

1.0 PROPOSED PROJECT

1.1 PROJECT BACKGROUND

The City of Elk Grove, in cooperation with the County of Sacramento Department of Transportation, the City of Sacramento, Caltrans, and the FHWA, proposes to reconstruct the existing Sheldon Road/State Route (SR 99) interchange and associated frontage road alignments and access ramps. As shown in **Figure 1.1-1** Project Location Map, the Sheldon Road/SR 99 interchange is located on the northern boundary of the City of Elk Grove and the southern boundary of the City of Sacramento, 03-SAC-99-KP 23.0/25.0 (Post Mile [PM] 14.3 through 15.5,) within Sacramento County, California. The northwest quadrant of the intersection is located in the City of Sacramento, with the exception of the San Joaquin Cemetery, which is located in Sacramento County. The remaining three quadrants (east of SR 99 and south of Sheldon Road) are within the City of Elk Grove.

SR 99 is a major regional highway connecting Sacramento to Fresno and the San Joaquin Valley. SR 99 runs in a northwest/southeast direction through the City of Elk Grove as a four to six-lane grade-separated freeway. Increasing travel demand in the City of Elk Grove has led to increased congestion during peak periods and higher than average accident rates at the Sheldon Road/SR 99 Interchange.

The Sheldon Road Interchange was built in 1956. Sheldon Road is a two-lane undivided arterial that connects Center Parkway with Grant Line Road. This route serves the adjacent residential and neighborhood commercial areas. Sheldon Road currently connects with SR 99 mainline via hook ramps located on East and West Stockton Boulevards. Sheldon Road is designated as a four- to six-lane arterial in the City of Elk Grove General Plan Circulation Element.

The section of SR 99 within the project area is sunken (depressed). SR 99 through the project area currently consists of six (6) 3.65-meter lanes (two [2] mixed flow lanes and one [1] high-occupancy vehicle [HOV] lane in each direction,) 3.2-meter shoulders, and a 6.7-meter paved median. The existing interchange ramps are single-lane hook configurations with an approximate 20 kph (30 mph) design speed. The depressed freeway allows the existing Sheldon Road Bridge overcrossing to be at-grade. The bridge was built in 1950 and has a length of approximately 60 meters (197 feet).

There is an existing park-and-ride lot located along East Stockton Boulevard, and a drainage pump station is located in the southwest quadrant of the project area, which pumps water from the depressed section of the freeway. There is a cemetery adjacent to the frontage road in the northwest quadrant .

PROJECT FUNDING

Funding for the proposed project will come from both local and federal funds. Local funding sources include the City of Elk Grove Measure A Funds, and developer funds such as the Elk Grove West Vineyard and East Elk Grove Special Planning Areas (EGWV & EEG), the Laguna Community Financing District. It is expected that approximately \$15,659,000 will come from

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local funding sources. Additionally, it is expected that approximately \$22,259,000 will come from federal funding sources.

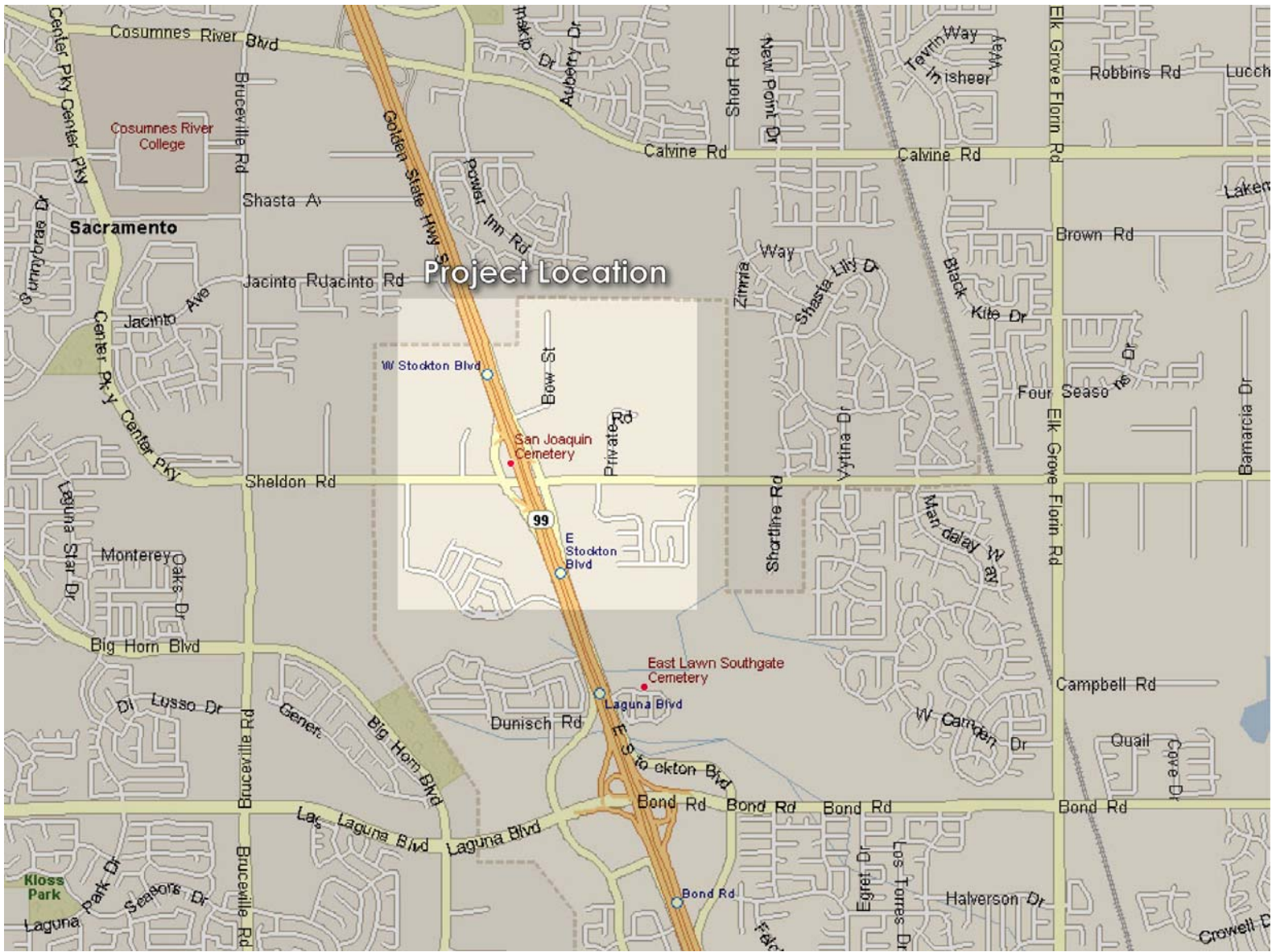
CITY OF ELK GROVE TRANSPORTATION IMPROVEMENT PLAN

The City of Elk Grove's 2002-2007 Transportation Improvement Plan (TIP) represents a five-year transportation capital improvement plan for the City of Elk Grove. The TIP identified thirty-five projects within the city limits that would provide various improvements during the current Plan period. The improvements include but are not limited to street extensions, traffic signals, bikeway improvements, ramp widenings, and bridge replacements. The estimated cost for all recommended improvements is approximately \$140,581,000, with costs ranging from \$200,000 (for the placement of a traffic signal at the intersection of East Stockton and Grant Line Roads) to \$40,000,000, for the proposed interchange on State Route 99 at Sheldon Road.

