferrari Ranch SR-65: Ferrari Ranch to Sunset		1,127	16	08:43	00:15	23.9
801/	SR-65 at Blue Oaks to I-80 at Antelope I-80 at Auburn to SR-65 at Blue Oaks I-80: Sierra College to Antelope I-80: Auburn to Sierra College SR-65: I-80 to Sunset SR-65: Sunset to Ferrari Ranch	36,777	685	12	06:38	00:02	25.2
SR-65: I-80 to Sunset	43,055	646	15	04:19	00:01	45.4	
	SR-65: Sunset to Ferrari Ranch	45,816	176	5	03:31	00:01	59.2
	SR-65: Ferrari Ranch to Sunset	36,773	954	9	03:36	00:01	46.4
	SR-65: Sunset to I-80	32,882	1,228	18	05:11	00:26	28.8
	SR-65 at Blue Oaks to I-80 at Antelope	43,046	253	5	08:50	00:10	45.4
	I-80 at Auburn to SR-65 at Blue Oaks	32,881	370	9	07:03	00:02	59.2
	I-80: Sierra College to Antelope	45,827	499	8	08:21	00:04	46.4
HOV	I-80: Auburn to Sierra College	36,777	233	6	06:34	00:01	28.8
1100	SR-65: I-80 to Sunset	43,055	159	5	04:19	00:01	22.1
	SR-65: Sunset to Ferrari Ranch	45,816	35	3	03:30	00:02	21.2
	SR-65: Ferrari Ranch to Sunset	36,773	107	4	03:36	00:02	25.0
	SR-65: Sunset to I-80	32,882	385	9	05:11	00:27	25.5

# VISSIM Post-Processor Average Values from 10 Runs Network Statistics

# SR 65 Widening Construction Year - Phase 1 Alternative AM Peak Period

Network Performance	Vehicle Types	Average	Std. Dev.
Number of Vehicles Served	All Vehicles	168,857	77
Travel Distance [mi]	All Vehicles	790,017	1,095
Travel Time [h]	All Vehicles	18,037	202.5
Average Speed [mph]	All Vehicles	43.8	0.5
Total Delay [h]	All Vehicles	4,489	213.9
Average Delay per Vehicle [s]	All Vehicles	93	4.5
VHD/VMT [min/mile]	All Vehicles	0.34	0.02
Number of Vehicles Served	HOV	32,351	42
Travel Distance [mi]	HOV	159,569	475
Travel Time [h]	HOV	3,456	26
Average Speed [mph]	HOV	46.2	0.4
Total Delay [h]	HOV	744	30
Average Delay per Vehicle [s]	HOV	81	3
VHD/VMT [min/mile]	HOV	0.28	0.01
Number of Vehicles Served	Truck	7,561	8
Travel Distance [mi]	Truck	37,920	309
Travel Time [h]	Truck	893	12
Average Speed [mph]	Truck	42.5	1
Total Delay [h]	Truck	237	12
Average Delay per Vehicle [s]	Truck	110	6
VHD/VMT [min/mile]	Truck	0.38	0.02

		Vehicle Types								
Performance Measure	HOV	Truck	All							
Vehicles Served	32,350	7,560	168,860							
Demand Volume	33,520	8,150	170,610							
Percent Demand Served	96.5%	92.8%	99.0%							
Vehicle Miles of Travel	159,570	37,920	790,020							
Person Miles of Travel	335,100	39,820	967,450							
Vehicle Hours of Travel	3,460	890	18,040							
Vehicle Hours of Delay	740	240	4,490							
VHD % of VHT	21.4%	27.0%	24.9%							
Average Delay per Vehicle (min)	1.37	1.90	1.60							
Person Hours of Delay	1,550	250	5,310							
Average Travel Speed	46.2	42.5	43.8							

