

## 2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

### 2.5.1 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 (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 USC 794). FHWA has enacted regulations for implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including transportation enhancement activities.

### 2.5.2 Affected Environment

This section is based on the *Transportation Analysis Report* completed for the project in August 2014 (Fehr & Peers 2014). The report is available on the project website at <http://8065interchange.org/>.

#### 2.5.2.1 Study Area

The study area for the *Transportation Analysis Report* extends beyond the immediate vicinity of the I-80/SR 65 interchange, as shown in Figure 2.5-1. I-80 is the principal east–west route in northern and central California, providing all-weather access across the Sierra Nevada for major goods movement into the Sacramento and San Francisco Bay areas. The interstate accommodates high commute, interregional and recreational traffic volumes, as well as high levels of truck freight traffic within the greater Sacramento region. 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.

### 2.5.2.2 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 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 contain in the *Transportation Analysis Report* available on the project website at <http://8065interchange.org/>.

### 2.5.2.3 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 2.5-1 and 2.5-2 describe the LOS thresholds from the *Highway Capacity Manual* (Transportation Research Board 2011) for freeway sections and signalized intersections, respectively.

**Table 2.5-1. 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.

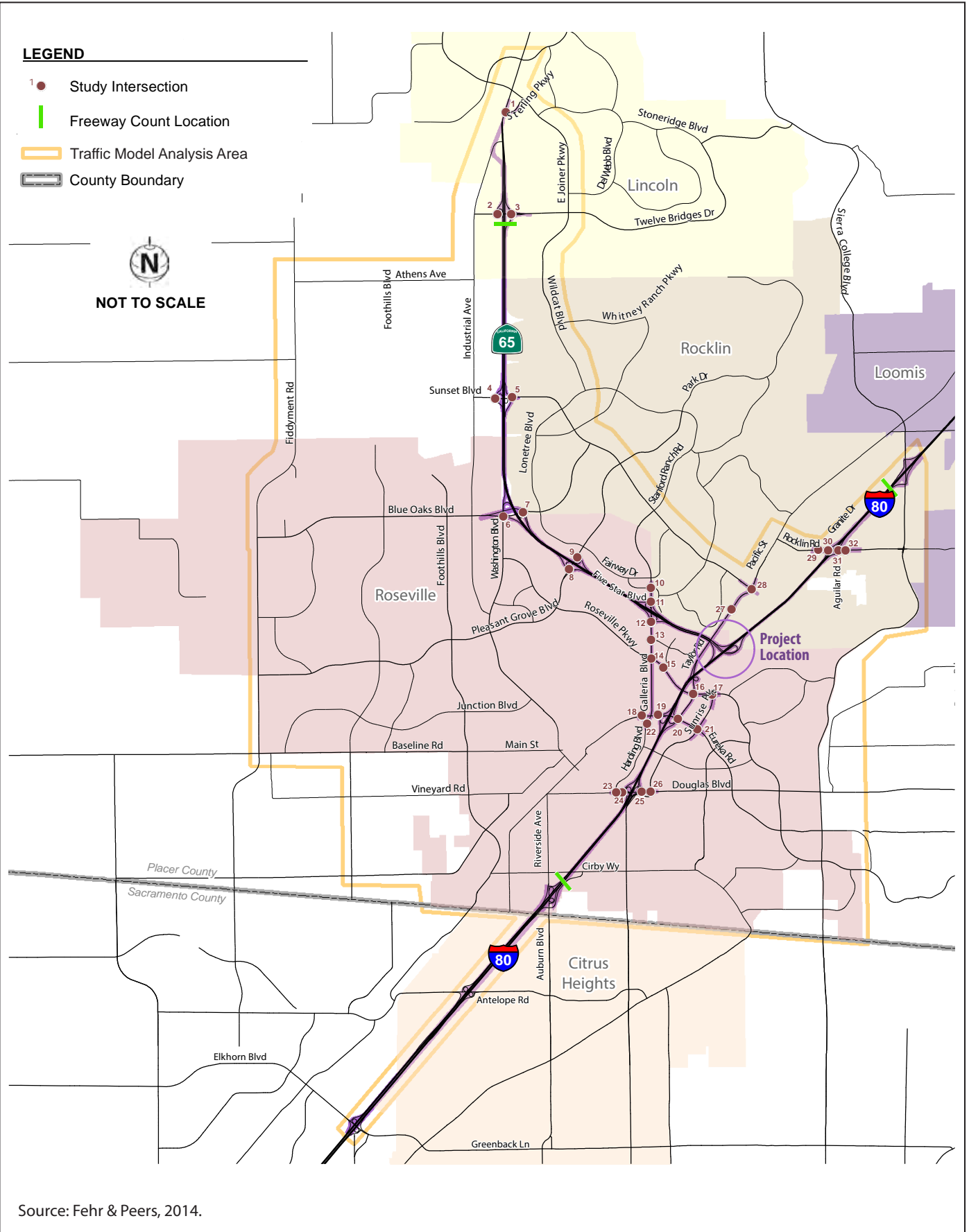
Note: vplpm = vehicles per lane per mile  
 Source: Fehr & Peers 2014.

**LEGEND**

- 1 ● Study Intersection
- Freeway Count Location
- ▭ Traffic Model Analysis Area
- ▭ County Boundary



NOT TO SCALE



Source: Fehr & Peers, 2014.

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**Figure 2.5-1  
Study Area**



**Table 2.5-2. 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.

Note: sec/veh = seconds per vehicle

Source: Fehr & Peers 2014.

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) contains the following LOS policies:

- Strive to maintain a LOS “C” at all signalized intersections in the City during the PM peak hours.

- The City shall coordinate with Caltrans in order to strive to maintain a minimum LOS “D” for SR 65 and SR 193.

With 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 a.m. and p.m. 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 a level of service (LOS) “C” standard at a minimum of 70 percent of all signalized intersections and roadway segments in the City during the PM peak hours.

Some of the study intersections are shown in the General Plan to operate at worse than LOS C under 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, LOS D is the minimum acceptable LOS for the Stanford Ranch Road/Galleria Boulevard ramp terminal and Roseville Parkway/Taylor Road intersections, and LOS E is the minimum acceptable LOS for the Galleria Boulevard/Roseville Parkway, Roseville Parkway/Taylor Road, Eureka Road/Taylor Road/I-80 eastbound ramps, and Douglas Boulevard/Harding Boulevard intersections. For all other Roseville intersections, LOS C is the minimum acceptable LOS. These thresholds will be used for both the a.m. and p.m. 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:

- **A.:** Maintain a minimum traffic Level of Service “C” for all signalized intersections during the p.m. peak hour on an average weekday, except in the circumstances described in C-10.B and C. below.

Based on this standard, LOS C is the minimum acceptable LOS for intersections in the City of Rocklin.

### 2.5.2.4 Existing Conditions

Network performance and traffic operations were analyzed for existing (2012) conditions under a.m. and p.m. peak-period and peak-hour conditions. Detailed exhibits and technical background is included in the *Transportation Analysis Report* available on the project website at <http://8065interchange.org/>.

#### **Existing Network Performance**

Table 2.5-3 summarizes the overall traffic operations performance of the network. The p.m. peak period has the highest level of travel and delay with the most congestion, lasting up to 3 hours for select segments.

**Table 2.5-3. Network Performance Summary – Existing (2012) Peak Period Conditions**

Measure of Effectiveness	A.M. Peak Period (6:00 to 10:00)	P.M. 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

Note: mph = miles per hour  
Source: Fehr & Peers 2014.

#### **Existing Freeway Operations**

Table 2.5-4 includes select LOS results for freeway operations that demonstrate the overall conditions. A complete list of existing operations data is in the *Transportation Analysis Report* available on the project website at <http://8065interchange.org/>. During the a.m. peak hour, congested LOS F conditions occur on northbound SR 65 at the I-80 on-ramp and southbound SR 65 between Blue Oaks Boulevard and Pleasant Grove Boulevard. On northbound SR 65, the merging of the westbound I-80 on-ramp causes congestion. For southbound SR 65, the constraint is the high demand from the mainline combined with the Pleasant Grove Boulevard on-ramp volume.

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

**Table 2.5-4. Selected Freeway Operations Results – Existing (2012) Peak Hour Conditions**

Freeway	Location	A.M. Peak Hour	P.M. Peak Hour
Eastbound I-80	Eureka Road off-ramp	C / 26	<b><u>F / 46</u></b>
	Eureka Road off-ramp to on-ramp	C / 21	C / 23
	Eureka Road eastbound on-ramp	B / 19	B / 20
	Eureka Road to Taylor Road	C / 23	E / 42
	Taylor Road to SR 65	D / 28	E / 42
	SR 65 off-ramp	C / 28	<b><u>F / 52</u></b>
Westbound I-80	SR 65 off-ramp	B / 19	E / 35
	Douglas Boulevard off-ramp	D / 32	C / 26
	Douglas Boulevard westbound on-ramp	E / 36	D / 34
	Douglas Boulevard eastbound on-ramp	E / 42	E / 37
	Douglas Boulevard to Riverside Avenue	D / 33	D / 31
	Riverside Avenue off-ramp	E / 40	E / 36
Northbound SR 65	I-80 westbound on-ramp	<b><u>F / 53</u></b>	<b><u>F / 95</u></b>
	I-80 to Stanford Ranch Road	D / 32	<b><u>F / 77</u></b>
	Stanford Ranch Road off-ramp	D / 33	<b><u>F / 62</u></b>
Southbound SR 65	Blue Oaks Boulevard westbound on-ramp	<b><u>F / 60</u></b>	B / 20
	Blue Oaks Boulevard to Pleasant Grove Boulevard	<b><u>F / 75</u></b>	C / 21
	Pleasant Grove Boulevard off-ramp to on-ramp	<b><u>F / 89</u></b>	C / 25
	Pleasant Grove Boulevard westbound on-ramp	<b><u>F / 72</u></b>	D / 31
	Pleasant Grove Boulevard eastbound on-ramp	<b><u>F / 53</u></b>	E / 39
	Pleasant Grove Boulevard to Galleria Boulevard	E / 36	D / 32
	Galleria Boulevard off-ramp	E / 35	D / 32

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

Source: Fehr & Peers 2014.

