

Project Report

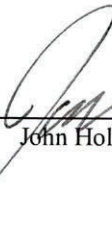
On Route U.S. 50
Between Post Mile 15.0
And Post Mile 17.2

I have reviewed the right-of-way information contained in this report and the right-of-way data sheet attached hereto, and find the data to be complete, current and accurate:



John Ballantyne, *CHIEF, NORTH REGION RIGHT OF WAY*

APPROVAL RECOMMENDED:



John Holder, *PROJECT MANAGER*

APPROVED:



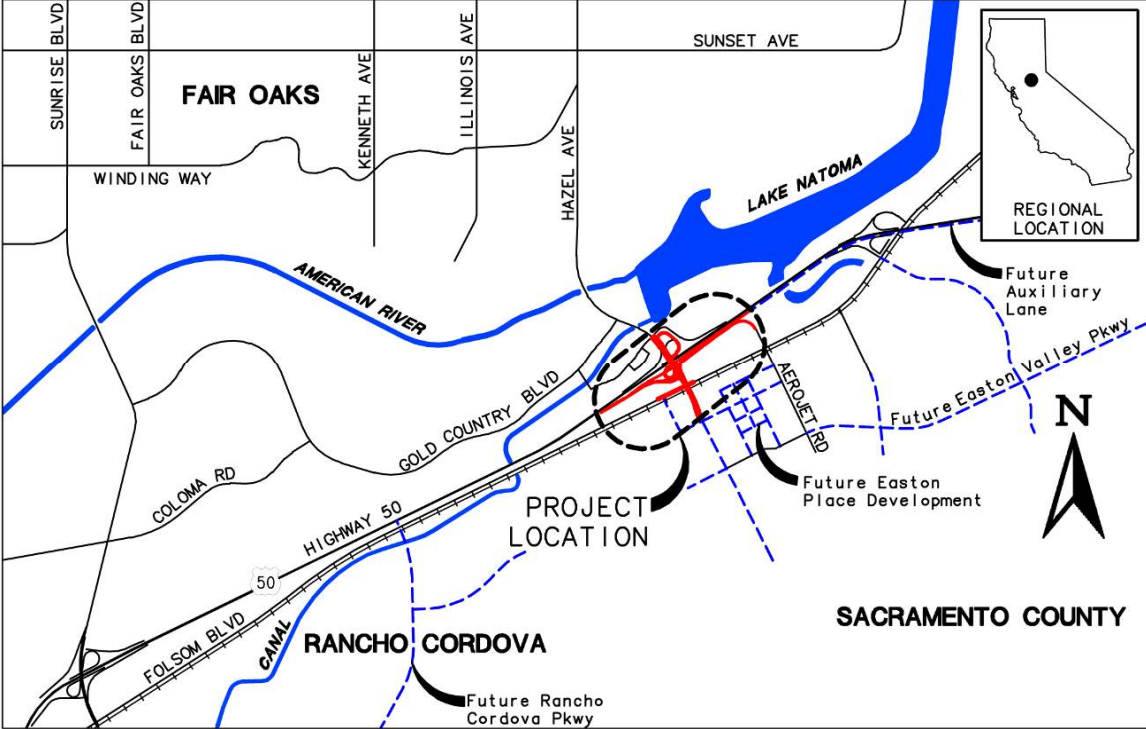
for

Amarjeet S. Benipal, *DISTRICT 3 DIRECTOR*

1/14/2021

DATE

Vicinity Map



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



12/15/2020

R. MATTHEW BROGAN, REGISTERED CIVIL ENGINEER

DATE



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1. INTRODUCTION

The County of Sacramento (County), in cooperation with the California Department of Transportation (Caltrans) and the City of Rancho Cordova, is proposing the Hazel Avenue/U.S. 50 (US 50) Interchange Project (proposed project) to modify the existing interchange, and extend and grade-separate Hazel Avenue over Folsom Boulevard and the Sacramento Placerville Transportation Corridor Joint Power Authority (SPTC-JPA) rail corridor. Hazel Avenue will be extended further south to a proposed intersection with the future Atlanta Street (a new roadway to be constructed as part of the Easton Place development). This project has been assigned Project Development Processing Category 4 for modifying an interchange and will need a revised freeway agreement.

The proposed project would construct modifications to the existing US 50/Hazel Avenue interchange and extend Hazel Avenue to the south. Improvements include an overhead over Folsom Boulevard and the SPTC-JPA rail line corridor, ramp modifications at the US 50/Hazel Avenue interchange and widening of the existing Hazel Avenue Overcrossing. The project also includes the widening of eastbound US 50 to the Folsom Boulevard eastbound off-ramp. See Attachment B.

The Preferred Alternative, Alternative 1 (L-9 Interchange with Viaduct Connector) includes the following improvements:

- Widen Hazel Avenue overcrossing on the west side over US 50.
- Reconstruction of eastbound off-ramp, eastbound loop on-ramp and eastbound diagonal on-ramp, generally in the same location as existing, to conform to proposed Hazel Avenue profile and to accommodate ultimate fifth lane on mainline, per the U.S. Highway 50 Transportation Corridor Concept Report.
- Construction of viaduct connection to Aerojet Road, crossing over Hazel Avenue.
- Grade-separation of Hazel Avenue over Folsom Boulevard
- Construction of a portion of an eastbound transition auxiliary lane on US 50 from Hazel Avenue to the eastbound Folsom Boulevard loop-on ramp.
- Modification of the Aerojet Road off-ramp to eliminate the weave on eastbound US 50.
- Widening of eastbound US 50 to the Folsom Boulevard eastbound off-ramp.
- Realignment of the westbound loop on-ramp, with the ramp intersection shifted north towards the westbound off-ramp terminus, increasing storage lengths. The ramp would be metered with two lanes; one mixed flow and one HOV bypass with signal heads at both lanes.
- Realignment of the eastbound diagonal off-ramp to conform with the new Hazel Avenue profile.
- Realignment of the eastbound diagonal on-ramp to conform with the new Hazel Avenue profile. The ramp would be metered with two lanes: one mixed-flow lane and one HOV bypass with signal heads at both lanes.
- Reconstruction of the eastbound loop on-ramp to conform with the new Hazel Avenue profile. The ramp would be metered with two lanes: one mixed-flow lane and one HOV bypass with signal heads at both lanes. A tie-back wall at the

abutment of the overcrossing is proposed to maximize the opening through the structure. The loop ramp would develop an additional lane on US 50 that would continue on to the Folsom Boulevard interchange.

- Construction of eastbound on- and off-ramp auxiliary lanes on US 50, from west of the Hazel Avenue to eastbound off-ramp, and from the loop on-ramp extending to the Folsom Boulevard interchange.
- Construction of Atlanta Street, which would connect Folsom Boulevard and the southern extension of Hazel Avenue. This section of Atlanta Street is referred to as the “jughandle” due to its shape from an aerial perspective.
- Modification of traffic signals at the ramp terminal intersections and at Tributary Point. Installation of safety lighting at the ramp intersections will also be included.
- Installation of an overhead sign truss to help drivers identify the correct lanes to use to access the US 50 westbound on-ramp, the eastbound loop on-ramp, and Tributary Point Drive.
- Construction of a new signalized intersection and at-grade railroad crossing at Folsom Boulevard and the jughandle; this would include dual left turns and a right turn from Folsom Boulevard onto the jughandle and dual right and left turns from the jughandle onto Folsom Boulevard.
- Creation of a new bicycle/pedestrian route along Hazel Avenue that is separated from vehicular traffic between Folsom Boulevard and the American River Bicycle Trail. The new 12-foot-wide facility would run along the east side of Hazel Avenue beginning at the intersection with the jughandle. It would extend to the north and cross the proposed US 50 eastbound on-ramp at grade. It would then continue along the east side of the Hazel Avenue overcrossing to cross US 50. The trail would then extend adjacent to the loop on-ramp and be grade separated at the US 50 westbound ramp terminal. The bike path would cross underneath the US 50 ramps with concrete slab bridge structures.
- Removal of existing Hazel Avenue/Folsom Boulevard intersection, re-striping lanes, and addition of sidewalk on the south side of Folsom Boulevard.