1.2 PROJECT PURPOSE

The purpose of the Sheldon Road/State Route 99 Interchange Improvement project is to improve existing operational deficiencies and to accommodate increased traffic demand generated by approved and planned development. Sheldon Road serves as an arterial route connecting the primarily residential areas of the City of Elk Grove and the City of Sacramento with highway access to employment and commercial areas in Sacramento.

The project proposes to reconstruct the existing hook-ramps and two-lane overcrossing structure at SR 99 and Sheldon Road to a modified partial cloverleaf interchange with a six (6) through-lane overcrossing. The proposed project would completely reconstruct the existing interchange. The hook ramps would be removed and the overcrossing would be replaced. East Stockton Boulevard would be realigned as part of the project. West Stockton Boulevard would be realigned under Alternative 3A, with only minor realignment under Alternative 2A. The reconstruction and widening of Sheldon Road would extend from the intersection of Lewis Stein Road to the Power Inn Road intersection, where the improvements would adjoin future improvements to be provided by other projects.



Source: Map Point, 2003



City of Elk Grove
Development Services

Figure 1.1-1
Project Location Map

The following are objectives of the proposed Sheldon Road/SR 99 Interchange Improvement project:

- Improve existing traffic operational deficiencies at the interchange;
- Accommodate increased traffic demands generated by planned growth;
- Implement the City of Elk Grove General Plan;
- Upgrade the interchange to meet the current safety and design standards;
- Provide more efficient access between SR 99 and Sheldon Road, which serves the cities of Elk Grove and Sacramento;

1.3 PROJECT NEED

EXISTING CONDITIONS

Land use surrounding the Sheldon Road/SR 99 Interchange is in transition from low-density agricultural residential to single family residential, General Commercial, Open Space/Recreational, and Shopping Center uses. **Figures 2.1-1** and **2.1-2** from the Land Use section of this document illustrate the zoning designations for the land within the proposed project area. The land use designations for the areas within the City of Elk Grove were approved with the adoption of the General Plan on November 19, 2003.

The latest General Plan update for the City of Sacramento was adopted in 1988, and covers the 1988 to 2006 planning period. Since the City of Sacramento General Plan must be updated over the next three years in order to meet update requirements, land use designations within the project area are subject to change from the existing designations.

JURISDICTIONAL REQUIREMENTS

The project falls within the jurisdiction of several agencies including Caltrans, the City of Elk Grove, and the City of Sacramento. Caltrans endeavors to maintain a target level of service (LOS) at the transition between LOS C and LOS D on state highway facilities based on the Guide for the Preparation of Traffic Impact Study (Caltrans, June 2001). The City of Elk Grove has identified LOS D as an acceptable LOS for its roadways and intersections in the City's General Plan (2003). The City of Sacramento has identified LOS C for its roadways and intersections in the City of Sacramento General Plan Update (1988). **Table 1.3-1** shows each jurisdiction, study facility, and associated LOS Threshold.

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**TABLE 1.3-1
CONCEPT LOS FOR STUDY FACILITIES**

Study Facility	Jurisdiction	LOS Threshold
Freeway Facilities		
SR 99 mainline, ramp junctions, weaving sections	Caltrans	LOS D
Intersections		
Calvine Road/Northbound SR 99 Ramps Calvine Road/Southbound SR 99 Ramps	Caltrans	LOS D
West Stockton Boulevard/Southbound SR 99 On-ramp West Stockton Boulevard/Southbound SR 99 Off-ramp East Stockton Boulevard/Northbound SR 99 On-ramp East Stockton Boulevard/Northbound SR 99 Off-ramp	Elk Grove	LOS D
Cosumnes River Boulevard/Bruceville Road	Sacramento	LOS C
Sheldon Road/Bruceville Road	Elk Grove	LOS D
Sheldon Road/Lewis Stein Road Sheldon Road/West Stockton Boulevard	Sacramento	LOS C
Sheldon Road/West Driveway Sheldon Road/East Driveway Sheldon Road/East Stockton Boulevard	Elk Grove	LOS D

Source: Draft Transportation Concept Report Fact Sheet (Caltrans, 2003)

General Plan (City of Elk Grove, November 2003)

City of Sacramento General Plan Update (1988)

Source: Fehr & Peers: Draft Traffic Report: For the State Route 99/Sheldon Road Interchange Project Report, November 26, 2003.

Due to existing traffic operational deficiencies for the freeway and arterial facilities, the interchange requires improvements to meet current and future LOS thresholds for each jurisdiction.

ROADWAY DEFICIENCIES

There are several factors that contribute to the roadway deficiencies within the project area. The most severe deficiency is the unacceptable level of service throughout the project area, caused by high traffic volumes compared to the limited capacity of intersections and freeway on-and off-ramps. Roadway deficiencies include:

- Freeway ramp junctions with merge and diverge areas that have acceleration lanes that are shorter than current standards;
- Short freeway on-ramp acceleration lengths that result in heavy vehicles experiencing difficulty accelerating into the mainline traffic flow;
- Unacceptable operational conditions at several intersections caused by high demand volumes and limited capacity of turning-movements at the intersections;

- Unacceptable through movement queues that prevent vehicles from entering adjacent left- or right-turn pockets, resulting in longer queues occurring in through lanes and extending to upstream intersections; and
- Short freeway off-ramps with sharp curve radii that contribute to rear-end and hit-object accidents.

Modifications to improve capacity of intersections and freeway on- and off-ramps, as well as modifications to freeway on- and off-ramp lengths, curve radii, and signalization would be required to improve existing roadway deficiencies. Descriptions of the design alternatives proposed for improving existing deficiencies are included later in this assessment.

LOS CAPACITY

Fehr and Peers Associates, Inc. were retained to prepare a traffic analysis of the Sheldon Road Interchange, which was completed in February 2004. The results of the traffic model indicate the need for a new interchange that will accommodate current and future traffic volumes at an acceptable level of service.

FREEWAY MAINLINE LOS

Table 1.3-2 summarizes the AM and PM peak hour LOS on SR 99 between Laguna Boulevard and Calvine Road.

The freeway mainline segments studied operate acceptably at LOS D or better during both AM and PM peak hours, except for southbound SR 99 between Calvine Road and Sheldon Road, which operates at LOS E (nearly LOS D) threshold during the PM peak hour. Field observations indicate that the SR 99 mainline operates acceptably with only a slight reduction of speed within the study area.