### ***Existing Arterial Intersection Operations***

Table 2.5-5 shows the LOS and average delay at key study intersections under existing (2012) conditions. All of the study intersections operate acceptably, except the Blue Oaks Boulevard/Washington Boulevard/SR 65 southbound ramps (LOS D during the a.m. peak hour) and the Rocklin Road/Granite Drive intersection (LOS D during the p.m. peak hour). During the a.m. peak hour, all intersections operate at LOS C or better, except for the Roseville Parkway/Sunrise Avenue and Blue Oaks Boulevard/Washington Boulevard intersections which operate at LOS D. During the p.m. peak hour, the following five intersections operate at LOS D or E: Galleria Boulevard/ Roseville Parkway, Roseville Parkway/Sunrise Avenue, Eureka Road/Taylor Road/ I-80 eastbound ramps, Douglas Boulevard/Sunrise Avenue, and Rocklin Road/Granite Drive.



**Table 2.5-5. Selected Intersection Operations Results – Existing (2012) Peak Hour Conditions**

Intersection	A.M. Peak Hour	P.M. Peak Hour
Blue Oaks Boulevard / Washington Boulevard / SR 65 southbound ramps	<b><u>D / 43</u></b>	C / 33
Stanford Ranch Road / Five Star Boulevard	B / 19	C / 32
Stanford Ranch Road / SR 65 northbound ramps	A / 9	B / 15
Galleria Boulevard / SR 65 southbound ramps	B / 13	B / 19
Galleria Boulevard/ Antelope Creek Drive	B / 10	C / 24
Galleria Boulevard/ Roseville Parkway	C / 30	D / 36
Roseville Parkway / Creekside Ridge Drive	A / 6	B / 17
Roseville Parkway / Taylor Road	C / 30	C / 28
Roseville Parkway / Sunrise Avenue	D / 37	D / 37
Atlantic Street / Wills Road	B / 10	B / 12
Atlantic Street / I-80 westbound ramps	A / 7	B / 11
Eureka Road / Taylor Road / I-80 eastbound ramps	C / 26	E / 61
Eureka Road / Sunrise Avenue	C / 24	C / 30
Douglas Boulevard / Sunrise Avenue	C / 26	D / 35
Pacific Street / Sunset Boulevard	B / 18	C / 29
Rocklin Road / Granite Drive	B / 15	<b><u>D / 37</u></b>
Rocklin Road / I-80 westbound ramps	C / 21	B / 17
Rocklin Road / I-80 eastbound ramps	B / 17	B / 20
Rocklin Road / Aguilar Road	A / 8	B / 13

Note: **Bold** and underline font indicate unacceptable operations. The LOS and average delay in seconds per vehicle are reported.  
Source: Fehr & Peers 2014.

### 2.5.2.5 Traffic Safety

Table 2.5-6 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 April 1, 2009, and March 31, 2012 for the freeway sections and ramps adjacent to the I-80/SR 65 interchange.

**Table 2.5-6. Mainline Accident History (April 1, 2009 – March 31, 2012)**

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate <sup>a</sup>			Average Collision Rate <sup>a</sup>		
			F	F&I	Total	F	F&I	Total
Eastbound I-80 (p.m. 2.2 to 4.2): Douglas Boulevard on-ramp to SR 65 off-ramp	256	2	<b><u>0.012</u></b>	<b><u>0.56</u></b>	<b><u>1.52</u></b>	0.004	0.28	0.90
Eastbound I-80 (p.m. 4.2 to 5.9): SR 65 off-ramp to Rocklin Road off-ramp	52	0	0.000	0.15	0.48	0.004	0.27	0.87
Westbound I-80 (p.m. 4.3 to 5.9): Rocklin Road on-ramp to SR 65 off-ramp	81	1	<b><u>0.010</u></b>	<b><u>0.34</u></b>	0.81	0.004	0.27	0.87
Westbound I-80 (p.m. 2.2 to 4.3): SR 65 off-ramp to Douglas Boulevard off-ramp	189	1	<b><u>0.006</u></b>	<b><u>0.31</u></b>	<b><u>1.08</u></b>	0.004	0.28	0.90
Northbound SR 65 (p.m. R4.9 to 6.9): I-80 on-ramp to Pleasant Grove Boulevard off-ramp	55	1	<b><u>0.009</u></b>	0.15	0.5	0.006	0.33	1.02
Southbound SR 65 (p.m. R4.9 to 7.1): Pleasant Grove Boulevard westbound on-ramp to I-80 off-ramp	95	0	0.000	0.29	0.77	0.006	0.34	1.04

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

<sup>a</sup> The accident rate is accidents per million vehicle-miles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. "Total" includes non-injury accidents, which are not listed separately.

Source: Fehr & Peers 2014, Table 9.

Within the study area, 728 collisions occurred on the freeway sections during the 3-year period. The total collision rates were higher than statewide averages for eastbound and westbound I-80 between Douglas Boulevard and SR 65. This location has the highest volume and experiences the most severe congestion during peak periods. Therefore, drivers in this section are more likely to experience speed differentials and exposure to conflicts. The fatality and injury collision rate for westbound I-80 between Rocklin Road and SR 65 is also greater than the statewide average. As this section is the first congested area drivers may experience when approaching the metropolitan Sacramento area from the east, the potential is high for crashes due to driver inattentiveness.

Table 2.5-7 categorizes the accidents within the 3-year period studied according to accident type. The most frequent collision type (62 percent) is a rear-end collision, which is typical of congested conditions. The next most frequent collision types are side-swipe and hit object. The other collision types are collectively less than 10 percent of all collisions. The freeway section with the higher than average collision rates, I-80 between Douglas Boulevard and SR 65, also has the highest number of rear-end collisions.

**Table 2.5-7. Mainline Collisions by Type (April 1, 2009 – March 31, 2012)**

Location	Head On	Side Swipe	Rear End	Broad-side	Hit Object	Overturn	Auto-Ped	Other
Eastbound I-80: Douglas Boulevard on-ramp to SR 65 off-ramp	0	42	175	6	24	3	1	3
Eastbound I-80: SR 65 off-ramp to Rocklin Road off-ramp	0	14	19	1	16	0	1	1
Westbound I-80: Rocklin Road on-ramp to SR 65 off-ramp	0	48	105	2	21	6	1	5
Westbound I-80: SR 65 off-ramp to Douglas Boulevard off-ramp	0	8	53	2	11	2	2	1
NB SR 65: I-80 on-ramp to Pleasant Grove Boulevard off-ramp	0	6	34	1	10	1	1	2
SB SR 65: Pleasant Grove Boulevard westbound on-ramp to I-80 off-ramp	0	13	67	1	14	0	0	0
<b>Total</b>	<b>0</b>	<b>131 (18%)</b>	<b>453 (62%)</b>	<b>13 (2%)</b>	<b>96 (13%)</b>	<b>12 (2%)</b>	<b>6 (1%)</b>	<b>12 (2%)</b>

Source: Fehr & Peers 2014, Table 10.

Table 2.5-8 summarizes the accident history for the ramps within the 3-year study period. Of the 728 collisions that occurred on the freeway system in the study area, 20 percent (148) occurred on the ramps at Eureka Road/Atlantic Street, Taylor Road, I-80/SR 65, and Stanford Ranch Road/Galleria Boulevard interchanges. Three ramps each on eastbound and westbound I-80 have higher than average total collision rates. In the eastbound direction, they are the loop ramps at Eureka Road, Taylor Road, and SR 65. In the westbound direction, the two SR 65 ramps and the Atlantic Street on-ramp have higher than average collision rates. On SR 65, both on-ramps at Stanford Ranch Road/Galleria Boulevard have higher than average accident rates.

**Table 2.5-8. Ramp Accident History (April 1, 2009 – March 31, 2012)**

Location/Section	Total Accidents	Total Fatalities	Actual Collision Rate			Average Collision Rate		
			F	F&I	Total	F	F&I	Total
Eastbound I-80 off-ramp to Eureka Road (p.m. 2.9)	13	0	0.000	0.16	1.01	0.003	0.34	1.01
Eastbound I-80 on-ramp from eastbound Eureka Road (p.m. 3.0)	3	0	0.000	<b><u>0.37</u></b>	<b><u>1.10</u></b>	0.002	0.21	0.73
Eastbound I-80 on-ramp from westbound Eureka Road (p.m. 3.2)	6	0	0.000	<b><u>0.25</u></b>	0.51	0.003	0.18	0.57
Eastbound I-80 off-ramp to Taylor Road (p.m. 3.6)	7	0	0.000	<b><u>0.62</u></b>	<b><u>1.44</u></b>	0.003	0.30	1.03
Eastbound I-80 off-ramp to SR 65 (p.m. 4.2)	31	0	0.000	<b><u>0.29</u></b>	<b><u>0.98</u></b>	0.004	0.20	0.68
Eastbound I-80 on-ramp from SR 65 (p.m. 4.5)	2	0	0.000	<b><u>0.17</u></b>	0.17	0.003	0.14	0.41
Westbound I-80 off-ramp to SR 65 (p.m. 4.3)	9	1	<b><u>0.070</u></b>	<b><u>0.42</u></b>	<b><u>0.63</u></b>	0.005	0.13	0.38
Westbound I-80 on-ramp from SR 65 (p.m. 4.0)	21	0	0.000	<b><u>0.18</u></b>	<b><u>0.75</u></b>	0.003	0.11	0.32
Westbound I-80 on-ramp from Taylor Road (p.m. 3.6)	3	0	0.000	0.00	0.54	0.003	0.18	0.57
Westbound I-80 off-ramp to westbound Atlantic Street (p.m. 3.2)	2	0	0.000	0.23	0.46	0.004	0.24	0.75
Westbound I-80 off-ramp to eastbound Atlantic Street (p.m. 3.0)	0	0	0.000	0.00	0.00	0.003	0.30	1.06
Westbound I-80 on-ramp from Atlantic Street (p.m. 2.8)	9	0	0.000	<b><u>0.32</u></b>	<b><u>0.71</u></b>	0.002	0.22	0.63
Northbound SR 65 off-ramp to Stanford Ranch Road (p.m. R5.7)	2	0	0.000	0.06	0.11	0.002	0.08	0.25
Northbound SR 65 on-ramp from Stanford Ranch Road (p.m. R6.2)	22	0	0.000	<b><u>0.88</u></b>	<b><u>2.15</u></b>	0.002	0.22	0.63
Southbound SR 65 off-ramp to Galleria Boulevard (p.m. R6.2)	2	0	0.000	0.09	0.18	0.002	0.08	0.25
Southbound SR 65 on-ramp from Galleria Boulevard (p.m. R5.7)	16	0	0.000	<b><u>0.45</u></b>	<b><u>0.90</u></b>	0.002	0.22	0.63

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

<sup>a</sup> The accident rate is accidents per million vehicle-miles. "F" refers to the fatality rate, and "F&I" refers to the fatality and injury rate. "Total" includes non-injury accidents, which are not listed separately.