Project Limits	03-SAC-50; PM 15.0-17.2	
Number of Alternatives	4 Alternatives - 2 Alternatives with 1 sub-alternative and a no build	
	Current Cost Estimate:	Escalated Cost Estimate:
Capital Outlay Support	\$26.9 Million	\$29.6 Million
Capital Outlay Construction	\$55.8 Million	\$62.1 Million
Capital Outlay Right-of-Way	\$11.9 Million	\$13.0 Million
Funding Source	Local (Development Fees, CIP funds and Measure A)	
Funding Year	2020	
Type of Facility	Freeway	
Number of Structures	6	

Environmental Determination or Document	Environmental Impact Report (CEQA) - Environmental Assessment/Finding of No Significant Impact (NEPA)
Legal Description	In Sacramento County, Hazel Avenue, between Folsom Boulevard and US Highway 50: multi-modal corridor improvements, interchange improvements; widen Hazel Avenue from 4 lanes to 6 lanes between Folsom Boulevard and US Highway 50.
Project Development Category	4

2. RECOMMENDATION

It is recommended to approve the project using the Preferred Alternative as described herein, allow the project to proceed to the first phase of design, and to negotiate the following agreements:

- Maintenance Agreement with Sacramento County
- Freeway Agreement with Sacramento County
- Construction and Maintenance Agreement with SPT-JPA

The affected agencies (City of Rancho Cordova and Sacramento County) have been consulted with respect to the project and they are in general accord with the plan as presented.

3. BACKGROUND

Project History

The Hazel Avenue extension to Easton Valley Parkway and ultimately White Rock Road is a priority improvement within the sub-region surrounding US 50 in eastern Sacramento County.

On January 28, 2009, the Sacramento County Board of Supervisors approved the General Plan Amendment, Zoning Ordinance, Tentative Subdivision map and Affordable Housing Plan for Easton Place and Glenborough developments. These developments are located on approximately 6,699 acres of land owned by GenCorp Realty Investments (GenCorp) in eastern Sacramento County, and are identified by the adopted Sacramento Area Council of Governments (SACOG) Blueprint and Regional Transportation Plan.

Through the efforts of the 50 Corridor Mobility Partnership, preliminary studies were initiated to identify potential improvements to the interchange and the extension of Hazel Avenue south beyond Folsom Boulevard to accommodate the planned and approved growth.

The Project Study Report (PSR) was approved July 2014 allowing the project to move into the PA&ED Phase. The Final Traffic Operations Report was submitted in 2016. Advance Planning Studies (APS) have been submitted for each of the bridge alternatives. The Draft Project Report (DPR) was approved on February 11, 2020 identifying two build alternatives plus one variation on Alternative 1. Alternative 1 was selected as the preferred alternative during the environmental process.

Related Projects – Natoma Overhead Widening/Folsom Boulevard Ramp Metering

Caltrans and the County entered into a Cooperative Agreement (03-0545) on November 7, 2013, which specified the terms and conditions for improvements to the US 50/Folsom Boulevard interchange. The Folsom Boulevard Overcrossing, also known as the Natoma Overhead, was widened (varied width) in the eastbound direction, the eastbound on-ramps were reconstructed with ramp metering and HOV bypass, the entrance lane was extended on the new widening and 1,000 feet beyond the structure, and the eastbound off-ramp was minimally reconstructed to accommodate the improvements. The project was completed in 2016.

Related Projects – Easton Place “Jughandle”

As part of a separate project, the County is currently designing improvements on Hazel Avenue south of US 50. A new roadway will be constructed from the western leg of the intersection of Hazel Avenue and the future Atlanta Street, which will turn north to connect to Folsom Boulevard. This quadrant roadway is referred to as the “jughandle” within this DPR. This roadway will remain with the ultimate interchange improvements, providing full access between Folsom Boulevard and the grade-separated Hazel Avenue.

Community Interaction

The following public outreach efforts have been conducted:

- Community open house on March 7, 2013
- Public scoping meeting on March 3, 2016
- Web site updates
- Press releases to various publications
- EIR Public Information Meeting on March 9, 2020

Existing Roadway Facilities

Between the US 50/Sunrise Boulevard and US 50/Hazel Avenue interchanges, US 50 is an eight-lane freeway, including two high-occupancy vehicle (HOV) lanes. The US Highway 50 Transportation Corridor Concept Report (TRC) has identified this section as having an ultimate build-out of 10 lanes including HOV lanes, and two auxiliary lanes to Folsom Boulevard.

Between the US 50/ Hazel Avenue and Folsom Boulevard interchanges, this is a 6-lane freeway with a west bound through lane addition from Folsom Boulevard and an eastbound lane drop at Folsom Boulevard. The TRC has identified this section ultimate build-out of 8-lanes including HOV lanes.

The existing interchange at Hazel Avenue is a Type L-9 (partial cloverleaf), with two-lane off-ramps in both directions. The WB on-ramp from SB Hazel Avenue is a two-lane ramp with HOV bypass. The WB on-ramp from NB Hazel Avenue is a single lane without HOV bypass. The EB on-ramps are single lane ramps with HOV bypass.

Hazel Avenue is a six-lane arterial trending north-south and terminating at the Folsom Boulevard intersection south of US 50. The existing overcrossing was constructed in 1994 and is a two-span cast-in-place post-tensioned concrete box girder. The existing profile of Hazel Avenue over US 50 contains a non-standard vertical curve providing sight distance that corresponds with a design speed of 33 mph (using calculations per the State of California Department of Transportation Highway Design Manual [HDM]).

A private roadway extends south of the intersection of Hazel Avenue and Folsom Boulevard into the Aerojet facility. The roadway contains a public at-grade crossing of the SPTC-JPA rail corridor.

There is an existing 5-foot wide sidewalk on the east side of the Hazel Avenue Overcrossing spanning over US 50. Immediately north of US 50, the existing sidewalk to remain exceeds 5% longitudinal slope. Hazel Avenue has standard outside shoulders that accommodate bicycle traffic.

Folsom Boulevard is a four-lane arterial trending east-west, generally running parallel to US 50. The existing Folsom Boulevard/Hazel Avenue intersection is approximately 640 feet from the Hazel Avenue Overcrossing and 200 feet from the eastbound ramp intersections.

The SPTC-JPA rail corridor parallels Folsom Boulevard to the south. Within the corridor Sacramento Regional Transit District (SacRT) operates single-tracked light rail, and Union Pacific Railroad (UPRR) operates a single-tracked heavy rail.

Approximately 350 feet east of the Hazel Avenue eastbound on-ramp is the Aerojet Road off-ramp. The isolated off-ramp exits to Folsom Boulevard. Aerojet Road continues south of Folsom Boulevard as a private road but is proposed to become a Main Street access point to the Easton Place development.

East of the Aerojet Road off-ramp is the Folsom Boulevard Bikeway and Pedestrian Overcrossing (POC). The POC was constructed in 1998 and carries the AKA Jediah Smith Trail over US 50, connecting into Folsom Boulevard and Lake Natoma near Hazel Avenue.