**TABLE 1.3-2
FREEWAY MAINLINE LOS – EXISTING CONDITIONS**

Freeway Mainline	AM Peak		PM Peak	
	Density ¹	LOS ²	Density ¹	LOS ²
SR 99 Northbound: Laguna Boulevard to Sheldon Road	27	D	26	C
SR 99 Northbound: Sheldon Road to Calvine Road	30	D	26	D
SR 99 Southbound: Cosumnes River Boulevard to Sheldon Road	25	C	<u>36</u>	<u>E</u>
SR 99 Southbound: Sheldon Road to Laguna Boulevard	24	C	30	D

Note: Bold font with underscore indicates unacceptable operations

¹ Density in passenger cars per mile per lane.

² LOS based on the Sacramento County General Plan.

Source: Fehr & Peers, 2003.

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FREEWAY RAMP JUNCTIONS LEVEL OF SERVICE

Table 1.3-3 summarizes the AM and PM peak hour LOS at the Sheldon Road/SR 99 Interchange ramp junctions.

**TABLE 1.3-3
EXISTING FREEWAY RAMP JUNCTIONS LEVELS OF SERVICE**

Freeway Mainline	AM Peak		PM Peak	
	Density ¹	LOS ²	Density ¹	LOS ²
Northbound SR 99 Off-ramp to East Stockton Boulevard.	31	D	30	D
Northbound SR 99 On-ramp from East Stockton Boulevard.	31	D	28	C
Southbound SR 99 Off-ramp to West Stockton Boulevard.	27	C	<u>37</u>	<u>E</u>
Southbound SR 99 On-ramp from West Stockton Boulevard.	25	C	31	D

Note: Bold font with underscore indicates unacceptable operations.

¹ Density in passenger cars per mile per lane.

² LOS based on the Sacramento County General Plan.

Source: Fehr & Peers, 2003

As shown in **Table 1.3-3**, most of the studied freeway ramp junctions in the project area operate acceptably during both a.m. and p.m. peak hours. Although the merge and diverge areas have acceleration lanes that are shorter than current standards, the freeway mainline and ramp volumes are low enough that merge and diverge movements result in uncongested operations. However, due to the short acceleration lengths, heavy vehicles experience difficulty accelerating into the mainline traffic flow. The southbound SR 99 off-ramp operates near the LOS D/LOS E threshold during the p.m. peak hour. Consequently, unacceptable operations occur at this location during the p.m. peak hour.

Field observations indicate that the congestion at the Sheldon Road/East Stockton Boulevard intersection affects traffic operations at the Sheldon Road/West Stockton Boulevard intersection. Consequently, queues on East Stockton Boulevard and West Stockton Boulevard extend from Sheldon Road to the SR 99 northbound and southbound off-ramps.

INTERSECTION LEVEL OF SERVICE

Table 1.3-4 summarizes the existing conditions analysis results from the study intersections.

As shown in **Table 1.3-4** most of the study intersections currently operate at acceptable levels during both the a.m. and p.m. peak hours.

The traffic volume analysis demonstrates that the intersection of Sheldon Road and East Stockton Boulevard currently operates at LOS F in the a.m. and p.m. peak hours, the intersection of Sheldon Road and West Stockton Boulevard operates at LOS E in the a.m. peak hour and LOS D in the p.m. peak hour, in the southbound direction. Three other intersections within the project area operate unacceptably during peak hour conditions, as well.

TABLE 1.3-4
EXISTING SHELDON ROAD/SR 99 INTERCHANGE LEVEL OF SERVICE AND DELAY

Intersection	Control	Jurisdiction & LOS Threshold	Level of Service/Delay ¹	
			AM Peak Hour	PM Peak Hour
Calvine Road/Northbound SR 99 Ramps	Signalized	Caltrans LOS D	B/14	B/14
Cosumnes River Boulevard/Southbound SR 99 Ramps	Signalized	Caltrans LOS D	B/18	D/35
Cosumnes River Boulevard/Bruceville Road	Signalized	Sacramento LOS C	<u>D/41</u>	<u>E/64</u>
Sheldon Road/Bruceville Road ²	Signalized	Elk Grove LOS D	D/39 <u>SB: D/37</u>	<u>E/76</u> <u>SB: D/49</u>
Sheldon Road/Lewis Stein Road ²	Signalized	Elk Grove LOS D	A/9 SB: A/0	C/20 <u>SB: D/49</u>
Sheldon Road/West Driveway	Side-street Stop	Elk Grove LOS D	B/12	B/12
Sheldon Road/East Driveway	Side-street Stop	Elk Grove LOS D	A/2	A/2
Sheldon Road/West Stockton Boulevard ²	Signalized	Elk Grove LOS D	C/31 ³ <u>SB: E/55</u>	D/37 ³ <u>SB: D/46</u>
Sheldon Road/East Stockton Boulevard.	Signalized	Elk Grove LOS D	<u>F/>80</u>	<u>F/>80</u>
West Stockton Boulevard/SR 99 Southbound Off-ramp	Side-street Stop	Elk Grove LOS D	B/12	D/31
West Stockton Boulevard/SR 99 Southbound On-ramp	Side-street Stop	Elk Grove LOS D	A/6	A/5
E. Stockton Boulevard/SR 99 Northbound Off-ramp	Side-street Stop	Elk Grove LOS D	A/8	A/8
E. Stockton Boulevard/SR 99 Northbound On-ramp	Side-street Stop	Elk Grove LOS D	C/15	D/25

Note: Bold with underscore indicates unacceptable operations.

¹ Delay is reported as average control delay per vehicle for unsignalized intersections and average control delay for signalized intersections. All delays are reported in seconds per vehicle.

² Southbound of the intersection is within City of Sacramento and LOS C applies.

³ Field observations indicate the West Stockton Boulevard/Sheldon Road intersection operates at LOS D and LOS F during the a.m. and p.m. peak hours, respectively.

Source: Fehr & Peers, 2003.

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Existing traffic operations are acceptable for the freeway ramp junction facilities with the exception of the southbound SR 99 off-ramp to West Stockton Boulevard during the p.m. peak hour, which operates at LOS E.

Without the proposed interchange improvements, the intersection of Sheldon Road and East Stockton Boulevard will continue to operate at LOS F during the a.m. and p.m. peak hours. With the addition of cumulative traffic volumes generated by regional development, all remaining intersections within the project will operate at LOS F during the a.m. and p.m. peak hours by the year 2025 if no improvements are made. **Table 1.3-5** and **Table 1.3-6** summarize projected 2025 LOS for freeway ramp junctions and intersections, within and surrounding the project area, as they would be without the proposed interchange improvements.