Source: Fehr & Peers 2014, Table 11.

### 2.5.2.6 Pedestrian and Bicycle Facilities

Sidewalks are provided adjacent to developed areas within the project area, except for Taylor Road between just east of Roseville Parkway and Pacific Street. Within the study area, the availability of sidewalks varies depending on the level and type of development. Signalized crosswalks are provided at major intersections throughout the study area.

The City of Roseville's existing bikeway system includes 27 miles of Class I, off-street bicycle trails; 83 miles of Class II, pavement-marked, on-street bicycle lanes; and 9 miles of Class III, on-street and signed bicycle routes. Roseville also permits bicycling on all public sidewalks, except a select few in downtown Roseville. In some instances (typically along arterial roads), the City provides wide sidewalks that are referred to as Class 1A side paths. These are intended to supplement on-street bike lanes. Since sidewalks, including Class 1A side paths, are primarily

intended and designed to serve pedestrians, the City does not sign or map Class IA side paths or other sidewalks as bikeways (ICF International 2014).

The City of Rocklin has Class II on-street bike lanes on numerous roadways throughout the city. There are several Class I bikeways, including one along Antelope Creek. An additional Class I bikeway is proposed along Secret Ravine Creek (ICF International 2014).

The following Class I bicycle paths are adjacent to or within 0.5 mile of the project area.

- Highland Reserve South Open Space Preserve Trail (Highland Reserve Trail) (existing and proposed) (in Roseville)
- Shea Center Trail (existing and proposed) (in Roseville)
- Conference Center/Galleria Trail (proposed) (in Roseville)
- Secret Ravine Trail (existing and proposed) (in Roseville and Rocklin)
- Antelope Creek Trail (existing) (Roseville and Rocklin)
- Miners Ravine Trail (existing and proposed) (in Roseville)

The following Class II bicycle lanes are located within the project limits.

- Bicycle lane along Lead Hill Boulevard between Harding Boulevard and Sunrise Avenue.
- Bicycle lane along Taylor Road between Eureka Road and I-80 immediately south of I-80.
- Bicycle lane along Roseville Parkway between the Miners Ravine Trail and Antelope Creek Trail.
- Bicycle lane along Galleria Boulevard immediately south of and north of SR 65.

## **2.5.3 Environmental Consequences**

### **2.5.3.1 Build Alternatives**

Future year travel demand forecasts were developed for the design (2040) and construction (2020) year for the three build alternatives. A technical description of the traffic forecast and operations analysis methodologies is included in the *Transportation Analysis Report*. A summary of the findings is presented below.

#### ***Design Year (2040) Network Performance***

Overall network performance statistics for a.m. and p.m. peak period operations during the design year are summarized below and in Tables 2.5-9 and 2.5-10 for Alternatives 1 through 3 and the No Build Alternative.

- Overall, the build alternatives improve overall network performance compared to no-build conditions.

- The three build alternatives serve nearly all of the peak-period demand volume, but the No Build Alternative does not. Some of the No Build Alternative metrics appear to perform better than the Build Alternatives because the results do not fully account for vehicles that could not enter the network during the peak periods. At the end of the four-hour analysis period, traffic would still be congested under the No Build Alternative.
- Alternative 2 has slightly lower delay and higher average speed during the a.m. peak period than the other two build alternatives. Compared to Alternative 1, Alternative 2 has fewer freeway ramps, which minimizes freeway congestion. Although Alternative 3 has even fewer ramps, the local system is more congested, offsetting the benefit to the freeway network.
- The p.m. peak-period results reveal that Alternative 1 serves the most vehicles with the lowest delay for vehicles and persons, as well as the lowest travel times for single-occupant vehicles (SOVs) and HOVs. In this case, the additional ramps to and from the east at Taylor Road reduce the demand for the ramps to and from the east at Eureka Road/Atlantic Street and, consequently, the weaving volume between Eureka Road/Atlantic Street and SR 65.
- The a.m. peak-hour SOV travel time from Blue Oaks Boulevard to Antelope Road for the build alternatives is worse under design year conditions than existing conditions. Even with a future project to provide an auxiliary lane from Douglas Boulevard to Riverside Avenue, this location is predicted to be a bottleneck.
- The p.m. peak-hour SOV travel time from Auburn Boulevard to Blue Oaks Boulevard for the build alternatives is similar or better under design year than existing conditions. The improvement is due to auxiliary lane and HOV lane improvements that are common to all alternatives.
- For all build alternatives, a.m. and p.m. HOV travel times are better than existing conditions.

**Table 2.5-9. Comparison of Overall Network Performance – Design Year (2040) A.M. Peak Period Conditions**

Performance Measure	Existing Conditions	Design Year Conditions				
		Alternative 1	Alternative 2	Alternative 3	No Build	
Volume served (% of total demand)	143,450 (100%)	207,230 (99%)	206,770 (99%)	206,770 (99%)	200,650 (95%)	
Vehicle miles of travel	645,270	920,910	921,610	915,790	831,280	
Person miles of travel <sup>a</sup>	786,260	1,106,120	1,110,890	1,100,400	1,004,060	
Vehicle hours of travel <sup>b</sup>	13,760	21,450	21,190	21,450	26,470	
Vehicle hours of delay (% of vehicle hours of travel)	2,670 (19%)	5,560 (26%)	5,310 (25%)	5,660 (26%)	12,040 (46%)	
Average delay per vehicle (minutes)	1.12	1.61	1.54	1.64	3.60	
Person hours of delay	3,240	6,360	6,080	6,520	13,880	
Average speed (miles per hour)	46.9	42.9	43.5	42.7	31.4	
Average speed for HOVs	47.0	46.8	47.5	46.1	36.2	
Travel time: Blue Oaks Boulevard to Antelope Road (minutes:seconds)	SOV	9:44	14:59	14:31	14:09	9:29
	HOV	9:27	8:45	8:43	8:44	8:31

Notes: HOV = high occupancy vehicles, SOV = single-occupant vehicle

Source: Fehr & Peers 2014, Table 17.

<sup>a</sup> Person miles of travel= the average vehicle occupancy multiplied by the vehicle miles of travel.

<sup>b</sup> Vehicle hours of travel is the sum of the travel times for each modeled vehicle.

**Table 2.5-10. Comparison of Overall Network Performance – Design Year (2040) P.M. Peak Period Conditions**

Performance Measure	Existing Conditions	Design Year Conditions				
		Alternative 1	Alternative 2	Alternative 3	No Build	
Volume served (% of total demand)	198,170 (101%)	300,410 (100%)	300,020 (100%)	300,690 (100%)	259,410 (86%)	
Vehicle miles of travel	730,100	1,114,000	1,109,610	1,110,480	863,410	
Person miles of travel <sup>a</sup>	880,180	1,355,200	1,349,510	1,352,230	1,071,230	
Vehicle hours of travel <sup>b</sup>	16,850	29,970	30,790	30,680	43,430	
Vehicle hours of delay (% of vehicle hours of travel)	3,950 (23%)	10,300 (34%)	11,210 (36%)	11,080 (36%)	28,070 (65%)	
Average delay per vehicle (minutes)	1.20	2.06	2.24	2.21	6.49	
Person hours of delay	4,670	12,020	13,020	12,900	32,910	
Average speed (miles per hour)	43.3	37.2	36.0	36.2	19.9	
Average speed for HOVs	44.7	40.8	40.1	40.1	24.7	
Travel time: Blue Oaks Boulevard to Antelope Road (minutes:seconds)	SOV	9:16	7:52	9:38	9:07	45:38
	HOV	9:11	6:28	6:30	6:29	15:38

Notes: HOV = high occupancy vehicle, SOV = single occupant vehicle

Source: Fehr & Peers 2014, Table 18.

<sup>a</sup> Person miles of travel= the average vehicle occupancy multiplied by the vehicle miles of travel.

<sup>b</sup> Vehicle hours of travel is the sum of the travel times for each modeled vehicle.

### Construction Year (2020) Network Performance

Overall network performance statistics for a.m. and p.m. peak period operations during the construction year are summarized for Alternatives 1 through 3 and the No Build Alternative in Tables 2.5-11 and 2.5-12. The tables show the following.