4. PURPOSE AND NEED

PURPOSE:

The primary purpose of the project is to modify the existing interchange to reduce congestion, improve traffic operations, accommodate travel demand due to planned and approved developments, and improve safety of all modes of travel including bicycles and pedestrians. The preferred alternative will meet the following objectives.

- Improve operations by removing the close intersection spacing between the eastbound ramps and Folsom Boulevard and minimizing conflict with heavy and light rail.
 - Proposed alternatives accomplish this by grade-separating Hazel Avenue over Folsom Boulevard.
- Provide sufficient capacity in the ramps and roadways for future traffic volumes.
 - Proposed alternatives accomplish this by widening and/or lengthening the on- and off-ramps and Hazel Avenue as required by their respective traffic analyses.
- Maintain the Aerojet Road off-ramp connection to the approved development while improving the mainline operations.
 - Proposed alternatives accomplish this by removing the Aerojet Road exit from US 50 but still providing direct access to Aerojet Road through the eastbound Hazel Avenue off-ramp.

NEED:

The proposed project is needed for the following reasons.

- Existing and forecasted traffic operations and congestion are below acceptable operating standards (i.e. Level of Service [LOS] "D") at the Hazel Avenue/US 50 interchange.
- Planned and approved developments identified by the adopted Sacramento County General Plan and SACOG's Regional Transportation Plan, including the increased traffic volumes associated with the proposed Easton Project, will increase the traffic volumes at the Hazel Avenue/US 50 interchange beyond acceptable operating standards.
- Implementation of mitigation identified in the Easton Project Final EIR (County of Sacramento, 2008) is required to accommodate the increased traffic volumes associated with that development. The Easton Project mitigation includes reconstruction of the Hazel Avenue/US 50 interchange as well as grade separation of Hazel Avenue over Folsom Boulevard and the light rail tracks. The Easton Project will contribute a share of funding to the improvements.

4A. PROBLEM, DEFICIENCIES, JUSTIFICATION

The approved developments within and near the project area will increase traffic demand beyond what the existing interchange can accommodate. The close intersection spacing

between the Folsom Boulevard and eastbound ramp intersections does not provide sufficient queuing for increased traffic volumes. Additionally, the County of Sacramento recently completed the widening Hazel Avenue from the interchange to Madison Avenue from four to six traffic lanes. This increase in roadway capacity will deliver more traffic to the interchange during peak traffic periods.

Traffic demand forecasts for this project were conducted using the SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) to 2042 (20 years after anticipated opening day) and supplemented by anticipated levels of additional development currently in application or advanced planning stages. Based on these projections, it is anticipated the existing interchange will degrade to LOS “F”.

4B. REGIONAL AND SYSTEM PLANNING

Identify Systems

The June 2014 Caltrans District 3 Transportation Concept Report and Corridor System Management Plan (TCR/CSMP) classifies US 50 as a freeway within the National Highway System for the segment between Sunrise Boulevard and Folsom Boulevard. This segment is also on the State Freeway and Expressway System (F&E), the Interregional Road System (IRRS), the Surface Transportation Assistance Act (STAA) National Network, and is a high emphasis route in the Caltrans Interregional Transportation Strategic Plan (ITSP).

State Planning

The US 50 Transportation Concept Report and Corridor System Management Plan, dated June 2014, recommends the 20-year Facility and the Ultimate Facility as follows:

	Sunrise Ave. to Hazel Blvd.	Hazel Blvd. to Folsom Blvd.
Existing	6F + 2HOV	4F + 2HOV
20-Year	8F + 2HOV+ITS+ Aux Lanes	4F + 2HOV+ITS+ Aux Lanes
Ultimate Facility	8F + 2HOV+ITS+ ICM + Aux Lanes	4F + 2HOV+ITS+ ICM + Aux Lanes

The design of the project will accommodate the future widening identified for the Ultimate Facility. This project is included in the Caltrans’ 3-Year Project Initiation Document Program.

Regional Planning

The project is included in the SACOG 2016 MTP/SCS; and is programmed in the SACOG 2017-20 Metropolitan Transportation Improvement Program (MTIP).

The project augments other projects that have been constructed or are planned to be constructed in the vicinity such as the widening of Hazel Avenue to six lanes from US 50 to Curragh Downs Drive (Phase 1 completed in 2011) and from Curragh Downs Drive to Madison Avenue (Phases 2 and 3 to be completed by 2021).

The project is also considered a “Near Term Priority Improvement Project” by the 50 Corridor Mobility Partnership, a cooperative public-private effort by the County of Sacramento, City of Rancho Cordova, City of Folsom, County of El Dorado, and several major private landowners. The Partnership is supported in an advisory capacity by Caltrans, SACOG and SacRT.

Local Planning

This project is consistent with the Sacramento County General Plan dated November 11, 2011 and as amended on December 13, 2017.

Transit Operator Planning

Construction of a grade-separated crossing of SacRT tracks at Hazel Avenue and adding the new at-grade jughandle crossing is consistent with SacRT’s planning.

4C. TRAFFIC

Current and Forecasted Traffic

A Traffic Operations Report was prepared by DKS on March 6, 2016 and approved by Caltrans. The report evaluated existing (2015), opening year (2022) and horizon year (2042) conditions. Current and forecasted traffic volumes are provided in Table 1 on the following page.

Table 1 – Existing and Future Traffic Volumes						
0	Year	AADT	AM Peak Hour		PM Peak Hour	
			Peak Hour Volume	Directional Split (%)	Peak Hour Volume	Directional Split (%)
Existing	2015	137,660	11,130	61%	9,522	51%
Opening	2022	166,910	12,880	56%	11,540	52%
Horizon	2042	208,250	16,560	53%	17,970	50%

The results of the operations analysis indicate that the no build scenario would result in extreme and unacceptable levels of congestion during the horizon year. All build alternatives perform acceptably during the opening and horizon year. All build alternatives also meet applicable level of service policies (relating to freeway and intersection operations) and provide adequate storage for estimated queues at ramp terminals.

Table 2 - Existing (2015) Freeway Operations Analysis (US 50 Eastbound)					
Existing (2015) No Build					
Analysis Segment	Type	AM Peak Hour		PM Peak Hour	
		LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Sunrise Blvd to Hazel Ave	Basic	B	14.9	B	16.3
Hazel Ave Exit	Two- Lane Diverge	A	9.0	B	13.3
SB Hazel Ave Loop Entrance	One- Lane Merge	B	19.7	B	17.5
NB Hazel Ave Slip Entrance	Weave	B	17.6	B	13.9
Aerojet Exit					
Aerojet Rd to Folsom Blvd (Mixed)	Basic	C	19.7	B	16.9
Folsom Blvd Exit	Two- Lane Diverge	C	26.2	C	21.3
Folsom Blvd Entrance	One- Lane Merge	C	24.5	C	22.3
Folsom Blvd to Prairie City Rd	Basic	C	19.5	B	17.4
Note: Bold values indicate unacceptable level of service.					

Table 3 - Existing (2015) Freeway Operations Analysis (US 50 Westbound)					
Existing (2015) No Build					
Analysis Segment	Type	AM Peak Hour		PM Peak Hour	
		LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Prairie City Rd to Folsom Blvd (Mixed)	Basic	C	24.1	B	17.3
Folsom Blvd Exit	One- Lane Diverge	D	32.3	C	25.0
Folsom Blvd Entrance	One- Lane Merge	D	29.8	C	24.6
Folsom Blvd to Hazel Ave	Basic	D	26.4	C	21.7
Hazel Ave Exit	Two- Lane Diverge	A	9.8	A	8.5
NB Hazel Ave Loop Entrance	One- Lane Merge	C	25.2	C	20.3
SB Hazel Ave Slip Entrance	One- Lane Merge	D	32.5	C	21.3
Hazel Ave to Sunrise Blvd (Mixed)	Basic	D	30.6	C	19.4
Note: Bold values indicate unacceptable level of service.					