### VISSIM Post-Processor Average Values from 10 Runs Peak Hour Travel Time

SR 65 Widening Construction Year - Phase 1 Alternative AM Peak Period

		Distance	Volume	(vehicles)	Travel Time	e (min.:sec.)	Speed (mph)
Mode	Description	(ft)	Average	Std. Dev.	Average	Std. Dev.	Average
	SR-65 at Blue Oaks to I-80 at Antelope	43,046	840	13	08:54	00:20	22.0
	I-80 at Auburn to SR-65 at Blue Oaks	32,881	1,483	18	07:05	00:02	21.1
	I-80: Sierra College to Antelope		1,129	13	08:43	00:19	23.9
SOV	SR-65 at Blue Oaks to I-80 at Antelope I-80 at Auburn to SR-65 at Blue Oaks I-80: Sierra College to Antelope I-80: Auburn to Sierra College SR-65: I-80 to Sunset SR-65: Sunset to Ferrari Ranch SR-65: Ferrari Ranch to Sunset SR-65: Sunset to I-80 SR-65 at Blue Oaks to I-80 at Antelope I-80 at Auburn to SR-65 at Blue Oaks I-80: Sierra College to Antelope I-80: Auburn to Sierra College SR-65: I-80 to Sunset SR-65: Sunset to Ferrari Ranch SR-65: Ferrari Ranch to Sunset	36,777	684	13	06:39	00:02	25.1
SUV		43,056	656	14	04:17	00:00	45.7
			177	6	03:31	00:01	59.1
	SR-65: Ferrari Ranch to Sunset	36,773	951	10	03:36	00:01	46.5
	SR-65: Sunset to I-80	32,882	1,231	19	04:21	00:05	34.3
	SR-65 at Blue Oaks to I-80 at Antelope	43,046	252	6	08:37	00:11	45.7
	I-80 at Auburn to SR-65 at Blue Oaks	32,881	372	10	07:01	00:02	59.1
	SR-65: Sunset to Ferrari Ranch SR-65: Ferrari Ranch to Sunset SR-65: Sunset to I-80 SR-65 at Blue Oaks to I-80 at Antelope I-80 at Auburn to SR-65 at Blue Oaks I-80: Sierra College to Antelope I-80: Auburn to Sierra College	45,827	503	8	08:20	00:05	46.5
HOV	I-80: Auburn to Sierra College	36,777	233	6	06:34	00:02	34.3
1100	SR-65: I-80 to Sunset	43,056	159	5	04:17	00:01	22.7
	SR-65: Sunset to Ferrari Ranch	45,816	36	3	03:31	00:02	21.3
	SR-65: Ferrari Ranch to Sunset	36,773	109	4	03:35	00:01	25.0
	SR-65: Sunset to I-80	32,882	377	8	04:21	00:05	25.5