- Overall, the build alternatives improve network performance compared to no-build conditions.
- The three build alternatives serve all of the peak-period demand volume, but the No Build Alternative does not. At the end of the four-hour analysis period, traffic would still be congested under the No Build Alternative.
- During the a.m. peak period, Alternative 3 has the lowest delay and highest average speed. However, all three build alternatives have about the same results.
- During the p.m. peak period, Alternative 2 has the lowest delay and highest average speed. Because all three build alternatives have similar freeway operations (no congested segments), the data indicates that the arterial network is performing more efficiently for Alternative 2.
- The a.m. peak-hour SOV travel time from Blue Oaks Boulevard to Antelope Road is better for Alternative 2 than Alternative 3 even though Alternative 3 has lower overall delay.
- The p.m. peak-hour travel time from Auburn Boulevard to Blue Oaks Boulevard for the build alternatives is similar.
- For all build alternatives, a.m. and p.m. travel times are better than existing conditions.

**Table 2.5-11. Comparison of Overall Network Performance – Construction Year (2020) A.M. Peak Period Conditions**

Performance Measure	Existing Conditions	Construction Year Conditions				
		Alternative 1	Alternative 2	Alternative 3	No Build	
Volume served (% of total demand)	143,450 (100%)	168,990 (100%)	167,770 (99%)	167,860 (99%)	163,780 (96%)	
Vehicle miles of travel	645,270	794,080	788,250	788,060	740,650	
Person miles of travel <sup>a</sup>	786,260	976,830	970,480	970,660	909,000	
Vehicle hours of travel <sup>b</sup>	13,760	16,990	16,800	16,760	23,040	
Vehicle hours of delay (% of vehicle hours of travel)	2,670 (19%)	3,360 (20%)	3,300 (20%)	3,260 (20%)	10,330 (45%)	
Average delay per vehicle (minutes)	1.12	1.19	1.18	1.17	3.78	
Person hours of delay	3,240	3,990	3,930	3,890	12,370	
Average speed (miles per hour)	46.9	46.7	46.9	47.0	32.1	
Average speed for HOVs	47.0	49.0	49.2	49.1	34.4	
Travel time: Blue Oaks Boulevard to Antelope Road (minutes:seconds)	SOV	9:44	8:56	8:45	9:22	17:10
	HOV	9:27	8:30	8:30	8:39	13:58

Notes: HOV = high occupancy vehicle, SOV = single occupant vehicle

Source: Fehr & Peers 2014, Table 25.

<sup>a</sup> Person miles of travel= the average vehicle occupancy multiplied by the vehicle miles of travel.

<sup>b</sup> Vehicle hours of travel is the sum of the travel times for each modeled vehicle.



**Table 2.5-12. Comparison of Overall Network Performance – Construction Year (2020) P.M. Peak Period Conditions**

Performance Measure	Existing Conditions	Construction Year Conditions				
		Alternative 1	Alternative 2	Alternative 3	No Build	
Volume served (% of total demand)	198,170 (101%)	234,970 (101%)	235,230 (101%)	235,090 (101%)	216,610 (91%)	
Vehicle miles of travel	730,100	934,490	931,460	930,080	805,450	
Person miles of travel <sup>a</sup>	880,180	1,155,450	1,152,400	1,151,470	998,020	
Vehicle hours of travel <sup>b</sup>	16,850	21,500	21,290	21,620	37,230	
Vehicle hours of delay (% of vehicle hours of travel)	3,950 (23%)	5,080 (24%)	4,940 (23%)	5,300 (25%)	23,020 (62%)	
Average delay per vehicle (minutes)	1.20	1.30	1.26	1.35	6.38	
Person hours of delay	4,670	6,140	5,970	6,420	27,150	
Average speed (miles per hour)	43.3	43.5	43.7	43.0	21.6	
Average speed for HOVs	44.7	45.2	45.4	44.7	25.8	
Travel time: Blue Oaks Boulevard to Antelope Road (minutes:seconds)	SOV	9:16	6:26	6:28	6:26	35:10
	HOV	9:11	6:23	6:23	6:23	14:07

Notes: HOV = high occupancy vehicle, SOV = single occupant vehicle

Source: Fehr & Peers 2014, Table 26.

<sup>a</sup> Person miles of travel= the average vehicle occupancy multiplied by the vehicle miles of travel.

<sup>b</sup> Vehicle hours of travel is the sum of the travel times for each modeled vehicle.

### **Design Year (2040) Traffic Operations**

Overall, the project is required to satisfy two conditions for an operational deficiency to occur. First, the study location must operate at a worse LOS than the acceptable traffic operating conditions identified in Section 2.5.2.2, above. Second, the study location must operate at a worse condition (higher delay for intersections or higher density for freeway segments) than the similar case for the No Build Alternative.

The locations of operational deficiencies in the design year (2040) are shown by alternative in Tables 2.5-13 through 2.5-16 to support the traffic avoidance and minimization discussions below. The potential operational deficiencies to I-80 west of the project area could not be quantified; however the model extended to the Greenback Lane/Elkhorn Boulevard/I-80 interchange. 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.

**Table 2.5-13. Selected Freeway Operations Results – Design Year (2040) A.M. Peak Period Conditions**

Freeway	Location	Alternative 1	Alternative 2	Alternative 3	No Build
Eastbound I-80	Auburn Boulevard on-ramp	D / 33	E / 36	D / 33	<b>F / 55</b>
	Auburn Boulevard to Douglas Boulevard	E / 40	E / 37	E / 39	<b>F / 78</b>
	Douglas Boulevard eastbound off-ramp	D / 31	D / 29	D / 33	<b>F / 71</b>
	Douglas Boulevard westbound off-ramp	C / 26	C / 26	E / 36	<b>F / 127</b>
	Douglas Boulevard on-ramp	D / 35	C / 26	C / 26	<b>F / 153</b>
	Eureka Road off-ramp	E / 37			<b>F / 114</b>
	Eureka Road to SR 65	C / 23	D / 30	D / 31	<b>F / 131</b>
	Taylor Road off-ramp	B / 16	-	-	
	SR 65 off-ramp	-	C / 25	C / 25	<b>F / 86</b>
SR 65 on-ramp	D / 30	D / 30	D / 30	B / 20	
Westbound I-80	Rocklin Road to HOV lane start	D / 32	D / 31	D / 32	D / 29
	SR 65 off-ramp	C / 24	C / 22	C / 23	C / 27
	SR 65 to Atlantic Street	<b>F / 90</b>	<b>F / 83</b>	<b>F / 78</b>	C / 27
	Atlantic Street eastbound off-ramp	<b>F / 112</b>	<b>F / 107</b>	<b>F / 111</b>	<b>F / 53</b>
	Atlantic Street off- to on-ramp	<b>F / 109</b>	<b>F / 104</b>	<b>F / 112</b>	C / 24
	Atlantic Street on-ramp	<b>F / 75</b>	<b>F / 73</b>	<b>F / 77</b>	C / 28
	Douglas Boulevard off-ramp	<b>F / 63</b>	<b>F / 60</b>	<b>F / 63</b>	C / 21
	Douglas Boulevard off- to on-ramp	<b>F / 87</b>	<b>F / 88</b>	<b>F / 87</b>	D / 32
	Douglas Boulevard westbound on-ramp	<b>F / 113</b>	<b>F / 113</b>	<b>F / 112</b>	C / 25
	Douglas Boulevard eastbound on-ramp	<b>F / 77</b>	<b>F / 76</b>	<b>F / 76</b>	C / 23
	truck scales off- to on-ramp	<b>F / 47</b>	E / 40	E / 39	D / 30
	truck scales on-ramp	<b>F / 77</b>	<b>F / 70</b>	<b>F / 63</b>	D / 35
	truck scales to Elkhorn Boulevard	<b>F / 56</b>	<b>F / 57</b>	<b>F / 55</b>	E / 39
	Elkhorn Boulevard off-ramp	E / 36	E / 35	E / 37	D / 29
	Elkhorn Boulevard off- to on-ramp	<b>F / 54</b>	<b>F / 49</b>	<b>F / 65</b>	D / 28
Elkhorn Boulevard westbound on-ramp	<b>F / 72</b>	<b>F / 55</b>	<b>F / 80</b>	C / 28	
Elkhorn Boulevard eastbound on-ramp	<b>F / 67</b>	<b>F / 61</b>	<b>F / 71</b>	E / 39	
Northbound SR 65	I-80 to Stanford Ranch Road	C / 27	C / 26	C / 26	<b>F / 57</b>
	Stanford Ranch Road off- to on-ramp	<b>F / 47</b>	<b>F / 47</b>	<b>F / 47</b>	D / 27
	Stanford Ranch Road on-ramp	<b>F / 61</b>	<b>F / 57</b>	<b>F / 61</b>	D / 30
	Stanford Ranch Road to Pleasant Grove Boulevard	E / 44	<b>F / 46</b>	<b>F / 45</b>	
	Pleasant Grove Boulevard off-ramp	E / 40	E / 39	E / 40	C / 24
	Whitney Ranch Parkway westbound on-ramp	C / 26	D / 30	C / 25	
	Twelve Bridges Drive off-ramp	D / 30	D / 33	D / 28	C / 26
Southbound SR 65	Ferrari Ranch Road eastbound on-ramp	<b>F / 133</b>	<b>F / 97</b>	<b>F / 104</b>	C / 24
	Ferrari Ranch Road to lane drop	<b>F / 122</b>	<b>F / 116</b>	<b>F / 117</b>	D / 33
	lane drop to Lincoln Boulevard	<b>F / 112</b>	<b>F / 109</b>	<b>F / 109</b>	D / 33
	Lincoln Boulevard to Twelve Bridges Drive	<b>F / 87</b>	<b>F / 87</b>	<b>F / 87</b>	E / 37
	Twelve Bridges Drive off- to on-ramp	<b>F / 95</b>	<b>F / 96</b>	<b>F / 96</b>	<b>F / 67</b>
	Twelve Bridges Drive on-ramp	<b>F / 73</b>	<b>F / 74</b>	<b>F / 73</b>	<b>F / 61</b>
	Placer Parkway westbound on-ramp	<b>F / 54</b>	E / 42	E / 43	C / 28
	Sunset Boulevard westbound on-ramp	E / 36	E / 37	E / 36	E / 43
	Blue Oaks Boulevard westbound on-ramp	E / 43	E / 37	E / 36	D / 34
	Pleasant Grove Boulevard eastbound on-ramp	E / 38	E / 36	D / 34	E / 44
	Galleria Boulevard off-ramp	D / 29	D / 29	D / 29	<b>F / 55</b>
Galleria Boulevard to I-80	C / 26	C / 26	C / 28	<b>F / 77</b>	

Notes: **Bold** and underline font indicate LOS F conditions. Shaded cells indicate an operational deficiency. The level of service and average density for the study segment are reported.