Table 4 - Opening Year (2022) Freeway Operations Analysis (US 50 Eastbound)											
Opening Year (2022) No Build						Opening Year (2022) with Alternative 1/1A or Alternative 2					
Analysis Segment	Type	AM Peak Hour		PM Peak Hour		Analysis Segment	Type	AM Peak Hour		PM Peak Hour	
		LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)			LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Sunrise Blvd to Hazel Ave	Basic	C	21.9	C	23.7	Sunrise Blvd to Hazel Ave	Basic	C	21.9	C	23.7
Hazel Ave Exit	Two-Lane Diverge	B	17.7	C	23.4	Hazel Ave Exit	Two-Lane Diverge	B	19.3	C	24.1
SB Hazel Ave Loop Entrance	One-Lane Merge	C	23.1	B	19.9	SB Hazel Ave Loop Entrance	One-Lane Merge	C	21.6	B	19.1
NB Hazel Ave Slip Entrance	Weave	C	21.2	B	15.3	NB Hazel Ave Slip Entrance	Weave	B	19.2	B	14.7
Aerojet Exit						Folsom Blvd Exit					
Aerojet Rd to Folsom Blvd	Basic	C	24.0	C	18.1						
Folsom Blvd Exit	Two-Lane Diverge	F	32.8	C	23.4						
Folsom Blvd Entrance	One-Lane Merge	D	30.4	C	24.2	Folsom Blvd Entrance	One-Lane Merge	B	19.8	B	17.0
Folsom Blvd to Prairie City Rd	Basic	D	26.0	C	19.2	Folsom Blvd to Prairie City Rd	Basic	D	26.0	C	19.2

Note: **Bold** values indicate unacceptable level of service.

Table 5 - Opening Year (2022) Freeway Operations Analysis (US 50 Westbound)											
Opening Year (2022) No Build						Opening Year (2022) with Alternative 1 or Alternative 2					
Analysis Segment	Type	AM Peak Hour		PM Peak Hour		Analysis Segment	Type	AM Peak Hour		PM Peak Hour	
		LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)			LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Prairie City Rd to Folsom Blvd	Basic	D	26.7	C	19.4	Prairie City Rd to Folsom Blvd	Basic	D	26.7	C	19.4
Folsom Blvd Exit	One-Lane Diverge	D	34.7	C	27.5	Folsom Blvd Exit	One-Lane Diverge	D	34.7	C	27.5
Folsom Blvd Entrance	One-Lane Merge	F	32.8	C	26.9	Folsom Blvd Entrance	One-Lane Merge	F	32.8	C	26.9
Folsom Blvd to Hazel Ave	Basic	D	30.2	C	23.3	Folsom Blvd to Hazel Ave	Basic	D	30.2	C	23.3
Hazel Ave Exit	Two-Lane Diverge	B	11.5	A	9.2	Hazel Ave Exit	Two-Lane Diverge	B	11.5	A	9.2
NB Hazel Ave Loop Entrance	One-Lane Merge	C	27.7	C	21.7	NB Hazel Ave Loop Entrance	One-Lane Merge	C	27.7	C	21.7
SB Hazel Ave Slip Entrance	One-Lane Merge	D	34.7	C	25.9	SB Hazel Ave Slip Entrance	One-Lane Merge	D	34.7	C	25.9
Hazel Ave to Sunrise Blvd	Basic	D	34.4	C	23.7	Hazel Ave to Sunrise Blvd	Basic	D	34.4	C	23.7

Note: **Bold** values indicate unacceptable level of service.

Table 6 - Horizon Year (2042) Freeway Operations Analysis (US 50 Eastbound)											
Horizon Year (2042) No Build						Horizon Year (2042) with Alternative 1/1A or Alternative 2					
Analysis Segment	Type	AM Peak Hour		PM Peak Hour		Analysis Segment	Type	AM Peak Hour		PM Peak Hour	
		LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)			LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Rancho Cordova Pkwy to Hazel Ave	Basic	F	54.2	F	60.8	Rancho Cordova Pkwy to Hazel Ave	Basic	F	54.2	F	60.8
Hazel Ave Exit	Two-Lane Diverge	F	35.0	F	38.1	Hazel Ave Exit	Two-Lane Diverge	F	23.5	F	26.9
SB Hazel Ave Loop Entrance	One-Lane Merge	D	34.1	D	33.0	SB Hazel Ave Loop Entrance	One-Lane Merge	D	32.1	D	31.4
NB Hazel Ave Slip Entrance	Weave	D	28.7	C	27.9	NB Hazel Ave Slip Entrance	Weave	C	26.2	C	26.2
Aerojet Exit						Folsom Blvd Exit					
Aerojet Rd to Folsom Blvd	Basic	E	35.7	E	35.5	Folsom Blvd Exit					
Folsom Blvd Exit	Two-Lane Diverge	F	45.8	F	45.7						
Folsom Blvd Entrance	One-Lane Merge	F	41.4	F	44.4	Folsom Blvd Entrance	One-Lane Merge	C	26.3	D	28.9
Folsom Blvd to Prairie City Rd	Basic	F	56.2	F	67.7	Folsom Blvd to Prairie City Rd	Basic	F	56.2	F	67.7

Note: **Bold** values indicate unacceptable level of service.

Table 7 - Horizon Year (2042) Freeway Operations Analysis (US 50 Westbound)											
Horizon Year (2042) No Build						Horizon Year (2042) with Alternative 1/1A or Alternative 2					
Analysis Segment	Type	AM Peak Hour		PM Peak Hour		Analysis Segment	Type	AM Peak Hour		PM Peak Hour	
		LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)			LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Prairie City Rd to Folsom Blvd	Basic	E	41.4	F	51.8	Prairie City Rd to Folsom Blvd	Basic	E	41.4	F	51.8
Folsom Blvd Exit	One-Lane Diverge	E	44.0	F	48.0	Folsom Blvd Exit	One-Lane Diverge	E	44.0	F	48.0
Folsom Blvd Entrance	One-Lane Merge	F	42.7	F	46.0	Folsom Blvd Entrance	One-Lane Merge	F	42.7	F	46.0
Folsom Blvd to Hazel Ave	Basic	D	30.1	D	33.8	Folsom Blvd to Hazel Ave	Basic	D	30.1	D	33.8
Hazel Ave Exit	Two-Lane Diverge	B	11.5	B	13.0	Hazel Ave Exit	Two-Lane Diverge	B	11.5	B	13.0
NB Hazel Ave Loop Entrance	One-Lane Merge	D	29.4	D	32.6	NB Hazel Ave Loop Entrance	One-Lane Merge	D	29.4	D	32.6
SB Hazel Ave Slip Entrance	One-Lane Merge	F	35.7	F	39.8	SB Hazel Ave Slip Entrance	One-Lane Merge	F	35.7	F	39.8
Hazel Ave to Rancho Cordova Pkwy	Basic	E	41.8	F	52.3	Hazel Ave to Rancho Cordova Pkwy	Basic	E	41.8	F	52.3
Note: Bold values indicate unacceptable level of service.											