**TABLE 1.3-5
2025 FREEWAY RAMP JUNCTIONS LEVELS OF SERVICE WITHOUT PROJECT**

Freeway Ramp Junction	AM Peak		PM Peak	
	Density ¹	LOS ²	Density ¹	LOS ²
Northbound SR 99 Off-ramp to East Stockton Boulevard.	<u>≥43</u>	<u>F</u>	<u>≥43</u>	<u>F</u>
Northbound SR 99 On-ramp from East Stockton Boulevard.	<u>≥43</u>	<u>F</u>	<u>≥43</u>	<u>F</u>
Southbound SR 99 Off-ramp to West Stockton Boulevard.	<u>≥43</u>	<u>F</u>	<u>≥43</u>	<u>F</u>
Southbound SR 99 On-ramp from West Stockton Boulevard.	<u>≥43</u>	<u>F</u>	<u>≥43</u>	<u>F</u>

Note: Bold font with underscore indicates unacceptable operations.

¹ Density in passenger cars per mile per lane.

² LOS calculations based on the HCM 2000 procedures.

Source: Fehr & Peers, 2003.

**TABLE 1.3-6
2025 INTERSECTION LEVELS OF SERVICE WITHOUT PROJECT**

Intersection	Control	Jurisdiction & LOS Threshold	Level of Service/Delay ¹	
			AM Peak Hour	PM Peak Hour
Calvine Road/Northbound SR 99 Ramps	Signalized	Caltrans LOS D	D/41	<u>F/>80</u>
Cosumnes River Boulevard/Southbound SR 99 Ramps	Signalized	Caltrans LOS D	<u>E/69</u>	<u>F/>80</u>
Cosumnes River Boulevard/Bruceville Road	Signalized	Sacramento LOS C	<u>F/>80</u>	<u>F/>80</u>
Sheldon Road/Bruceville Road ²	Signalized	Elk Grove LOS D	<u>F/>80</u>	<u>F/>80</u>
Sheldon Road/Lewis Stein Road ²	Signalized	Elk Grove LOS D	<u>F/>80</u>	<u>F/>80</u>
Sheldon Road/West Driveway	Side-street Stop	Elk Grove LOS D	<u>F/>50</u> (D/27)	<u>F/>50</u> (<u>F/>50</u>)

Intersection	Control	Jurisdiction & LOS Threshold	Level of Service/Delay ¹	
			AM Peak Hour	PM Peak Hour
Sheldon Road/East Driveway	Side-street Stop	Elk Grove LOS D	<u>F/>50</u> <u>(D/50)</u>	<u>F/>50</u> <u>(D/50)</u>
Sheldon Road/West Stockton Boulevard. ²	Signalized	Elk Grove LOS D	<u>F/>80</u>	<u>F/>80</u>
Sheldon Road/East Stockton Boulevard.	Signalized	Elk Grove LOS D	<u>F/>80</u>	<u>F/>80</u>
West Stockton Boulevard/SR 99 Southbound Off-ramp	Side-street Stop	Elk Grove LOS D	<u>F/>50</u>	<u>F/>50</u>
West Stockton Boulevard/SR 99 Southbound On-ramp	Side-street Stop	Elk Grove LOS D	A/6 (A/4)	A/5 (A/4)
E. Stockton Boulevard/SR 99 Northbound Off-ramp	Side-street Stop	Elk Grove LOS D	<u>F/>50</u>	<u>F/>50</u>
E. Stockton Boulevard/SR 99 Northbound On-ramp	Side-street Stop	Elk Grove LOS D	<u>F/>50</u>	<u>F/>50</u>

Source: Fehr & Peers, 2003.

Note: Bold with underscore indicates unacceptable operations.

¹ Delay (in seconds per vehicle) is reported as worst-case approach delay (average control delay) for unsignalized intersection and average control delay for signalized intersections.

² The southbound of the intersection is within City of Sacramento and LOS C applies.

Without the proposed improvements, the Level of Service would be at unacceptable levels.

TRAFFIC SAFETY

The accident history was reviewed using data from the Traffic Accident Surveillance and Analysis System (TASAS) [for the three-year period from April 1, 1999 to March 31, 2002]. This data is summarized in **Table 1.3-7**. During this period of time, there has been one fatality on SR 99 in the immediate vicinity of the Sheldon Road Interchange, and three others in the surrounding area. Most of the accidents were multiple vehicle accidents with the majority occurring along the mainline SR 99 and the Sheldon Road Interchange southbound off-ramp.

The accident rate on SR 99 mainline within the study area is less than the rate for similar facilities statewide. However, accident rates on the Sheldon Road on- and off-ramps over the past three years have been higher than the statewide average for similar facilities, except for the southbound on-ramp from Sheldon Road. The accident rates for both off-ramps to Sheldon Road are more than 50% higher than the statewide average.

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**TABLE 1.3-7
SHELDON ROAD/SR 99 INTERCHANGE ACCIDENT HISTORY - APRIL 1, 1999 TO MARCH 31, 2002**

Location	Total Accidents	Total Fatalities	Actual Accident Rate	Average Accident Rate
SR 99 Northbound: Laguna Boulevard to Calvine Road (Post Mile R13.840 to 15.899)	71	1	0.64 ¹	0.79 ¹
SR 99 Southbound: Cosumnes River Boulevard to Laguna Boulevard (Post Mile R13.840 to 15.899)	49	2	0.44 ¹	0.79 ¹
SR 99 Northbound Off-ramp to Sheldon Road (Post Mile R14.709)	3	0	1.83 ²	1.15 ²
SR 99 Southbound On-Ramp from Sheldon Road (Post Mile R14.720)	0	0	0 ²	0.6 ²
SR 99 Northbound On-Ramp from Sheldon Road (Post Mile R15.022)	5	0	0.87 ²	0.6 ²
SR 99 Southbound Off-Ramp to Sheldon Road (Post Mile R15.070)	10	1	1.73 ²	1.15 ²

Source: Caltrans District 3 TASAS Table B, April 1, 1999 to March 31, 2002.

Note: Shading indicates an actual accident rate that is higher than the statewide average accident rate for similar facilities.

¹ The number of accidents per million vehicle-miles.

² The number of accidents per million vehicles.

The most frequent types of accidents are rear-end and hit-object collisions, indicating congested conditions and narrow lateral distance. Rear-end collisions on the northbound on-ramps are likely caused by vehicles slowing abruptly when drivers cannot find an acceptable gap to merge onto the freeway. The Sheldon Road Interchange Improvement project is expected to improve these safety conditions by relieving congestion in order to meet the goals of the project. By relieving congestion, the level of service (LOS) at the interchange would improve and the accident rate would be expected to drop.

ACCOMODATION OF POSSIBLE FUTURE WIDENING OF STATE ROUTE 99

Additionally, the existing configuration of the Sheldon Road overcrossing spanning State Route 99 does not allow for future widening of the highway. While it is not a specific objective of the project, one of the outcomes of the Sheldon Road/SR 99 Improvement Project would be to provide a Sheldon Road overcrossing that would allow for future widening of the SR 99 without bridge reconstruction. In the event that future road widening on SR 99 at Sheldon Road be planned, it would include the installation of additional lanes. There are no current plan to widen SR 99 within the project limits.