Source: Fehr & Peers 2014.

**Table 2.5-14. Selected Freeway Operations Results – Design Year (2040) P.M. Peak Period Conditions**

Freeway	Location	Alternative 1	Alternative 2	Alternative 3	No Build
Eastbound I-80	Auburn Boulevard on-ramp	C / 28	D / 29	E / 36	<b><u>F / 164</u></b>
	Auburn Boulevard to Douglas Boulevard	D / 33	D / 33	E / 37	<b><u>F / 154</u></b>
	Douglas Boulevard eastbound off-ramp	E / 37	D / 30	E / 37	<b><u>F / 107</u></b>
	Douglas Boulevard westbound off-ramp	D / 30	C / 27	E / 39	<b><u>F / 180</u></b>
	Douglas Boulevard on-ramp	E / 35	C / 27	C / 26	<b><u>F / 181</u></b>
	Eureka Road off-ramp	E / 38			<b><u>F / 149</u></b>
	Eureka Road to SR 65	C / 27	D / 32	D / 33	<b><u>F / 142</u></b>
	Taylor Road off-ramp	B / 17	-	-	
	SR 65 off-ramp	-	C / 25	C / 28	<b><u>F / 65</u></b>
	SR 65 on-ramp	D / 33	D / 32	D / 33	C / 21
Westbound I-80	Rocklin Road to HOV lane start	E / 36	E / 37	E / 40	<b><u>F / 113</u></b>
	SR 65 off-ramp	C / 23	C / 21	C / 22	<b><u>F / 114</u></b>
	SR 65 to Atlantic Street	E / 39	C / 24	D / 28	E / 41
	Atlantic Street eastbound off-ramp	<b><u>F / 91</u></b>	<b><u>F / 51</u></b>	E / 39	<b><u>F / 61</u></b>
	Atlantic Street off- to on-ramp	<b><u>F / 108</u></b>	<b><u>F / 87</u></b>	<b><u>F / 77</u></b>	<b><u>F / 77</u></b>
	Atlantic Street on-ramp	<b><u>F / 84</u></b>	<b><u>F / 79</u></b>	<b><u>F / 61</u></b>	<b><u>F / 100</u></b>
	Douglas Boulevard off-ramp	<b><u>F / 77</u></b>	<b><u>F / 71</u></b>	<b><u>F / 70</u></b>	<b><u>F / 108</u></b>
	Douglas Boulevard off- to on-ramp	<b><u>F / 100</u></b>	<b><u>F / 97</u></b>	<b><u>F / 97</u></b>	D / 26
	Douglas Boulevard westbound on-ramp	<b><u>F / 114</u></b>	<b><u>F / 111</u></b>	<b><u>F / 114</u></b>	C / 20
	Douglas Boulevard eastbound on-ramp	<b><u>F / 74</u></b>	<b><u>F / 75</u></b>	<b><u>F / 73</u></b>	B / 15
	truck scales to Elkhorn Boulevard	D / 29	D / 29	D / 29	C / 21
	Elkhorn Boulevard westbound on-ramp	C / 26	C / 26	C / 26	B / 18
	Elkhorn Boulevard eastbound on-ramp	D / 29	D / 28	D / 28	C / 22
	Northbound SR 65	I-80 to Stanford Ranch Road	E / 44	<b><u>F / 71</u></b>	<b><u>F / 65</u></b>
Stanford Ranch Road off- to on-ramp		<b><u>F / 103</u></b>	<b><u>F / 112</u></b>	<b><u>F / 106</u></b>	D / 27
Stanford Ranch Road on-ramp		<b><u>F / 73</u></b>	<b><u>F / 75</u></b>	<b><u>F / 72</u></b>	
Pleasant Grove Boulevard off-ramp		D / 33	D / 34	D / 34	D / 30
Whitney Ranch Parkway westbound on-ramp		E / 37	E / 35	E / 41	D / 29
Twelve Bridges Drive off-ramp		E / 37	E / 37	E / 38	D / 30
Southbound SR 65	Ferrari Ranch Road eastbound on-ramp	B / 13	B / 13	B / 13	B / 16
	Lincoln Boulevard to Twelve Bridges Drive	C / 22	C / 22	C / 23	C / 21
	Twelve Bridges Drive on-ramp	C / 27	C / 28	C / 28	C / 25
	Placer Parkway westbound on-ramp	C / 24	C / 24	C / 24	B / 18
	Sunset Boulevard westbound on-ramp	D / 29	D / 29	D / 29	D / 32
	Blue Oaks Boulevard westbound on-ramp	D / 32	D / 33	D / 32	C / 28
	Pleasant Grove Boulevard eastbound on-ramp	D / 30	D / 32	D / 32	D / 29
	Galleria Boulevard off-ramp	D / 29	D / 30	D / 30	D / 33
	Galleria Boulevard to I-80	C / 25	C / 25	C / 26	E / 39

Notes: **Bold** and underline font indicate LOS F conditions. Shaded cells indicate an operational deficiency. The level of service and average density for the study segment are reported.

Source: Fehr & Peers 2014.

**Table 2.5-15. Selected Intersection Operations Results – Design Year (2040) A.M. Peak Period Conditions**

Intersection	Alternative 1	Alternative 2	Alternative 3	No Build
Blue Oaks Boulevard / Washington Boulevard	<b><u>D / 45</u></b>	<b><u>D / 49</u></b>	<b><u>D / 50</u></b>	<b><u>F / 136</u></b>
Blue Oaks Boulevard / SR 65 northbound ramps	B / 10	B / 11	B / 12	<b><u>F / 116</u></b>
Stanford Ranch Road / Five Star Boulevard	C / 28	C / 26	C / 28	<b><u>F / 151</u></b>
Stanford Ranch Road / SR 65 northbound ramps	B / 16	C / 25	B / 19	<b><u>F / 127</u></b>
Galleria Boulevard / SR 65 southbound ramps	C / 24	C / 34	C / 25	D / 38
Galleria Boulevard / Roseville Parkway	D / 45	D / 45	D / 46	D / 39
Roseville Parkway / Creekside Ridge Drive	A / 7	A / 7	A / 7	B / 10
Roseville Parkway / Taylor Road	<b><u>E / 61</u></b>	<b><u>E / 62</u></b>	<b><u>F / 95</u></b>	<b><u>F / 98</u></b>
Atlantic Street / I-80 westbound ramps	<b><u>D / 43</u></b>	C / 25	<b><u>D / 38</u></b>	B / 12
Eureka Road / Taylor Road / I-80 eastbound ramps	C / 32	C / 29	D / 42	E / 55
Eureka Road / Sunrise Avenue	<b><u>D / 38</u></b>	<b><u>D / 37</u></b>	<b><u>D / 39</u></b>	C / 29
Douglas Boulevard / Harding Boulevard	C / 28	C / 29	C / 30	C / 25
Douglas Boulevard / Sunrise Avenue	D / 37	D / 40	D / 47	C / 35
Rocklin Road / Granite Drive	C / 27	C / 25	<b><u>D / 42</u></b>	<b><u>D / 29</u></b>
Rocklin Road / I-80 westbound ramps	C / 23	C / 21	<b><u>D / 46</u></b>	B / 13

Notes: **Bold** and underline font indicate unacceptable conditions. Shaded cells indicate an operational deficiency. The level of service and average delay in seconds per vehicle are reported.

Source: Fehr & Peers 2014.

**Table 2.5-16. Selected Intersection Operations Results – Design Year (2040) P.M. Peak Period Conditions**

Intersection	Alternative 1	Alternative 2	Alternative 3	No Build
Blue Oaks Boulevard / Washington Boulevard	<b><u>F / 165</u></b>	<b><u>F / 164</u></b>	<b><u>F / 175</u></b>	<b><u>F / &gt;240</u></b>
Blue Oaks Boulevard / SR 65 northbound ramps	<b><u>F / 85</u></b>	<b><u>E / 69</u></b>	<b><u>E / 80</u></b>	<b><u>F / 115</u></b>
Stanford Ranch Road / Five Star Boulevard	<b><u>E / 56</u></b>	<b><u>E / 55</u></b>	<b><u>E / 59</u></b>	<b><u>D / 36</u></b>
Stanford Ranch Road / SR 65 northbound ramps	C / 26	C / 22	C / 22	D / 36
Galleria Boulevard / SR 65 southbound ramps	C / 24	C / 23	C / 25	C / 29
Galleria Boulevard / Roseville Parkway	<b><u>F / 91</u></b>	<b><u>F / 131</u></b>	<b><u>F / 102</u></b>	<b><u>F / 213</u></b>
Roseville Parkway / Creekside Ridge Drive	<b><u>E / 77</u></b>	<b><u>E / 72</u></b>	<b><u>D / 40</u></b>	C / 24
Roseville Parkway / Taylor Road	D / 54	D / 53	<b><u>E / 71</u></b>	D / 48
Atlantic Street / I-80 westbound ramps	B / 15	B / 18	C / 34	<b><u>D / 51</u></b>
Eureka Road / Taylor Road / I-80 eastbound ramps	<b><u>F / 104</u></b>	<b><u>F / 103</u></b>	<b><u>F / 104</u></b>	<b><u>F / 92</u></b>
Eureka Road / Sunrise Avenue	<b><u>F / 99</u></b>	<b><u>F / 132</u></b>	<b><u>F / 113</u></b>	<b><u>F / 184</u></b>
Douglas Boulevard / Harding Boulevard	<b><u>F / 81</u></b>	<b><u>E / 80</u></b>	<b><u>F / 111</u></b>	<b><u>F / &gt;240</u></b>
Douglas Boulevard / Sunrise Avenue	<b><u>F / 158</u></b>	<b><u>F / 240</u></b>	<b><u>F / 166</u></b>	<b><u>F / &gt;240</u></b>
Rocklin Road / Granite Drive	<b><u>F / 83</u></b>	<b><u>F / 97</u></b>	<b><u>F / 105</u></b>	<b><u>F / &gt;240</u></b>
Rocklin Road / I-80 westbound ramps	C / 26	C / 26	C / 32	<b><u>F / 99</u></b>

Notes: **Bold** and underline font indicate unacceptable conditions. Shaded cells indicate an operational deficiency. The level of service and average delay in seconds per vehicle are reported.