Table 8 - Existing (2015) Intersection Operations Analysis				
Intersection	Existing (2015) No Build			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
Hazel Ave & US 50 WB Ramps/ Tributary Point Dr	C	32.4	E	62.8
Hazel Ave & US 50 EB Ramps	D	50.1	D	47.4
Hazel Ave & Folsom Blvd	C	34.7	D	39.8
Hazel Ave & Jug Handle	Does not exist			
Folsom Blvd & Jug Handle	Does not exist			

Table 9 - Opening Year (2022) Intersection Operations Analysis												
Intersection	Opening Year (2022) No Build				Opening Year (2022) with Alt. 1/1A				Opening Year (2022) with Alt. 2			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
Hazel Ave & US 50 WB Ramps/ Tributary Point Dr	D	40.3	D	42.6	D	36.4	D	40.5	C	30.0	E	63.7
Hazel Ave & US 50 EB Ramps	D	43.1	F	82.7	B	14.4	C	23.4	Free movement			
Hazel Ave & Folsom Blvd	D	50.9	F	120.8	Does not exist				Does not exist			
Hazel Ave & Jug Handle	Does not exist				E	64.1	C	26.8	E	64.1	C	26.7
Folsom Blvd & Jug Handle	Does not exist				C	26.1	D	44.3	C	26.1	D	44.3

Note: **Bold** values indicate unacceptable level of service.
For intersections shared between Sacramento County (LOS "E" policy) and the City of Folsom (LOS "C" policy), Folsom's policy was used.

Table 10 - Horizon Year (2042) Intersection Operations Analysis												
Intersection	Horizon Year (2042) No Build				Horizon Year (2042) with Alt. 1/1A				Horizon Year (2042) with Alt. 2			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
Hazel Ave & US 50 WB Ramps/ Tributary Point Dr	D	42.2	F	86.6	D	42.1	E	72.4	C	32.1	E	65.7
Hazel Ave & US 50 EB Ramps	E	78.2	F	90.9	C	27.1	D	36.6	Free movement			
Hazel Ave & Folsom Blvd	F	84.3	F	316.8	Does not exist				Does not exist			
Folsom Blvd & Aerojet Rd	B	10.5	B	15.8	B	10.5	B	15.8	B	10.5	B	15.8
Hazel Ave & Jug Handle	Does not exist				D	37.2	E	71.9	C	32.8	E	68.0
Folsom Blvd & Jug Handle	Does not exist				B	12.5	E	61.6	B	12.5	E	61.6

Note: **Bold** values indicate unacceptable level of service.
For intersections shared between Sacramento County (LOS "E" policy) and the City of Folsom (LOS "C" policy), Folsom's policy was used.

Collision Analysis

Table 11 provides collision and collision rate data on the Route 50 mainline between Sunrise Boulevard and Folsom Boulevard, ramps at the Hazel Avenue and Folsom Boulevard interchanges based on a three-year period from January 1, 2015 to December 31, 2017. For each location, these collision rates are compared to average state rates from similar Caltrans facilities (rate groups).

Table 11 - Collisions and Collision Rates							
Dates: <i>January 1, 2015 to December 31, 2017</i>		Actual Rates (Collisions / million vehicles)			Average Rates (Collisions / million vehicles)		
Location (Post Miles)	Total Collisions	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
<i>Mainline</i>							
EB Route 50 – Sunrise Blvd to Hazel Ave	48	0.000	0.26	0.89	0.003	0.20	0.61
EB Route 50 – Hazel Ave to Folsom Blvd	75	0.000	0.23	0.79	0.004	0.21	0.65
WB Route 50 – Folsom Blvd to Hazel Ave	41	0.000	0.11	0.43	0.004	0.21	0.65
WB Route 50 – Hazel Ave to Sunrise Blvd	20	0.000	0.17	0.37	0.003	0.20	0.61
<i>Ramps</i>							
EB off-ramp to Hazel Ave	18	0.000	0.86	1.71	0.004	0.32	0.92
EB loop on-ramp from SB Hazel Ave	4	0.000	0.00	0.38	0.003	0.23	0.71
EB slip on-ramp from NB Hazel Ave	2	0.000	0.00	1.04	0.003	0.19	0.56
EB off-ramp to Aerojet Rd	2	0.000	0.64	1.29	0.002	0.23	0.78
EB off-ramp to Folsom Blvd	7	0.000	0.18	0.42	0.004	0.32	0.92
EB on-ramp from Folsom Blvd	6	0.000	0.63	1.88	0.001	0.23	0.67
WB off-ramp to Folsom Blvd	18	0.000	0.60	2.38	0.002	0.31	0.92
WB on-ramp from Folsom Blvd	16	0.000	0.40	0.92	0.002	0.21	0.60
WB off-ramp to Hazel Ave	18	0.000	0.50	1.51	0.004	0.32	0.92
WB loop on-ramp from NB Hazel Ave	2	0.000	0.42	0.84	0.003	0.23	0.71
WB slip on-ramp from SB Hazel Ave	13	0.000	0.43	0.93	0.003	0.19	0.56
EB on-ramp from Hazel (Loop and Slip Merged)	0	0.000	.000	0.00	0.001	.06	0.20
Rates in bold exceed average rates for similar State facilities.							

5. ALTERNATIVES

5A. PREFERRED ALTERNATIVE

Detailed description of the preferred alternative is provided below.

L-9 INTERCHANGE WITH VIADUCT CONNECTOR

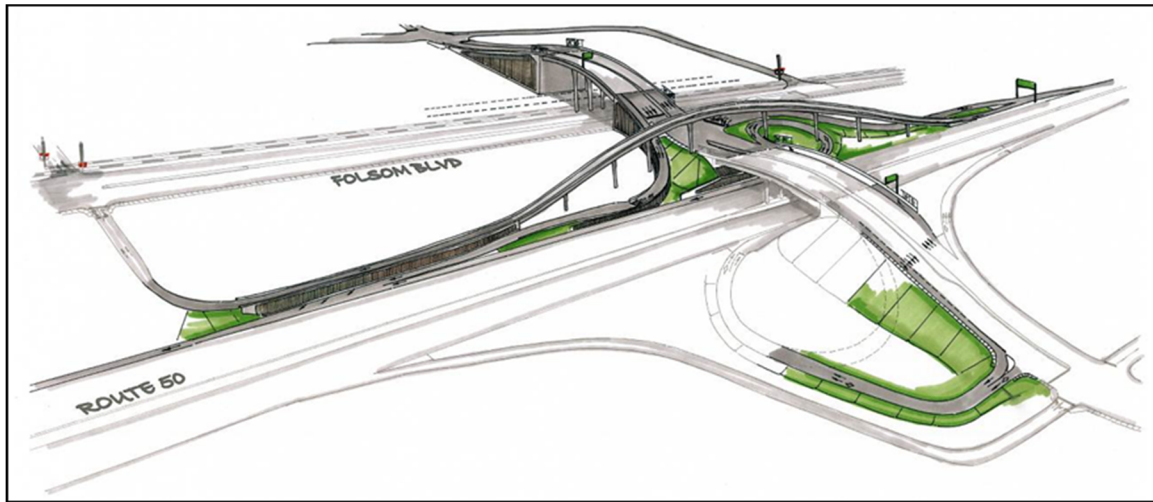


Figure 1: Preferred Alternative 1 (looking south)

Proposed Engineering Features

The Preferred Alternative consists of a modified type L-9 interchange configuration. Hazel Avenue will extend and grade separate over Folsom Boulevard and the SPTC-JPA rail corridor and will extend further south to a proposed intersection with the future Atlanta Street (a new roadway as part of the Easton Place development). The existing at-grade intersection of Hazel Avenue and Folsom Boulevard will be removed, sidewalks will be extended across the former intersection, and the lanes will be re-stripped to remove left turn lanes.