BICYCLE AND PEDESTRIAN ACCESS IMPROVEMENTS

The existing roadway includes no provisions (i.e., bicycle lanes) for bicycle access within the project area, and there are limited provisions for pedestrian access via sidewalks. Incorporating bicycle lanes and sidewalks adjacent to the roadway along the length of the project area, access for bicyclists and pedestrians would be improved.

1.4 ALTERNATIVES

ALTERNATIVE DEVELOPMENT PROCESS

This chapter describes the proposed project and the design alternatives that were developed by a multi-disciplinary team and public input to achieve project objectives while reducing or eliminating environmental impacts. The potential environmental impacts are discussed in Chapter 2. This chapter includes a discussion of the No Build (No Project) Alternative and Alternatives 2A and 3A.

Several alternatives were considered and rejected during the development process. A description of these rejected alternatives and the reasons for their rejection is discussed below.

Final selection of an alternative will not be made until after the full evaluation of environmental impacts, full consideration of public hearing comments, and approval of the final environmental document.

PROJECT ALTERNATIVES

This section lists the No Build Alternative; Alternatives 2A and 3A; and Alternatives Considered and Withdrawn.

“No Build” Alternative

For the purposes of this document, the term “No Build” is used for the “no project” analysis. The purpose of describing and analyzing a “No Build” alternative is to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The “No Build” alternative will be discussed throughout this document for each subject area. For the “No Build” Alternative analysis, no improvements to the existing Sheldon Road/SR 99 interchange would occur. As such, the existing interchange, on- and off-ramps, and frontage roads would remain in their current state. The analysis of this alternative considers the environmental effects of not approving the proposed interchange improvement project.

Common Features of Design Alternatives 2A and 3A (Figures 1.4-1 and 1.4-2)

Two build alternatives, identified as 2A and 3A, with design variations along with the no-build alternative are being considered. Both alternatives propose similar improvements to Sheldon Road. The existing 2 lane Sheldon Road overcrossing would be replaced with a nine-lane overcrossing that would provide three through lanes and two left turn lanes in the westbound direction and three through lanes and one right turn lane in the eastbound direction. Sheldon Road would be widened, from Lewis Stein Road to Power Inn Road, to provide for three through lanes in each direction.

Raised sidewalks would be provided along both sides of Sheldon Road from Lewis Stein Road to Power Inn Road. The shoulders along both sides would be delineated as Class 2 bike paths.

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The existing pump plant that sits adjacent to SR 99 in the southwest quadrant would be replaced for both alternatives. The underground storage tanks would be enlarged to provide the additional capacity required to accommodate the increased storm-water flows from the additional pavement area.

Ramp metering of the two northbound on ramps, a loop on ramp for eastbound traffic on Sheldon Road and a diagonal on ramp for westbound traffic on Sheldon Road, would be provided by both alternatives. CHP enforcement areas would be provided. The diagonal southbound on ramp would provide grading for a future CHP enforcement area, but no pavement or metering equipment would be provided. The design provides for the future addition of an HOV bypass lane for the southbound on ramp.

The only planned improvements along SR 99 are to provide an auxiliary lane connecting the diagonal southbound on ramp to the existing auxiliary lane for the southbound off ramp at the Laguna / Bond Road interchange.

Both interchange alternatives discussed above would relocate East Stockton Boulevard, a frontage road along the east of SR 99, to approximately 280 meters east of its existing intersection with Sheldon Road. An alignment has been established within the southeast quadrant based upon planned and completed development. There are two options for the realignment within the northeast quadrant:

- Option 1 would construct a two-lane roundabout in the vicinity of the proposed park and a single lane roundabout at East Stockton Boulevard's intersection with Auberry Drive. This option is shown as part of Alternative 2A
- Option 2 would construct a reversing curve alignment. This option is shown as part of the Alternative 3A .

Right of Way Requirements

Approximately 10 residential and three (3) businesses displacements are expected to occur due to the proposed project for each of the proposed build alternatives.

Construction Staging

The majority of construction related activities will likely occur within the project area adjacent to existing and proposed roadways. The project is being designed with the intention of minimizing the difference between the amount of material excavated and that required for fill. If it is necessary to import or dispose of fill material, or stage offsite, than the contractor will need to submit a disposal, staging, borrow site submittal to and approved by Caltrans.

Alternative 2A

Alternative 2A is depicted on **Figure 1.4-1**.

This alternative would reconfigure the existing interchange to provide:

- Two lane southbound loop off ramp in the southwest quadrant;
- 400 m auxiliary lane in advance of southbound loop off ramp;
- Diagonal southbound on ramp in the southwest quadrant;
- Two lane northbound loop on ramp in the southeast quadrant with one mixed flow lane and one HOV bypass lane;
- Diagonal northbound off ramp in the southeast quadrant; and
- Diagonal northbound on ramp in the northeast quadrant with two mixed flow lanes and one HOV bypass lane.

West Stockton Boulevard, located within the northwest quadrant would remain and its intersection with Sheldon Road would align with the southbound ramp intersection. East Stockton Boulevard would be relocated approximately 280 meters to the east of its current location. Access to the San Joaquin Cemetery would be provided from a driveway on West Stockton Blvd.

This alternative requires that approximately 160 m of an existing soundwall within the southwest quadrant be reconstructed. The reconstruction would be completed prior to construction of the interchange.

The capital cost of alternative 2A, in 2004 dollars, is estimated at \$44.8 million dollars.

Alternative 3A

Alternative 3A is depicted on **Figure 1.4-2**.

This alternative would reconfigure the existing interchange to provide:

- Two lane diagonal southbound off ramp in the northwest quadrant;
- Diagonal southbound on ramp in the southwest quadrant
- Two lane northbound loop on ramp in the southeast quadrant with one mixed flow lane and one HOV bypass lane;
- Diagonal northbound off ramp in the southeast quadrant; and
- Diagonal northbound on ramp in the northeast quadrant with two mixed flow lanes and one HOV bypass lane.

West Stockton Boulevard, located within the northwest quadrant, would be realigned westerly starting approximately 500 meters north of its existing intersection with Sheldon Road. The proposed reconstruction of the diagonal off-ramp creates a tight-diamond configuration on the west side of the interchange. This configuration would eliminate local access to some businesses

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and residences. The following options would provide local access to the properties in the northwest quadrant.

There are two options for this realignment.

- Option 1 would realign West Stockton Boulevard to approximately 300 meters north of Lewis Stein Road's intersection with Sheldon Road; an access road would provide local access to Sheldon Road for the cemetery and businesses in the northwest quadrant. A driveway and tunnel would be required for access to the San Joaquin Cemetery.
- Option 2 would realign West Stockton Boulevard west of its current location so that it intersects Lewis Stein Road approximately 300 meters north of Lewis Stein Road's intersection with Sheldon Road. A driveway and tunnel under the proposed diagonal southbound off ramp would provide access to the cemetery.

The capital cost of alternative 3A, in 2004 dollars, is estimated at \$46.7 million dollars.