Source: Fehr & Peers 2014.

### Construction Year (2020) Traffic Operations

The operational deficiencies in the construction year (2020) are shown by alternative in Tables 2.5-17 through 2.5-20 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.

**Table 2.5-17. Selected Freeway Operations Results – Construction Year (2020) A.M. Peak Period Conditions**

Freeway	Location	Alternative 1	Alternative 2	Alternative 3	No Build
Eastbound I-80	Auburn Boulevard on-ramp	D / 29	D / 29	D / 29	E / 37
	Auburn Boulevard to Douglas Boulevard	E / 36	E / 36	E / 36	E / 39
	Douglas Boulevard eastbound off-ramp	D / 30	D / 30	D / 30	D / 34
	Douglas Boulevard westbound off-ramp	C / 24	C / 24	C / 25	E / 40
	Douglas Boulevard on-ramp	E / 35	C / 24	C / 24	D / 28
	Eureka Road off-ramp	E / 38			D / 30
	Eureka Road to SR 65	C / 20	D / 27	D / 27	C / 25
	Taylor Road off-ramp	B / 15	-	-	
	SR 65 off-ramp	-	C / 22	C / 22	<b>F / 66</b>
	SR 65 on-ramp	C / 27	C / 26	C / 26	B / 20
Westbound I-80	Rocklin Road to HOV Lane Start	D / 28	D / 27	D / 29	D / 28
	SR 65 off-ramp	C / 22	C / 21	C / 22	<b>F / 51</b>
	SR 65 to Atlantic Street	C / 25	C / 23	C / 23	D / 32
	Atlantic Street eastbound off-ramp	D / 29	D / 30	D / 28	<b>F / 93</b>
	Atlantic Street on-ramp	<b>F / 47</b>	E / 41	C / 22	<b>F / 107</b>
	Douglas Boulevard off-ramp	<b>F / 51</b>	E / 43	E / 37	<b>F / 46</b>
	Douglas Boulevard westbound on-ramp	<b>F / 99</b>	<b>F / 86</b>	<b>F / 87</b>	<b>F / 114</b>
	Douglas Boulevard eastbound on-ramp	<b>F / 77</b>	<b>F / 76</b>	<b>F / 74</b>	<b>F / 71</b>
	truck scales off- to on-ramp	<b>F / 70</b>	<b>F / 64</b>	<b>F / 51</b>	D / 32
	truck scales on-ramp	<b>F / 88</b>	<b>F / 87</b>	<b>F / 78</b>	D / 33
	truck scales to Elkhorn Boulevard	<b>F / 67</b>	<b>F / 66</b>	<b>F / 64</b>	E / 41
	Elkhorn Boulevard off-ramp	<b>F / 56</b>	<b>F / 53</b>	<b>F / 51</b>	<b>E / 36</b>
	Elkhorn Boulevard off- to on-ramp	<b>F / 92</b>	<b>F / 91</b>	<b>F / 86</b>	<b>F / 64</b>
	Elkhorn Boulevard westbound on-ramp	<b>F / 96</b>	<b>F / 96</b>	<b>F / 92</b>	<b>F / 93</b>
Elkhorn Boulevard eastbound on-ramp	<b>F / 76</b>	<b>F / 76</b>	<b>F / 76</b>	<b>F / 82</b>	
Northbound SR 65	I-80 to Stanford Ranch Road	C / 21	C / 21	C / 22	<b>F / 87</b>
	Stanford Ranch Road on-ramp	B / 11	B / 10	B / 11	<b>F / 64</b>
	Pleasant Grove Boulevard off-ramp	D / 35	D / 34	D / 34	D / 33
	Blue Oaks Boulevard on-ramp	C / 23	C / 23	C / 23	C / 21
	Twelve Bridges Drive off-ramp	B / 18	B / 18	B / 18	B / 17
Southbound SR 65	Ferrari Ranch Road eastbound on-ramp	B / 16	B / 15	B / 14	E / 38
	Lincoln Boulevard to Twelve Bridges Drive	C / 27	C / 25	C / 25	<b>F / 153</b>
	Twelve Bridges Drive on-ramp	E / 40	D / 35	E / 35	<b>F / 164</b>
	Placer Parkway westbound on-ramp	E / 35	D / 34	D / 31	<b>F / 165</b>
	Sunset Boulevard eastbound on-ramp	<b>F / 51</b>	E / 45	E / 43	<b>F / 126</b>
	Blue Oaks Boulevard westbound on-ramp	E / 39	E / 35	E / 36	<b>F / 111</b>
	Blue Oaks Boulevard to Pleasant Grove Boulevard	E / 40	E / 38	E / 37	<b>F / 96</b>
	Pleasant Grove Boulevard westbound on-ramp	D / 29	D / 29	D / 29	<b>F / 79</b>
	Pleasant Grove Boulevard eastbound on-ramp	D / 32	D / 32	D / 33	<b>F / 58</b>
	Galleria Boulevard off-ramp	C / 28	D / 28	D / 28	D / 34
Galleria Boulevard to I-80	C / 24	C / 24	C / 24	C / 26	

Notes: **Bold** and underline font indicate LOS F conditions. Shaded cells indicate an operational deficiency. The LOS and average vehicle density for the study segment are reported.

Source: Fehr & Peers 2014.

**Table 2.5-20. Selected Freeway Operations Results – Construction Year (2020) P.M. Peak Period Conditions**

Freeway	Location	Alternative 1	Alternative 2	Alternative 3	No Build
Eastbound I-80	Auburn Boulevard on-ramp	C / 27	C / 27	C / 27	<b>F / 180</b>
	Auburn Boulevard to Douglas Boulevard	D / 32	D / 32	D / 32	<b>F / 142</b>
	Douglas Boulevard eastbound off-ramp	D / 29	D / 29	D / 29	<b>F / 103</b>
	Douglas Boulevard westbound off-ramp	C / 25	C / 25	C / 25	<b>F / 158</b>
	Douglas Boulevard on-ramp	D / 33	C / 25	C / 25	<b>F / 165</b>
	Eureka Road off-ramp	E / 35			<b>F / 131</b>
	Eureka Road to SR 65	C / 24	D / 30	D / 31	<b>F / 135</b>
	Taylor Road off-ramp	B / 16	-	-	
	SR 65 off-ramp	-	C / 24	C / 25	<b>F / 79</b>
	SR 65 on-ramp	D / 28	C / 27	C / 28	B / 19
Westbound I-80	Rocklin Road to HOV Lane Start	D / 27	C / 25	D / 26	<b>F / 128</b>
	SR 65 off-ramp	C / 20	B / 19	B / 19	<b>F / 140</b>
	SR 65 to Atlantic Street	C / 20	B / 20	B / 20	C / 25
	Atlantic Street eastbound off-ramp	C / 22	C / 23	C / 21	C / 28
	Atlantic Street on-ramp	C / 25	C / 25	B / 20	C / 20
	Douglas Boulevard off-ramp	D / 31	D / 31	D / 30	B / 15
	Douglas Boulevard westbound on-ramp	C / 26	C / 26	C / 26	D / 29
	Douglas Boulevard eastbound on-ramp	C / 26	C / 25	C / 24	D / 33
	truck scales to Elkhorn Boulevard	D / 29	D / 28	D / 28	C / 26
	Elkhorn Boulevard westbound on-ramp	C / 27	C / 26	C / 26	C / 23
Elkhorn Boulevard eastbound on-ramp	D / 29	D / 29	D / 29	C / 27	
Northbound SR 65	I-80 to Stanford Ranch Road	C / 24	C / 25	C / 26	<b>F / 90</b>
	Stanford Ranch Road on-ramp	B / 18	B / 18	B / 18	<b>F / 83</b>
	Pleasant Grove Boulevard off-ramp	D / 35	E / 36	E / 35	D / 31
	Blue Oaks Boulevard on-ramp	E / 36	E / 38	E / 39	C / 22
	Twelve Bridges Drive off-ramp	D / 30	D / 29	D / 30	C / 25
Southbound SR 65	Ferrari Ranch Road eastbound on-ramp	A / 7	A / 7	A / 7	A / 7
	Lincoln Boulevard to Twelve Bridges Drive	B / 14	B / 14	B / 14	B / 13
	Twelve Bridges Drive on-ramp	B / 19	B / 19	B / 19	B / 18
	Placer Parkway westbound on-ramp	B / 18	B / 18	B / 18	B / 18
	Sunset Boulevard eastbound on-ramp	D / 34	D / 33	D / 33	<b>F / 113</b>
	Blue Oaks Boulevard westbound on-ramp	C / 27	C / 27	C / 28	<b>F / 129</b>
	Blue Oaks Boulevard to Pleasant Grove Boulevard	C / 27	C / 26	C / 26	<b>F / 60</b>
	Pleasant Grove Boulevard westbound on-ramp	C / 25	C / 25	C / 25	E / 36
Pleasant Grove Boulevard eastbound on-ramp	C / 22	C / 22	C / 23	D / 29	

Notes: **Bold** and underline font indicate LOS F conditions. Shaded cells indicate an operational deficiency. The LOS and average vehicle density for the study segment are reported.