The location of the departure point of the existing Aerojet Road off-ramp from US 50 will be moved. The eastbound Hazel Avenue off-ramp will split and introduce a direct viaduct ramp over Hazel Avenue to carry eastbound off-ramp traffic to Aerojet Road and Folsom Boulevard. The off-ramp diverge from US 50 will be shifted approximately 830 feet to the east to provide decision sight distance before the Aerojet Road split. The two-lane off-ramp will widen to five lanes at the ramp terminal intersection, with three left turn lanes and two right turn lanes. Retaining walls and barriers placed at the proposed right-of-way will minimize acquisition. The eastbound off-ramp will also have an auxiliary lane prior to the exit.

The Aerojet Road viaduct will land adjacent to the eastbound diagonal on-ramp and then turn southerly to conform to Folsom Boulevard along its existing alignment. Retaining walls are proposed between the viaduct and the diagonal on-ramp to accommodate the grade difference, and to the outside of the ramp after the viaduct lands, to minimize right-of-way acquisitions. Retaining walls are also proposed along Aerojet Road as it approaches the horizontal curve towards Folsom Boulevard to accommodate the grade difference between the off-ramp and mainline and to minimize right-of-way acquisition.

The eastbound diagonal on-ramp will be reconstructed to conform to the new Hazel Avenue profile and will be metered with two lanes; one mixed flow, and one HOV bypass.

The eastbound loop on-ramp will be reconstructed to conform to the new Hazel Avenue profile and will be metered with two lanes; one mixed flow, and one HOV bypass (with signal heads on both lanes). A tie-back wall at the abutment of the overcrossing is proposed to maximize the opening through the structure. The loop ramp will develop an auxiliary lane on US 50 that will continue to the Folsom Boulevard interchange.

The existing Hazel Avenue overcrossing of US 50 will be widened on the west side to accommodate eight lanes (3 through lanes and 1 freeway-only lane in both directions). The existing raised concrete median across the structure will be removed and reconstructed as a 5-foot median to the west. The existing sidewalk and barrier on the east side of the structure will be reconstructed as a barrier separated 12-foot wide sidewalk/ multiuse path that will serve pedestrians and bicycle riders.

Pedestrian access will be maintained on the east side of Hazel Avenue with the construction of 12-foot multi-use path from Easton Place to the CSUS aquatic center, crossing under the westbound off-ramp and loop on-ramp.

The westbound loop on-ramp will be reconstructed, with the ramp intersection shifted north towards the westbound off-ramp terminus, increasing storage lengths. The ramp will be metered with two lanes (one mixed use, and one HOV bypass with signal heads at both lanes), and a squared-up “pedestrian friendly entrance”. The on-ramp includes construction of an undercrossing to accommodate the sidewalk/ multi-use path.

The westbound off-ramp configuration would remain; however, an undercrossing (not shown in Figure 1) is proposed for the sidewalk/ multiuse path near the ramp terminal intersection.

Traffic signals at the ramp intersections will be modified. Safety lighting will be installed. A new signalized intersection and at-grade railroad crossing will be constructed for the Jughandle.

Other Considered Alternatives

Alternative 1A was evaluated. The design features are identical to the Preferred Alternative except connection to Aerojet Road would cross under Hazel Avenue and the ramps. This alternative was not selected because construction of undercrossing has potential groundwater risks and would be more difficult to stage construct.

Alternative 2 (Direct Flyover to Hazel Avenue with Connector) was evaluated. It includes the following improvements to the preferred alternative.

- Construction of eastbound off-ramp to northbound Hazel Avenue/Aerojet Road to cross underneath Hazel Avenue and the eastbound diagonal on-ramp. The off-ramp crosses under Hazel Avenue and over US 50.
- Provide a free-right connection for traffic onto southbound Hazel Avenue.
- Realignment of westbound off-ramp to merge with the eastbound off-ramp.
- Removal of concrete median on existing US 50 overcrossing. Re-striping of the overcrossing to accommodate three (3) northbound lanes and three (3) southbound lanes. No widening is proposed of the existing overcrossing structure.

Alternative 2 was not selected because it provides the same operational improvements as the preferred alternative at a higher cost. This alternative has greater visual and aesthetic impacts, more impervious surface and greater impacts to elderberry shrubs than the preferred alternative.

Environmental Review

There were no changes to the proposed design features as a result of comments received from the circulation of the environmental document.

Nonstandard Mandatory and Advisory Design Features

The Design Exceptions for the following were approved on December 17, 2018. The following summary table summarizes the design features.

Table 12 – Nonstandard Design Features			
HDM Section	Description of Design Standard	Minimum Standard	Comments
Advisory Design Exceptions			
202.5(1)	Superelevation Transition	Varies per Figure 202.5A	Non-standard superelevation transition runoff lengths.
204.4	Vertical Curve Length (Sag)	Minimum Length of VC should equal 10 times V (Design Speed)	Sag VC's do not meet 10V or SSD for the design speed because they match existing conditions.
Mandatory Design Exceptions			
308.1	Lane Width	Conventional Highway Standard (12' lanes; outer lane to be 12')	Proposed 11' outer lanes; number 1 lane to be 12'. Existing number 1 SB lane is 12'; outer lanes are 11'.
201.1	Stopping Sight Distance (Crest Curve)	V=35 mph HDM: S=250'	Proposed S=227' (V=33mph) Existing S=227' (V=33mph) HDM 201.4: Stopping sight distance determined by Figure 201.4.
201.1	Stopping Sight Distance (Sag Curve)	V=45mph HDM: S=360'	Proposed S=250' with lighting (V=35mph) HDM 201.5: lighting may be considered if headlight sight distance is not obtainable.
502.2	Isolated Off-Ramps	No isolated off-ramps	The proposed project will maintain the existing isolated off-ramp to Aerojet Road.
504.3(3)	Location and Design of Ramp Intersections on the Crossroads	The minimum distance (curb return to curb return) between ramp intersections and local road intersections shall be 400 feet.	The entrance to the westbound loop on-ramp is proposed to be shifted towards the intersection with Tributary Point Drive. The existing westbound off-ramp and westbound on-ramp are located at the Tributary Point Drive intersection.

The following design exceptions (Design Standard Decision Document) was approved on December 22, 2020 by a Supplemental DSDD.

Table 13 – Supplemental DSDD			
HDM Section	Description of Design Standard	Minimum Standard	Comments
504.3(5)	Single Lane Ramps over 1000'	Widen to Two Lanes	The eastbound flyover ramp to Aerojet Road has low traffic volume and truck volume does not warrant the additional lane.
309.1 (1)	Vertical Clearance at Structures	16.5'	The alternative that would replace the existing structure was not selected.
202.2	Superelevation Rate	Varies per Curve	Proposed superelevation is based on the curve radius and maximum comfortable speed.

High-Occupancy Vehicle Lanes

US 50 currently has an HOV lane in each direction of traffic. HOV bypass is proposed for the northbound Hazel Avenue to westbound US 50 ramps. The existing HOV bypass at the southbound Hazel Avenue to both westbound and eastbound US 50 ramps and northbound Hazel Avenue to eastbound US 50 ramps will remain.

Ramp Metering

The existing ramp meters will be replaced with new signal heads placed at each lane (HOV bypass and mixed flow).

California Highway Patrol (CHP) Enforcement Areas

CHP enforcement areas will be included on all entrance ramps.

Park-and-Ride Facilities

Two existing park-and-ride lots serve the existing interchange. There is a SacRT owned 432 space lot located on Folsom Boulevard at the Hazel Avenue SacRT station. There is a Caltrans owned 33 space lot located immediately adjacent to the US 50 westbound exit ramp. The Caltrans park-and-ride lot will be reconstructed to allow for the multiuse path to connect back into Hazel Avenue after crossing under the westbound off-ramp. There will be no reduction in the number of parking spaces in the reconstructed lot. No additional park-and-ride lots are proposed.