	Facility	Mainli	ne Volum	e (vph)	On-rai	mp Volum	e (vph)	Off-ra	mp Volum	e (vph)	Speed	d (mph)	Density	(vplpm)	
Location	Туре	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	LOS
100 SR-65 NB - EB I-80 Connector	Basic	3,105	98	106.3%							42.3	1.3	43.4	2.0	Е
101 SR-65 NB - WB I-80 Connector	Basic	1,452	70	105.2%							51.4	0.4	23.8	1.1	С
103 SR-65 NB - I-80 WB On-ramp	Merge	3,104	100	106.3%	1,450	69	105.1%				60.9	0.7	28.0	0.9	D
104 SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,554	113	105.9%							63.1	0.2	26.6	0.7	D
105 SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	4,554	114	105.9%				748	51	103.9%	62.7	0.6	24.1	0.9	С
106 SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,814	113	106.5%							63.2	0.2	22.9	0.6	С
107 SR-65 NB - Stanford Ranch Rd On-ramp	Merge	3,814	109	106.5%	770	51	106.9%				58.4	1.5	30.9	1.2	D
109 SR-65 NB - Pleasant Grove Blvd Off-ramp	Diverge	4,584	120	106.6%				718	51	99.7%	57.5	1.8	36.1	1.6	Е
110 SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,871	123	108.1%							61.4	0.5	35.9	1.0	Е
111 SR-65 NB - Pleasant Grove Blvd to Blue Oaks Blvd	Weave	3,868	122	108.1%	230	25	100.2%	1,794	78	108.1%	62.6	0.3	26.9	0.7	С
114 SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,307	87	107.3%							63.5	0.2	20.2	0.7	С
115 SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,308	90	107.3%	459	37	97.7%				60.8	0.4	22.4	1.0	С
116 SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,767	96	105.6%							62.1	0.4	25.3	1.1	С
118 SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,766	104	105.6%				1,195	59	105.8%	63.6	0.2	19.4	0.9	В
169 SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,209	96	108.4%	297	22	114.3%				58.1	10.7	31.6	11.3	D
170 SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,508	104	108.9%	343	16	100.9%				47.8	13.3	45.7	16.4	F
171 SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	3,850	117	108.1%							41.8	13.9	54.3	18.6	F
172 SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	3,849	120	108.1%				651	47	108.5%	35.0	13.3	64.4	20.2	F
173 SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,198	114	108.0%							19.4	8.2	93.9	20.7	F
174 SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,188	108	107.7%	451	11	98.0%				22.3	2.0	77.8	4.8	F
175 SR-65 SB - Blue Oaks Blvd to Pleasant Grove Blvd	Weave	3,622	105	105.9%	1,212	57	101.9%	643	56	105.3%	35.7	1.5	53.6	2.4	F
178 SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,188	77	104.7%							59.4	1.2	36.2	0.9	E
179 SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,186	75	104.6%	746	34	102.2%				61.8	0.4	29.8	0.3	D
180 SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,927	87	104.2%	651	34	101.7%				60.8	0.7	29.2	0.5	D
181 SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,575	93	103.8%							61.5	0.6	31.4	0.4	D
182 SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,574	94	103.8%				1,028	57	98.9%	62.2	0.3	31.8	0.4	D
183 SR-65 SB - Galleria Blvd Off to On-ramp	Basic	4,543	85	104.9%							61.6	0.9	29.3	0.5	D
185 SR-65 SB - Galleria Blvd On-ramp	Merge	4,544	88	105.0%	728	38	104.0%				57.0	6.4	37.4	6.7	Е
186 SR-65 SB - I-80 Off-ramp	Diverge	5,271	103	104.8%				3,865	93	105.3%	60.0	1.0	32.5	0.7	D
187 SR-65 SB - EB I-80 Connector (2 lanes)	Basic	1,413	70	104.7%				-			60.3	0.6	27.0	0.8	D
188 SR-65 SB - EB I-80 Connector (1 lane)	Basic	1,415	74	104.8%							61.8	0.2	26.3	0.9	D
189 SR-65 SB - WB I-80 Connector	Basic	3,869	96	105.4%							51.6	0.4	39.2	0.9	Е

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane.

Mainline volume is the upstream served volume for all lanes.