Alternatives Considered and Withdrawn

Per the requirements of CEQA, an environmental document must identify any alternatives that were considered by the lead agency, but which were rejected as infeasible during the scoping process, and briefly explain the reasons underlying the lead agency's determination. Among the factors that were used to eliminate alternatives from detailed consideration in the environmental document include: failure to meet most of the basic project objectives; infeasibility of the alternative; or, inability to avoid substantial environmental impacts.

Over the course of the past 10 years, several design alternatives for the project have been suggested by different parties, including Caltrans, the City of Elk Grove, and the County of Sacramento, but are no longer under consideration for analysis for various reasons. Presented below is a discussion of the past alternatives considered, but ultimately rejected.

Design Alternative 1A

Design Alternative 1A was rejected in April 2004 because it was not cost effective and because it was environmentally inferior to Design Alternatives 2A and 3A by requiring more right-of-way takes and affecting more properties. Additionally, the City of Sacramento received numerous complaints because Design Alternative 1A would affect local businesses.

Alternative 1A proposed to construct a Type L-9 modified partial cloverleaf interchange with a nine-lane overcrossing, including six through lanes and two left turn lanes for the westbound to southbound on-ramp diagonal, and a right turn lane for the eastbound to the northbound loop on-ramp. A 1.5m - 2.4m bicycle lane/shoulder and a 1.8m sidewalk was included for each direction of the overpass. The major roadway improvements would have replaced existing two-lane Sheldon Road Bridge with a nine-lane structure that provides three westbound through lanes, two westbound left turn lanes to southbound SR 99, three eastbound through lanes, and a right turn lane to northbound SR 99. Alternative 1A would have also replaced the existing northbound

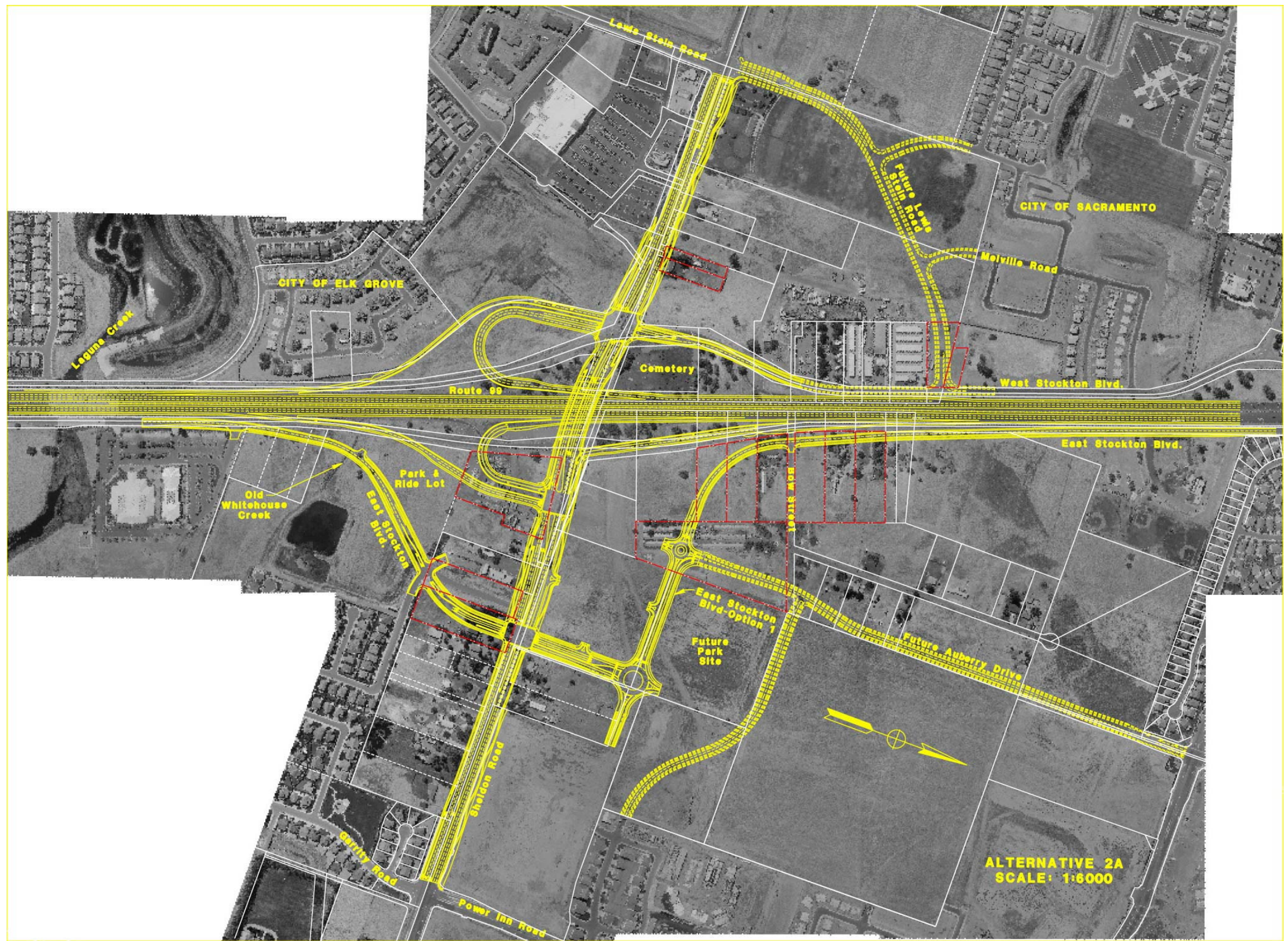
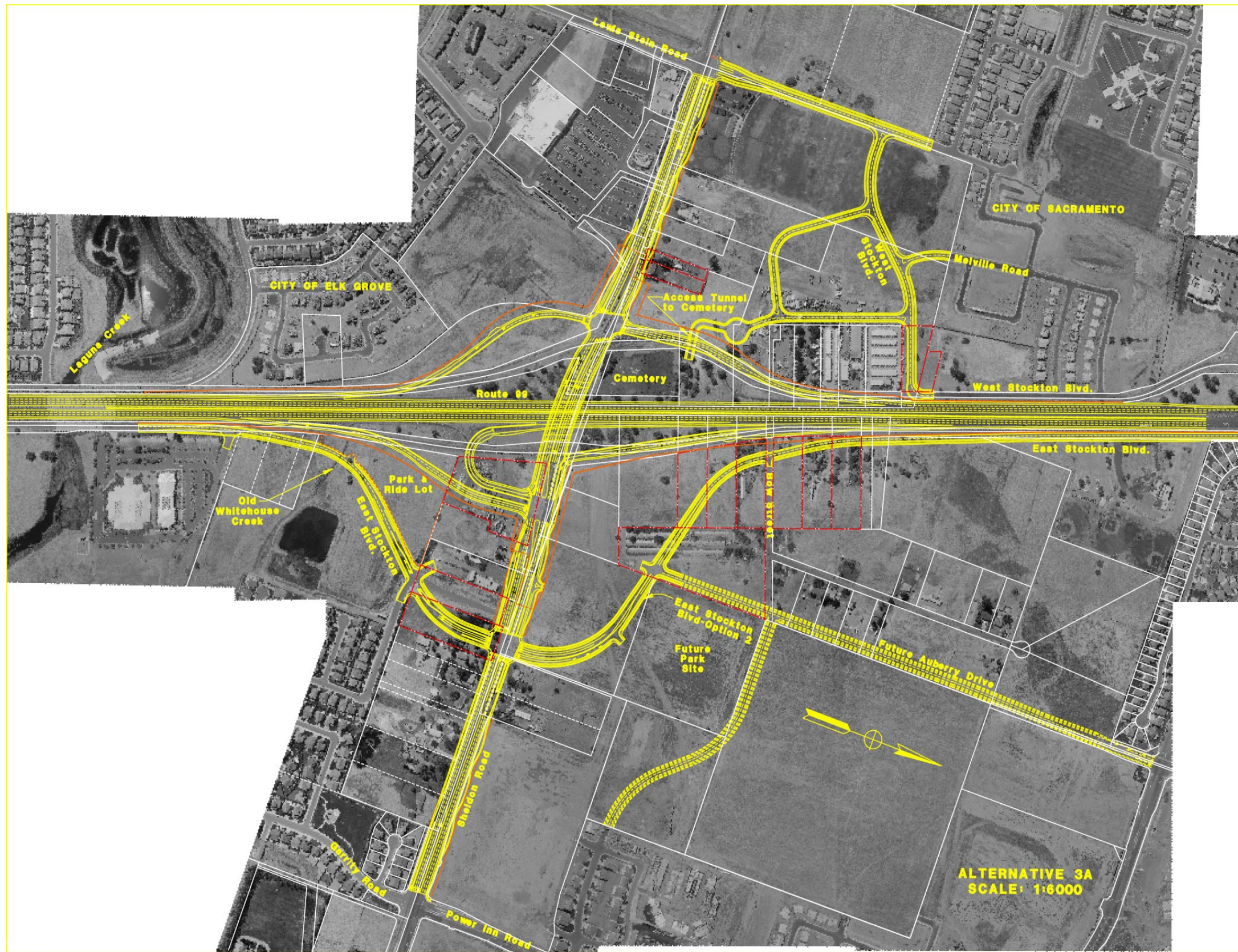