Source: Fehr & Peers 2014.

**Table 2.5-21. Selected Intersection Operations Results – Construction Year (2020) A.M. Peak Period Conditions**

Intersection	Alternative 1	Alternative 2	Alternative 3	No Build
Blue Oaks Boulevard / Washington Boulevard	C / 33	C / 33	C / 33	<b><u>F / 187</u></b>
Blue Oaks Boulevard / SR 65 northbound ramps	B / 12	B / 11	B / 11	B / 12
Stanford Ranch Road / Five Star Boulevard	C / 24	C / 25	C / 24	C / 29
Stanford Ranch Road / SR 65 northbound ramps	A / 7	A / 7	A / 8	C / 27
Galleria Boulevard / SR 65 southbound ramps	B / 20	B / 19	B / 19	C / 23
Galleria Boulevard / Roseville Parkway	C / 31	D / 36	C / 33	D / 36
Roseville Parkway / Creekside Ridge Drive	D / 47	D / 46	D / 49	<b><u>F / 130</u></b>
Roseville Parkway / Taylor Road	C / 29	B / 12	C / 26	B / 16
Atlantic Street / I-80 westbound ramps	C / 26	C / 28	C / 31	C / 22
Eureka Road / Taylor Road / I-80 eastbound ramps	<b><u>D / 36</u></b>	C / 34	<b><u>D / 35</u></b>	C / 25
Eureka Road / Sunrise Avenue	C / 22	C / 25	C / 23	C / 22
Douglas Boulevard / Harding Boulevard	D / 35	D / 37	D / 37	C / 30
Douglas Boulevard / Sunrise Avenue	C / 22	C / 22	B / 17	C / 28
Rocklin Road / Granite Drive	B / 18	B / 19	B / 19	C / 21
Rocklin Road / I-80 westbound ramps	C / 29	C / 25	<b><u>D / 40</u></b>	<b><u>D / 37</u></b>
Rocklin Road / I-80 eastbound ramps	<b><u>D / 39</u></b>	C / 26	<b><u>D / 35</u></b>	E / 70

Notes: **Bold** and underline font indicate unacceptable conditions. Shaded cells indicate an operational deficiency. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers 2014.

**Table 2.5-22. Selected Intersection Operations Results – Construction Year (2020) P.M. Peak Period Conditions**

Intersection	Alternative 1	Alternative 2	Alternative 3	No Build
Blue Oaks Boulevard / Washington Boulevard	<b><u>D / 39</u></b>	<b><u>D / 43</u></b>	<b><u>D / 40</u></b>	<b><u>F / 188</u></b>
Blue Oaks Boulevard / SR 65 northbound ramps	B / 11	B / 12	B / 12	C / 26
Stanford Ranch Road / Five Star Boulevard	<b><u>D / 43</u></b>	<b><u>D / 37</u></b>	<b><u>D / 37</u></b>	<b><u>F / 107</u></b>
Stanford Ranch Road / SR 65 northbound ramps	B / 11	A / 10	B / 10	D / 45
Galleria Boulevard / SR 65 southbound ramps	B / 17	B / 16	B / 17	D / 43
Galleria Boulevard / Roseville Parkway	E / 61	E / 56	E / 58	<b><u>F / 227</u></b>
Roseville Parkway / Creekside Ridge Drive	D / 48	D / 42	D / 53	D / 37
Roseville Parkway / Taylor Road	B / 17	B / 12	C / 29	<b><u>D / 36</u></b>
Atlantic Street / I-80 westbound ramps	E / 63	E / 77	E / 78	D / 42
Eureka Road / Taylor Road / I-80 eastbound ramps	<b><u>D / 52</u></b>	<b><u>E / 63</u></b>	<b><u>D / 48</u></b>	<b><u>D / 49</u></b>
Eureka Road / Sunrise Avenue	D / 42	D / 39	D / 49	<b><u>F / 123</u></b>
Douglas Boulevard / Harding Boulevard	D / 50	<b><u>E / 56</u></b>	D / 47	<b><u>F / 203</u></b>
Douglas Boulevard / Sunrise Avenue	<b><u>D / 39</u></b>	<b><u>D / 43</u></b>	C / 24	C / 30
Rocklin Road / Granite Drive	<b><u>F / 101</u></b>	<b><u>F / 91</u></b>	<b><u>F / 110</u></b>	<b><u>F / 170</u></b>

Notes: **Bold** and underline font indicate unacceptable conditions. Shaded cells indicate an operational deficiency. The LOS and average delay in seconds per vehicle are reported.

Source: Fehr & Peers 2014.

### **Traffic Safety**

Any build alternative would likely provide similar improvements to transportation safety. A key improvement would be provided by congestion reduction on the freeway. Rear-end collisions on the freeway are associated with congested conditions. As previously described, rear-end collisions in the study area are highest on eastbound I-80 west of SR 65 during the congested p.m. peak period. Because the build alternatives would reduce congestion compared to the No Build Alternative, the expected number of rear-end collisions would be reduced with any of the build alternatives.

Freeway ramp junctions also are associated with higher collision rates. Due to the different configurations, the number of ramp junctions on I-80 between Eureka Road/Atlantic Street and SR 65 differs among the build alternatives. Alternative 1 has 16 ramp junctions, which is the highest number of ramp junctions. Alternative 2 has 15 ramp junctions—although some of these are on the collector-distributor roadway, which would have a lower free-flow speed. Alternative 3 has 12 ramp junctions, which is the fewest number of ramp junctions.

Roadway design standards are used to provide consistent expectations for drivers, which helps improve transportation safety by reducing collision risks. When these standards are not met, collision risks may increase. For the build alternatives, the following design exceptions are related to freeway operations:

- Interchange spacing – The existing configuration for the project area does not meet the interchange spacing standard of 1 mile between local interchanges and 2 miles between system interchanges and local interchanges. None of the build alternatives would meet these standards either. However, Alternatives 2 and 3 would provide the largest traffic weaving distance between the Eureka Road/Atlantic Street and SR 65 interchanges on I-80.
- Lane and shoulder width – The Roseville Parkway overcrossing is a “pinch point” on I-80 in the project area. The right-of-way is restricted initially by the overcrossing itself. However, if the overcrossing were replaced with a wider structure, the standard lane and shoulder widths could not be provided due to right-of-way constraints: a railroad to the north and an electrical tower and commercial properties to the east. As a result, all build alternatives have a similar, narrow cross-section at the Roseville Parkway overcrossing.
- Connector ramp design speed – The design speed for the freeway-to-freeway connector ramps under all build alternatives is less than the standard due to right-of-way constraints on I-80 west of the interchange and the location and design of the existing East Roseville Viaduct north of I-80.
- For Alternatives 2 and 3, the westbound on-ramp from Taylor Road would be maintained. Due to the added lanes on I-80 and the Roseville Parkway overcrossing pinch point described above, the merge area would be shorter than standard length.

Finally, the freeway analysis was conducted assuming that traffic using the I-80/SR 65 interchange carpool direct connector ramps do not enter or exit the freeway network at the Eureka Road/Atlantic Street or Stanford Ranch Road/Galleria Boulevard interchanges. On northbound SR 65, the carpool lane movement would be prevented under all alternatives using a physical barrier (median) between I-80 and Stanford Ranch Road. Alternatives 2 and 3 would prevent this movement through the use of a collector-distributor roadway on eastbound I-80



between Eureka Road and SR 65. For eastbound I-80 under Alternative 1 and westbound I-80 and southbound SR 65 under all three build alternatives, the weaving movement into and out of the HOV lane would be prohibited by signs, pavement markings, and a 4-foot-wide pavement delineation soft barrier. Because the lane would not be physically separate, vehicles traveling in the HOV lane would have additional exposure to errant vehicles.

### **Construction-Related Effects**

Construction of the project could result in temporary disruptions to traffic flow, where temporary lane shifts or closures are required. The majority of the project work would be during the day; night work would be necessary to complete some key construction operations or to avoid high traffic volumes, including on the East Roseville Viaduct. 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. Preparation and implementation of a Transportation Management Plan will be required throughout project construction.

### **Effects on Pedestrians and Bicycles**

Impacts on pedestrians and bicyclists are expected to be minimal. Currently, a significant portion of Taylor Road within the project limits has no sidewalks or bicycle facilities. Under all of the build alternatives, curb, gutter, and sidewalk would be constructed along the south side of Taylor Road, benefiting pedestrians and filling a gap in the pedestrian network.

Under Alternative 2, to minimize bicycle traffic conflicts with the Taylor Road loop off-ramp traffic, per City of Roseville design standards, a bicycle lane would be located between the second and third northbound lanes.

Under all build alternatives, construction of one of the proposed northbound East Roseville Viaduct columns would permanently affect a portion of the existing Antelope Creek Trail. Column placement requires realignment of the section of trail underneath the viaduct. To minimize trail closures, the new portion of trail would be constructed and, when completed, trail users would be shifted to the new trail section.

Under Alternatives 2 and 3, the grade profile of Miners Ravine Trail would need to be lowered by approximately 6 inches under the Eureka Road/Atlantic Street eastbound off-ramp to maintain vertical clearance requirements. Installation of the falsework necessary for construction may require short-term closures of the trail and implementation of an approximately 1-mile detour during construction.

Falsework construction and trail closures would be scheduled to occur during times (e.g., weekdays) that would minimize impacts on trail users, or temporary rerouting of the trail around the construction area would be provided. Appropriate traffic control measures (signs and flaggers) would be used as necessary to maintain the safety and flow of travel on the trails. Effects on trail users would be temporary and are not considered adverse.

Additional information on the project's effects on recreational trails is provided under "Parks and Recreational Facilities" in Section 2.1, "Land Use."