Utility and Other Owner Involvement

The project will require the relocation of the following utilities and their associated appurtenances: gas lines, overhead electric lines, underground electric lines, fiber optic cables, water lines, sewer lines, and storm drain lines.

Railroad Involvement

The SPTC-JPA owns the rail line corridor that is parallel to the south side of Folsom Boulevard. Within this right of way, SacRT operates a single track for light rail vehicles serving Hazel Avenue and into Folsom. There is also a heavy freight track located within the SPTC-JPA corridor that UPRR has trackage rights to. The Hazel Avenue extension will span these tracks and eliminate the current at-grade crossing.

The existing crossing will be replaced/ relocated approximately 750-feet west for the jughandle connector.

SacRT and the California Public Utilities Commission (CPUC) will need to approve the new grade separation and the relocated at-grade crossing for the jughandle. A formal application for the new Hazel Avenue grade separation will be submitted to the CPUC as part of the project design phase. The jughandle connection should be submitted to the CPUC prior to the interchange construction project as part of a development project. However, if not, it will be submitted concurrently with the Hazel Avenue Interchange project.

Highway Planting

Highway planting, in accordance with Caltrans standard cost per acre practice, will be installed within 12 months of the completion of the roadway/ bridge project.

Water Quality

The project will disturb approximately 36 acres. The site has been classified as medium sediment risk and high receiving water risk. Existing stormwater along Hazel Avenue is collected in a series of unlined ditches and discharges into the County of Sacramento's drainage system. Storm water is conveyed underneath Highway 50 and drains into the American River.

The project will perpetuate the existing drainage path, however ditches and drainage facilities will be designed and sized to handle the additional stormwater. Furthermore, the project will utilize BMPs such as energy dissipation devices and flared end sections to eliminate potential erosion and scour.

Temporary erosion control will be required. Best Management Practices (BMP's) will include temporary hydroseeding, temporary fiber rolls and temporary silt fence. Permanent erosion control and treatment of stormwater runoff will be accommodated by

cobble lined and vegetated swales and energy dissipation devices. Permanent BMP's will be installed as soon as practicable during each stage/construction season.

Noise Barriers

A Noise Study was prepared for the project. The residential land uses south of US 50 between Hazel Avenue and the Aerojet Road off-ramp will experience noise levels in excess of current standards and be eligible for noise abatement. There are no other adjacent land uses containing sensitive receptors. A 12' to 14' tall sound wall, 1520' long would be installed on the south side of US 50 between Hazel Avenue and the Aerojet Road off-ramp.

Non-motorized and Pedestrian Features

The existing sidewalk located on the east side of Hazel Avenue will be replaced with a 12-foot barrier separated multi-use path meeting ADA grade requirements serving pedestrians and bicycle riders. This is not a Class 1 path because it terminates at sidewalks at both ends of the project limits. In order to provide a safer facility, the crossing of the westbound off-ramp and westbound loop on-ramp will be grade-separated.

Class 2 bike lanes are also proposed along Hazel Avenue for those users choosing not to use the grade-separated multiuse path.

Needed Structure Widening

For this alternative, the Hazel Avenue Overcrossing will need to be widened. Due to existing 16'-2" vertical clearance over US 50, adequate vertical clearance does not exist for the use of falsework. Construction will require the proposed cast-in-place prestressed box girder structure to be cast high above the existing structure and lowered into final position. This type of construction will require additional detailing and more complex construction methods than typically used for this type of structure.

Cost Estimate

Preliminary cost estimates for the project are:

Roadway Items	\$37.6M
Structure Items	\$18.2M
Subtotal Construction	\$55.8M
Right of Way	\$11.9M
Total Project Cost	\$67.7M

Right of Way Data

Right of way will be required from parcels largely south of the interchange; a Right of Way Data Sheet is included in Attachment E. There will be 16 parcels impacted by the improvements, including full acquisition and demolition of structures at the Chevron gas station (APN 069-0160-012). Acquisitions and building impacts are anticipated at Cattleman's restaurant (APN 069-0060-085) and Sentry Storage (APN 069-0160-015). The viaduct structure will cross over the northern portion of the Nimbus Winery parking lot (APN 069-0050-013) on an aerial easement, to allow parking below the structure and minimize impacts to the business.

Effect of Projects-Funded-by-Others on State Highway

There are no programmed or planned projects by others for this segment of US 50.

Aesthetics

Due to the prominence of the Aerojet flyover viaduct, special aesthetics have been considered. The viaduct crosses over Hazel Avenue and would provide a gateway entrance to the proposed developments. One aesthetic concept is shown on the following page using an open railing, decorative arch structure and prominent column treatment. Aesthetic features for the bridges will be coordinated with the County, Caltrans, and Easton Place and adjacent Glenborough at East developers in future phases of the design. No other special aesthetic features are proposed except for interchange landscaping.



Figure 2: Potential aesthetic treatment of the viaduct

5B. REJECTED ALTERNATIVES

The “No-Build” alternative would not modify the US 50/Hazel Avenue interchange. The interchange would remain with the same existing configuration, ramps, and lanes. This alternative does not meet the purpose and need of the project.

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. HAZARDOUS WASTE

A Phase I Initial Site Assessment (ISA) was performed to identify potential environmental impacts and identify and evaluate potential hazardous waste sites and update the evaluation of environmental factors that may have affected the soil and groundwater quality in the project vicinity due to past and present environmental and commercial activities. The ISA studies included the following:

- Site visit and visual inspection of exterior of the project vicinity
- Review of Previous Environmental Reports in the project vicinity
- Review of computer database government record search of hazardous waste sites within 1-mile of the project
- Review of available agency records for the project vicinity

A review of previous land use and the site reconnaissance indicates that the nearby roadways have supported vehicular activity since the 1960s. It is highly likely that the surface soils along these roadways are affected by deposition of aerial lead. Therefore, it is recommended that surface samples of soil be collected and analyzed for total lead. The pavement markings consist of yellow paint and possibly thermoplastic stripes that contain lead. These will have to be addressed for disposal.

Active railroad tracks are present to the south of Folsom Boulevard south of the intersection of Hazel Avenue with Folsom Boulevard. Historical USGS maps and aerial photos have shown the tracks to be present since early 20th century. The soil within the railroad right-of-way may be impacted with heavy metals, total petroleum hydrocarbons as diesel, and polynuclear aromatic hydrocarbons (PNAs). Soil samples should be collected within the railroad right-of-way and the project area and analyzed for the above constituents.

Review of Geotracker files indicate that a 30,000-gallon heating oil underground storage tank (UST) was removed on the Lakha Properties under the project name of Nimbus Winery at 12401 Folsom Blvd. The UST was removed in 2000 and the site was issued closure letter in 2009. Review of reports indicates that the residual soil and groundwater impacts were left behind. Groundwater was impacted with TPH G and volatile organic compounds below the action levels designated by the RWQCB. Soil was impacted with total petroleum hydrocarbons as diesel, and motor oil at levels as high as 15,000 ppm at 25 feet. In the event project involves excavations in this area or installation off foundations (piles) in this area, soils and groundwater should be tested and a risk

management plan needs to be developed describing management of contaminated soils encountered during construction.

Folsom Street Chevron is located on the northwest corner of Folsom Boulevard and Hazel Avenue. This service station is to be acquired as portion of the right of way. There are no groundwater monitoring reports available for the property. There are USTs on this facility that need to be removed as part of the closure. There is potential of leaks associated with the USTs or the fuel dispenser areas. These areas should be investigated prior to acquisition of the property.

The Hazel Avenue and Folsom Boulevard right of way areas have been a traffic bearing road since 1960s. It is likely that the surface soils along these roads are impacted with lead as a result of past operations. It is highly likely that the surface soils along the project area are impacted with aerially deposited lead (ADL) and should be investigated. A work plan for investigating surface soils along the proposed right of way will be prepared during the PS&E phase to determine which of the surface soils may have been impacted with hazardous levels of ADL.