Figure 1.4-1
Alternative 2A



Source: Quincy Engineering, March 2004



City of Elk Grove
Development Services

Figure 1.4-2
Alternative 3A

hook off-ramp from SR 99 to Sheldon Road with a diagonal ramp in the southeast quadrant, constructed a new northbound loop on-ramp from eastbound Sheldon Road to SR 99 in the southeast quadrant, replaced the existing northbound hook on-ramp from Sheldon Road to SR 99 with a diagonal ramp in the northeast quadrant, and replaced the existing southbound hook on-ramp from Sheldon Road to SR 99 with a diagonal ramp in the southwest quadrant.

Alternative 1A would have also constructed a new southbound loop off-ramp from SR 99 to Sheldon Road in the southwest quadrant, realigned the West Stockton Boulevard intersection with Sheldon Road to match the southbound ramp, and realigned East Stockton Boulevard approximately 280 meters east of its current location.

This alternative would have provided local access to the cemetery and businesses in the northwest quadrant. This access would have created the north leg of the SR 99 Southbound Ramps/Sheldon Road intersection.

The following Build Alternatives 1, 2, and 3 were replaced with Alternatives 2A and 3A and refined to reduce impacts to homes and local businesses, and to provide better cemetery access in the northwest quadrant. Additionally, these alternatives were reviewed and updated after substantial public comment on the DEIR from 2000.

Build Alternative 1

Build Alternative 1 involved realigning East Stockton Boulevard approximately 305 meters (1,000 feet) east of its existing location in the northeast and southeast quadrants; the construction of a new diagonal northbound off-ramp between SR 99 and the new configuration of East Stockton Boulevard in the southeast quadrant; the construction of a new northbound loop on-ramp from eastbound Sheldon Road in the southeast quadrant; the construction of a new diagonal northbound on-ramp from westbound Sheldon Road to SR 99 northbound in the northeast quadrant; the construction of a new loop off-ramp from SR 99 southbound to Sheldon Road in the southwest quadrant; widening Sheldon Road Overcrossing from two (2) to seven (7) lanes, and terminating West Stockton Boulevard from the north in a cul-de-sac; the construction of a new diagonal on-ramp from Sheldon Road eastbound to SR 99 southbound in the southwest quadrant; and the realignment of West Stockton Boulevard in the northwest quadrant.

Build Alternative 2

Build Alternative 2 differed from Build Alternative 1 only in the northwest quadrant of the interchange where access to commercial businesses off of West Stockton Boulevard within the City of Sacramento would have been provided via a new road to be constructed off of Sheldon Road along the west side of the Golf Center; the configuration would have had a break in access control across from the ramp terminals of both southbound and northbound off-ramps. This new road would have run southeast to the San Joaquin Cemetery, then northward to West Stockton Boulevard along the frontage of the existing commercial businesses. Design Alternative 2 would have provided direct access to planned commercial development across from the SR 99 northbound off-ramp. This alternative would not have extended Lewis Stein Road along the west side of the Golf Center property. Instead, the cemetery and businesses along West Stockton

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Boulevard would have continued to be accessed via the existing alignment of West Stockton Boulevard.

Build Alternative 3

Build Alternative 3 had the same alignment as Alternative 1, except the southbound loop off-ramp would not have been constructed. Instead, southbound traffic would have utilized the same general alignment of the diagonal off-ramp from SR 99. This off-ramp would have been improved, which would have resulted in the loss of frontage for all of the existing businesses along West Stockton Boulevard. Access to the cemetery and businesses would have been provided via a new road to be constructed off of Sheldon Road, opposite the new Carl's Jr. restaurant, which would have run north/northeast along the rear of the existing businesses and connected to existing West Stockton Boulevard north of the interchange.

Optional Design Alternative

The optional design for each of the three build alternatives involved a modified alignment of East Stockton Boulevard in the northeast quadrant, whereby a portion of East Stockton Boulevard would have been aligned further to the north to follow the existing alignment of Bow Street.

Alternative site analysis

Alternative site evaluations are most relevant for public and other projects where there is a considerable choice in location. A power plant or roadway alignment, for example, may be located in different areas or located on public land and achieve the same objectives. Given that an interchange already exists at the project site, coupled with the fact that neither city has similar land holdings in the project area, off-site alternatives are not considered to be practical or feasible.

Alternative B

This alternative involved a high standard (type L-9) configuration on the east side of SR 99 and a double loop (60 meter radius) off-ramp for the west side of SR 99, with West Stockton Boulevard converted to a cul-de-sac near the cemetery with connection to Lewis Stein Road. Although this alternative seemed to reduce impact to the cemetery by creating the cul-de-sac for West Stockton Boulevard, it would still have required the take of at least three (3) meters (10 feet) of the cemetery in the southeast corner to accommodate the exiting traffic on the double loop off-ramp for southbound traffic on SR 99.