### **2.5.3.2 No Build Alternative**

Overall, the No Build Alternative would result in worse network and operational performance compared to the build alternatives and would not provide any improved traffic safety. Tables 2.5-8 and 2.5-9 (above) identify future network performance of the No Build Alternative. The study locations that do not meet acceptable LOS operating conditions under the No Build Alternative are summarized below. The acceptable LOS operating conditions are provided in Section 2.5.2.2. Detailed operations results for the No Build Alternative are shown in Tables 2.5-12 through 2.5-19.

#### ***Existing (2012) A.M. Peak Hour Operational Deficiencies***

- Westbound I-80: from the westbound Antelope Road on-ramp to the Elkhorn Boulevard off-ramp.
- Northbound SR 65: westbound I-80 on-ramp.
- Southbound SR 65: from the westbound Blue Oaks Boulevard on-ramp to the eastbound Pleasant Grove Boulevard on-ramp.
- Intersections: Blue Oaks Boulevard/Washington Boulevard/SR 65 southbound ramps.

#### ***Existing (2012) P.M. Peak Hour Operational Deficiencies***

- Eastbound I-80: Eureka Road off-ramp and SR 65 off-ramp.
- Westbound I-80: SR 65 off-ramp.
- Northbound SR 65: from the westbound I-80 on-ramp to the Stanford Ranch Road off-ramp.
- Intersections: Eureka Road/Taylor Road/I-80 westbound ramps.

#### ***Design Year (2040) A.M. Peak Hour Operational Deficiencies***

- Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp.
- Westbound I-80: eastbound Atlantic Street off-ramp.
- Northbound SR 65: westbound I-80 on-ramp.
- Southbound SR 65: Twelve Bridges Drive off-ramp to on-ramp, Twelve Bridges Drive on-ramp, and from the Pleasant Grove Boulevard to Galleria Boulevard section to the Galleria Boulevard on-ramp.
- Intersections: Lincoln Boulevard/Sterling Parkway, Blue Oaks Boulevard/Washington Boulevard/SR 65 southbound ramps, Blue Oaks Boulevard/SR 65 northbound ramps, Stanford Ranch Road/Five Star Boulevard, Stanford Ranch Road/SR 65 northbound ramps, Roseville Parkway/Taylor Road, Douglas Boulevard/I-80 westbound ramps, Douglas Boulevard/I-80 eastbound ramps, Lincoln Boulevard/SR 65 northbound off-ramp, Lincoln Boulevard/SR 65 southbound on-ramp, and Placer Parkway/SR 65 northbound ramps.

### **Design Year (2040) P.M. Peak Hour Operational Deficiencies**

- Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp.
- Westbound I-80: Rocklin Road on-ramp to SR 65 off-ramp and Taylor Road on-ramp to Douglas Boulevard off-ramp.
- Northbound SR 65: westbound I-80 on-ramp.
- Intersections: Lincoln Boulevard/Sterling Parkway, Twelve Bridges Drive/SR 65 northbound ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 southbound ramps, Blue Oaks Boulevard/SR 65 northbound ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Sunrise Avenue, Atlantic Street/Wills Road, Atlantic Street/I-80 westbound ramps, Eureka Road/Taylor Road/I-80 eastbound ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 westbound ramps, Douglas Boulevard/I-80 eastbound ramps, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, Rocklin Road/I-80 westbound ramps, Rocklin Road/I-80 eastbound ramps, Rocklin Road/Aguilar Road, Lincoln Boulevard/SR 65 northbound off-ramp, Lincoln Boulevard/SR 65 southbound on-ramp, and Whitney Ranch Parkway/SR 65 northbound ramps.

### **Construction Year (2020) A.M. Peak Hour Operational Deficiencies**

- Eastbound I-80: SR 65 off-ramp and Rocklin Road off-ramp.
- Westbound I-80: SR 65 off-ramp, Taylor Road on-ramp to eastbound Douglas Boulevard on-ramp, and from the Elkhorn Boulevard off-ramp to on-ramp section to the eastbound Elkhorn Boulevard on-ramp.
- Northbound SR 65: westbound I-80 on-ramp and Stanford Ranch Road on-ramp.
- Southbound SR 65: from the Ferrari Ranch Road to lane drop section to the eastbound Pleasant Grove Boulevard on-ramp.
- Intersections: Twelve Bridges Drive/SR 65 southbound ramps, Twelve Bridges Drive/SR 65 northbound ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 southbound ramps, Pleasant Grove Boulevard/SR 65 southbound ramps, Roseville Parkway/Taylor Road, Douglas Boulevard/I-80 westbound ramps, Douglas Boulevard/I-80 eastbound ramps, Rocklin Road/I-80 eastbound ramps, Lincoln Boulevard/SR 65 southbound on-ramp, and Placer Parkway/SR 65 southbound ramps.

### **Construction Year (2020) P.M. Peak Hour Operational Deficiencies**

- Eastbound I-80: Auburn Boulevard on-ramp to SR 65 off-ramp.
- Westbound I-80: Rocklin Road on-ramp to SR 65 off-ramp.
- Northbound SR 65: westbound I-80 on-ramp, Stanford Ranch Road off-ramp to on-ramp, and Stanford Ranch Road on-ramp.
- Southbound SR 65: from the Placer Parkway to Sunset Boulevard weaving section to the eastbound Pleasant Grove Boulevard on-ramp.

- Intersections: Lincoln Boulevard/Sterling Parkway, Sunset Boulevard/SR 65 southbound ramps, Sunset Boulevard/SR 65 northbound ramps, Blue Oaks Boulevard/Washington Boulevard/SR 65 southbound ramps, Stanford Ranch Road/Five Star Boulevard, Galleria Boulevard/Roseville Parkway, Roseville Parkway/Creekside Ridge Drive, Atlantic Street/I-80 westbound ramps, Eureka Road/Sunrise Avenue, Douglas Boulevard/Harding Boulevard, Douglas Boulevard/I-80 westbound ramps, Douglas Boulevard/I-80 eastbound ramps, Douglas Boulevard/Sunrise Avenue, Rocklin Road/Granite Drive, Rocklin Road/I-80 westbound ramps, Rocklin Road/I-80 eastbound ramps, Rocklin Road/Aguilar Road, and Lincoln Boulevard/SR 65 northbound off-ramp, and Lincoln Boulevard/SR 65 southbound on-ramp.

## **2.5.4 Avoidance, Minimization, and/or Mitigation Measures**

### **2.5.4.1 Avoidance and Minimization Measure**

#### **Prepare a Transportation Management Plan**

Prior to construction, the project proponent will prepare a Transportation Management Plan (TMP) in order to minimize disruptions to traffic and to emergency services during 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.

### **2.5.4.2 Mitigation Measures**

#### **Regional Coordination for Transportation Improvements**

The *Transportation Analysis Report* 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 6 and 7). 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 five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements.

Based on results from the *Transportation Analysis Report*, it was determined that even with transportation improvements assumed through year 2040, the following specific locations in the project boundary may operate below acceptable thresholds and potential future improvements are identified below.

Westbound I-80:

- Improve from SR 65 to Riverside Avenue by providing an additional through lane from the Douglas Boulevard off-ramp to the westbound on-ramp and from the Riverside Avenue off-ramp to the northbound on-ramp. This improvement may cause a secondary operational deficiency downstream at Elkhorn Boulevard.
- 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.

Northbound SR 65:

- Improve from Stanford Ranch Road to Pleasant Grove Boulevard by providing an additional through lane from the Pleasant Grove Boulevard off-ramp to on-ramp. The additional lane may need to be extended past the Blue Oaks Boulevard interchange to improve potential secondary operational deficiencies.

Southbound SR 65:

- Improve from Ferrari Ranch Road to Twelve Bridges Drive by providing an auxiliary lane between Twelve Bridge Drive and Placer Parkway. Secondary operational deficiencies may occur at downstream sections.
- Improve the westbound Placer Parkway on-ramp (Alternative 1 only) by extending the planned auxiliary lane between Placer Parkway and Sunset Boulevard to start at the westbound, instead of the eastbound, on-ramp.
- Improve the southbound-to-westbound connector at I-80 (Alternatives 1 and 2) by widening westbound I-80 at Douglas Boulevard or adjusting ramp meter rates as discussed above for westbound I-80.

Intersections:

- Improve the Stanford Ranch Road/Five Star Boulevard intersection by providing a second eastbound right-turn lane.
- Improve the Roseville Parkway/Creekside Ridge Drive intersection, caused by queuing from the adjacent intersection at Roseville Parkway/Galleria Boulevard, by implementing signal timing adjustments (when warranted based on monitoring) or widening improvements at the adjacent signal.

- Improve the Roseville Parkway/Taylor Road intersection (Alternative 3 only) by adding a third southbound left-turn lane.
- Improve the Atlantic Street/I-80 westbound ramps intersection (Alternatives 1 and 3) by adjusting the ramp meter rate or widening the on-ramp to provide more storage.
- Improve the Eureka Road/Taylor Road/I-80 eastbound ramps intersection. For Alternatives 1 and 2, add a second northbound left-turn and southbound right-turn lanes to reduce delays although accommodations may be needed for bicycles and pedestrians. Because Alternative 3 already includes these modifications, further improvements will need to be identified.
- Improve the Eureka Road/Sunrise Avenue intersection by widening to provide a fourth through lane or a third left-turn lane on some approaches.
- Improve the Pacific Street/Sunset Boulevard (Alternatives 1 and 2) under construction year conditions by constructing the planned widening of Sunset Boulevard from four to six lanes prior to the construction year. The planned widening is currently assumed to occur before the design year.

Some of the improvements identified above are already being considered as part of the SR 65 Widening (<http://pctpa.net/projects/sr65widening/>) and I-80 Auxiliary Lanes (<http://pctpa.net/projects/i-80-auxiliary-lanes/>) projects. 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 five to ten 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.

### 2.5.5 References Cited

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