	Facility	Mainline Volume (vph)		On-ra	mp Volum	e (vph)	Off-rai	mp Volum	e (vph)	Speed	d (mph)	Density	(vplpm)		
Location	Туре	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	%	Avg.	St. Dev.	Avg.	St. Dev.	LOS
100 SR-65 NB - EB I-80 Connector	Basic	3,107	102	106.4%							41.8	1.0	43.5	1.4	Е
101 SR-65 NB - WB I-80 Connector	Basic	1,452	73	105.2%							51.5	0.4	23.7	0.9	С
103 SR-65 NB - I-80 WB On-ramp	Merge	3,107	102	106.4%	1,452	69	105.2%				61.3	0.4	27.7	0.7	С
104 SR-65 NB - I-80 to Stanford Ranch Rd	Basic	4,560	111	106.0%							63.1	0.2	26.4	0.7	D
105 SR-65 NB - Stanford Ranch Rd Off-ramp	Diverge	4,560	112	106.0%				740	53	102.8%	62.9	0.4	23.6	0.9	С
106 SR-65 NB - Stanford Ranch Rd Off to On-ramp	Basic	3,826	107	106.9%							63.3	0.2	22.6	0.6	С
107 SR-65 NB - Stanford Ranch Rd to Pleasant Grove Blvd	Weave	3,827	102	106.9%	769	53	106.7%	718	56	99.7%	62.9	0.2	22.6	0.6	С
110 SR-65 NB - Pleasant Grove Blvd Off to On-ramp	Basic	3,878	127	108.3%							63.0	0.1	23.2	0.7	С
111 SR-65 NB - Pleasant Grove Blvd on-ramp	Merge	3,878	122	108.3%	233	25	101.1%				61.0	0.8	31.4	1.0	D
112 SR-65 NB - Blue Oaks Blvd Off-ramp	Diverge	4,112	117	107.9%				1,800	73	108.4%	62.4	0.2	25.2	0.6	С
114 SR-65 NB - Blue Oaks Blvd Off to On-ramp	Basic	2,313	92	107.6%							63.4	0.2	20.2	0.8	С
115 SR-65 NB - Blue Oaks Blvd On-ramp	Merge	2,313	96	107.6%	463	36	98.5%				61.0	0.4	22.2	1.1	С
116 SR-65 NB - Blue Oaks Blvd to Sunset Blvd	Basic	2,778	101	106.0%							62.2	0.5	25.2	1.3	С
118 SR-65 NB - Sunset Blvd Off-ramp	Diverge	2,777	97	106.0%				1,200	63	106.2%	63.6	0.2	19.4	1.1	В
169 SR-65 SB - Sunset Blvd WB On-ramp	Merge	3,195	98	107.9%	293	24	112.5%				61.5	0.3	29.3	0.8	D
170 SR-65 SB - Sunset Blvd EB On-ramp	Merge	3,488	99	108.3%	345	17	101.3%				60.1	0.7	33.5	1.1	D
171 SR-65 SB - Sunset Blvd to Blue Oaks Blvd	Basic	3,834	104	107.7%							61.0	0.8	33.7	1.1	D
172 SR-65 SB - Blue Oaks Blvd Off-ramp	Diverge	3,834	104	107.7%				650	43	108.3%	61.8	0.3	32.9	1.0	D
173 SR-65 SB - Blue Oaks Blvd Off to On-ramp	Basic	3,180	88	107.4%							55.3	5.6	30.7	3.5	D
174 SR-65 SB - Blue Oaks Blvd WB On-ramp	Merge	3,178	85	107.4%	451	12	98.1%				46.0	3.7	39.6	4.2	Е
175 SR-65 SB - Blue Oaks Blvd WB to EB On-ramp	Basic	3,632	89	106.2%							57.4	6.0	34.0	5.3	D
176 SR-65 SB - Blue Oaks Blvd EB On-ramp	Merge	3,632	88	106.2%	1,218	55	26.5%				52.4	2.9	32.1	2.3	D
177 SR-65 SB - Pleasant Grove Blvd Off-ramp	Diverge	4,846	113	60.4%				648	54	88.7%	62.0	0.4	26.8	0.6	С
178 SR-65 SB - Pleasant Grove Blvd Off to On-ramp	Basic	4,203	108	57.7%							62.9	0.2	24.3	0.6	С
179 SR-65 SB - Pleasant Grove Blvd WB On-ramp	Merge	4,205	100	57.7%	744	43	102.0%				62.4	0.2	21.5	0.5	С
180 SR-65 SB - Pleasant Grove Blvd EB On-ramp	Merge	4,946	105	61.7%	653	37	102.0%				60.7	0.6	24.3	0.7	С
181 SR-65 SB - Pleasant Grove Blvd to Galleria Blvd	Basic	5,595	98	64.6%							61.9	0.5	27.8	0.4	D
182 SR-65 SB - Galleria Blvd Off-ramp	Diverge	5,595	98	64.6%				1,030	53	99.0%	62.6	0.8	27.2	0.5	С
183 SR-65 SB - Galleria Blvd Off to On-ramp	Basic	4,559	118	59.8%							58.9	4.2	31.3	2.8	D
185 SR-65 SB - Galleria Blvd On-ramp	Merge	4,560	122	59.8%	724	37	103.4%				45.9	9.8	49.0	13.6	F
186 SR-65 SB - I-80 Off-ramp	Diverge	5,284	136	63.5%				3,873	115	105.5%	59.6	1.0	33.1	8.0	D
187 SR-65 SB - EB I-80 Connector (2 lanes)	Basic	1,419	73	105.1%							60.6	1.0	27.1	1.3	D
188 SR-65 SB - EB I-80 Connector (1 lane)	Basic	1,422	70	105.3%							61.7	0.6	26.7	1.1	D
189 SR-65 SB - WB I-80 Connector	Basic	3,878	114	105.7%							51.4	0.4	39.8	1.7	Е

Notes: Average density reported for the analysis area only: for example, within the ramp influence area and not including the HOV lane. Mainline volume is the upstream served volume for all lanes.