This alternative was considered undesirable because PM peak build-up of traffic was projected to go beyond the mid-point of the curve of the double off-ramp for the west side of SR 99. As previously mentioned, it would also involve impact to the San Joaquin Cemetery as the double off-ramp would require a portion of that land for operation.

Alternative B-1

Alternative B-1 was identical to Alternative B above, but proposed to move the loop for exiting southbound SR 99 traffic further south to avoid impact to the cemetery. It also proposed a larger radius for the loop (76 meters) to allow for less PM traffic build up.

This alternative provided sufficient room for projected traffic volumes leading to the Sheldon intersection and eliminated the impact to the cemetery by shifting the exit for southbound SR 99 traffic south. The downside to this alternative would have been the right-of-way takes in the southwest quadrant.

Alternative C-1

This alternative was similar to Alternative B-1 except it would allow direct access from a parcel in the northeast quadrant to the off-ramp for northbound SR 99 traffic looping around towards Sheldon Road west.

The same comments apply from the discussion for Alternative B-1 except for the addition from the proposed commercial driveway. This access might create confusion and lead to wrong way-turning movements. This alternative would also reduce the level of service in pm peak hour at the intersection of Sheldon Road and the SR 99 northbound off-ramp.

Alternative D

This alternative was also similar to Alternative B-1; the difference being West Stockton Boulevard would connect at the southbound loop off-ramp. For the portion that was the same as Alternative B-1, the same discussion would apply. At the Sheldon Road and southbound SR 99 off-ramp interchange, the level of service required was greater than the level of service that the alternative could provide, given the extraordinary mitigation.

Alternative E

Alternative E was the same as Alternative D above, except access would have been provided to a commercial property on the northbound SR 99 off-ramp. Operations were considered unacceptable in base conditions at Sheldon Road and the southbound SR 99 ramps. This would also worsen the conditions for the already deficient conditions for the northbound ramps for SR 99. Mitigation measures for this alternative would have required four lanes each way on Sheldon Road with five lanes westbound at the commercial driveway.

Alternative F

A High Standard (Type L-9) configuration was proposed on the east side of SR 99 and a diamond configuration was proposed on the west side of SR 99. This alternative would have operated as well as the B-1 alternative, but a tunnel would have been required to access the cemetery. Recommendation would have been necessary from Caltrans as well as from the cemetery on the size of the tunnel, number of parking spaces, and location of parking. This would also have required that the frontage road be relocated to the back of the businesses on the

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west side of SR 99. This alternative was not feasible because added mitigation would have also been required to improve operations at Lewis Stein Road and East Stockton Boulevard.

Alternative G

This alternative was similar to Alternative F except for an opening to commercial property on a northbound SR 99 ramp. See discussion for Alternative F and C-1. Added cost was associated with the commercial access to the SR 99 ramp and extraordinary mitigation was necessary to make it work.

1.5 PERMITS AND APPROVALS NEEDED

This EIR/EA may be used for the following direct and indirect actions regarding the proposed project:

CITY OF ELK GROVE

As the Lead Agency for CEQA the City of Elk Grove has discretionary approval authority and the responsibility to consider the environmental effects of the project pursuant to CEQA for that portion of the project within the City. The project will be presented to the City Council for comment and review. As part of the approval and findings process, the City Council may take the following actions:

- A resolution certifying the Sheldon Road/SR 99 Interchange Improvement Project Final EIR;
- Adoption of a Mitigation Monitoring and Reporting Program for the project;
- Identification of a preferred project alternative by City of Elk Grove;
- City of Elk Grove right-of-way and property acquisition; and
- Approval of site development permits/plans in the project area within the City of Elk Grove.

CITY OF SACRAMENTO

A “Responsible agency” under CEQA is any public agency other than the Lead Agency that has discretionary approval power over the project. As a Responsible agency, the City of Sacramento also has discretionary approval authority and the responsibility to consider the environmental effects of the project pursuant to CEQA for that portion of the project (northwest quadrant) within the City of Sacramento. The City may take the following actions:

- Approval of site development permits/plans in the project area within the City of Sacramento; and
- Right-of-way and property acquisition for the City of Sacramento.

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

A “Responsible Agency” under CEQA is any public agency other than the Lead Agency that has discretionary approval power over the project. As a Responsible Agency, Caltrans also has discretionary approval authority and the responsibility to consider the environmental effects of the project pursuant to CEQA for State right-of-way. As part of the approval and findings process, Caltrans would take the following actions:

- Encroachment permits will be necessary for any work within Caltrans' right-of-way;
- Approve the design of the proposed project; and
- Bidding and Managing the Construction Contract.

Caltrans role in the environmental process:

- Review and comment on the EIR/EA; and
- Act as liaison between the City of Elk Grove and FHWA for submittal of NEPA compliance documents (Environmental Assessment [EA]).

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

As the Lead Agency for NEPA, FHWA is the federal agency with primary responsibility for complying with NEPA. FHWA has discretionary approval authority and the responsibility to consider the environmental effects of the project.

GOVERNMENTAL AGENCY APPROVALS

This document will also be used in part by regulatory agencies and decision-makers to evaluate requests for subsequent permits and approvals. The following agencies are identified as potential “Responsible Agencies” under CEQA:

- Sacramento Metropolitan Air Quality Management District; and
- Regional Water Quality Control Board, Central Valley Region.

A “Trustee Agency”, under CEQA, is an agency with legal jurisdiction over natural resources affected by the project that are held in trust by that agency for the people of the State of California. The only known Trustee Agency is the California Department of Fish and Game.

In order for the project to be implemented, a series of actions would be required through private parties and public agencies. Such actions may include, but are not necessarily limited to, the following:

State Water Quality Control Board: A National Pollution Discharge Elimination System (NPDES) Permit must be obtained for the prevention of sediments and other discharge to surface

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waters using best management practices for erosion control. This would be coordinated with the Regional Water Quality Control Board;

Regional Water Quality Control Board, Central Valley Region: National Pollutant Discharge Elimination System permits (Clean Water Act Section 402) and Water Quality Certification and/or waiver (Clean Water Act Section 401). A Storm Water Pollution Prevention Plan will also likely be required. These activities would be coordinated with the State Water Quality Control Board;

U.S. Army Corps of Engineers: Review and approval of any improvements impacting wetlands, Clean Water Act Section 404 permit;

U.S. Fish and Wildlife Service (USFWS): Section 7 Consultation with USFWS through FHWA would be required.

California Department of Fish and Game (CDFG): Approval of future potential streambed alteration agreements, pursuant to Section 1600 of the Fish and Game Code, Consultation for State Listed Species or any impact pursuant to the Migratory Bird Species Act; and

State Historic Preservation Officer (SHPO): Section 106 Coordination with SHPO through Caltrans and FHWA would be required.