6B. VALUE ANALYSIS

The estimated project cost is above \$50 million and federal funding is being utilized for the project. Therefore, a VA study will be required and will be conducted during the design phase of the project.

6C. RESOURCE CONSERVATION

Energy – Implementation of the “Energy Decision Tree” (Caltrans Environmental Handbook Volume 1, Chapter 13) determined that this project is not a “major project” requiring further energy analysis. When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

6D. RIGHT OF WAY ISSUES

Right of Way Required

Right of way is anticipated from parcels largely south of the interchange. Sixteen parcels will be affected by the improvements, including full acquisition and demolition of structures at the Chevron gas station (APN 069-0160-012) and Cattleman’s restaurant (APN 069-0060-085). The viaduct structure is proposed to cross over the northern portion of the Nimbus Winery parking lot (APN 069-0050-013) on an aerial easement, to allow parking below the structure and minimize impacts to the business.

Relocation Impact Memorandum

A Relocation Impact Memorandum was approved on May 9, 2019. There are no residential relocations required. There are two business to be required to relocate. Based

on current retail-commercial- industrial real estate listings, all affected businesses will be able to find suitable replacement sites in the City of Rancho Cordova.

Air Space Lease

The area under the flyover ramp will be made available for parking to serve the adjacent business.

6E. ENVIRONMENTAL COMPLIANCE

An Environmental Impact Report/EA/FONSI has been prepared in accordance with Caltrans' environmental procedures, as well as State and federal environmental regulations. The attached Environmental Impact Report/EA/FONSI is the appropriate document for the proposal." A Notice of Determination was filed with the State Clearing House on October 5, 2020. See Attachment F.

Wetlands and Flood Plains

A total of 0.91 acre of wetlands and non-wetland waters were identified in the delineated project area that will be impacted. Emergent wetlands (0.20 acre) occur at the edges of open water in Alder Creek below riparian woodland vegetation and below the OHWM of the creek. Seasonal wetlands (0.02 acre) occur in the cloverleaf areas of the US 50/Hazel Avenue interchange. Non-wetland waters include the open water in Alder Creek (0.56 acre), roadside/freeway side ditches (0.13 acre) and 0.001 acre of ephemeral drainage.

The project will result in permanent and temporary impacts to the 0.22 acres of wetlands. The County will implement the avoidance, minimization, and mitigation measures detailed in the attached environmental document.

The project includes construction of an auxiliary lane bridge, supported on piles, at Alder Creek, just upstream of its intersection with Lake Natoma on the American River. The soffit elevation of the proposed auxiliary lane bridge deck is above the Federal Emergency Management Agency (FEMA) Base Flood Elevation, which is a static flood elevation for both Alder Creek and lower Lake Natoma due to the presence of Nimbus Dam. The impact associated with this floodplain encroachment is minimal because of the small volume of the proposed piles relative to the large storage area of Lake Natoma. No minimization or mitigation measures are proposed because the floodplain impacts are negligible.

Natural Environment Study/Biological Assessment

The biological study area (BSA) contains potential habitat for three special-status plant species known to occur in the project region – Brandegees' clarikia, legenere, and Sanford's arrowhead; however, no special-states plants were observed during the botanical surveys. As a result, special-status plants are presumed to be absent from BSA and there would be no impacts on special-status plants as a result of the project.

The project has the potential to impact several special-status wildlife species, including the vernal pool fairy shrimp, valley elderberry longhorn beetle, western pond turtle, Swainson's hawk, white-tailed kite, yellow-breasted chat, tricolored blackbird, song sparrow, pallid bat and western bat, and migratory birds. Permanent and temporary impacts to suitable habitats for these special-status wildlife species, along with avoidance, minimization, and mitigation measure that will be implemented with the project are detailed in the attached environmental document.

Paleontological Evaluation Report/Mitigation Plan

Potential impacts are expected on the Riverbank Formation and Modesto Formation, which underlie the project area. The Riverbank Formation and Modesto Formation are regarded as having a high potential to contain significant fossils due to their recorded fossiliferous nature from known localities throughout the Sacramento and San Joaquin Valleys. The measures outlined in the attached environmental document to salvage significant fossil resources found during construction activities would serve as a method to reduce potential effects on paleontological resources to a level that would not be adverse under NEPA and would be less than significant under CEQA.

Visual Impact Assessment

The visual changes would generally appear similar under all the build alternatives. Although changes to visual resources would range from low to moderate, viewer response to these changes would range from moderate-high to high, and the resulting visual impacts would range from moderate to moderate-high. Overall, all build alternatives would result in the same or very similar visual impacts. Mitigation measures include minimizing fugitive light during construction, applying minimum lighting standards, implementing wildflower seeding and landscaping, and incorporating project design aesthetics that will help to offset these visual impacts and improve project aesthetics.

Section 4(f) Analysis

The project would entail construction between 50 to 150 feet of the Jedediah Smith Memorial Bicycle Trail. No temporary detours or other changes to the trail are required. Access to the trail would be maintained during the construction period.

A small parking lot near Lake Natoma at the corner of Tributary Point Drive and Hazel Avenue, would be reconfigured; however, this lot is a Caltrans park-and-ride and is not typically used for recreational use parking. It is anticipated that adequate parking would remain at Sacramento State Aquatic Center and along the segment of the bike trail that is just east of the aquatic center during the construction period and temporary construction is not anticipated to affect recreational opportunities at the American River Parkway, Lake Natoma, or the Jedediah Smith Memorial Trail.

A Section 4(f) Report was prepared for the project in December 2016 and concluded that the provisions of Section 4(f) would not be triggered for any recreational resources in the study area. Access to the recreation facilities within Lake Natoma would not change. During the construction period, recreationists traveling to the Lake Natoma on U.S. 50 or on Hazel Avenue could experience short-term, intermittent delays or traffic detours over a period of 24 months, depending on the sequence of construction activities. However, these temporary construction-related delays would not affect recreation use or enjoyment of the recreation area or facilities.

6F. AIR QUALITY CONFORMITY

The Air Quality Study Report was prepared for the project in January 2017. The report identifies several impacts that could result from the project implementation. The following table summarizes the impacts, mitigation measures, and significance conclusions discussed in the Air Quality Study Report.

Table 14 - Air Quality Study Report Summary	
Impact	Conclusion
AQ-1: Conformity of the Regional Transportation Plan with the State Implementation Plan	The proposed project (SAC24255) is listed in SACOG’s 2016 MTP/SCS, 2017/20 MTIP, and corresponding Air Quality Conformity analysis.
AQ-2: Potential Violations of CO NAAQS or CAAQS	CO concentrations under the Build Alternatives are not expected to exceed the 1- or 8- hour NAAQS and CAAQS.
AQ-3: Potential Violations of PM10 or PM2.5 NAAQS or CAAQS	Sacramento County is currently classified as a nonattainment area with regard to the PM2.5 NAAQS and a maintenance area with regard to the PM10 NAAQS. However, due to virtually no change in AADT or truck volumes between the No Build and Build Alternatives, the project is determined not to be a POAQC. SACOG’s PLCG issued concurrence that the project is not a POAQC on August 2016.
AQ-4: Potential for Generation of MSAT Emissions	The project would result in decreases in all MSAT emissions between existing (2015) and opening (2022) year conditions. Under design (2042) year conditions, the Build Alternatives would result in minor increases of Benzene and DPM and decreases of all other MSATs. The predicted increase in Benzene and DPM under the Build Alternatives would be minor.
AQ-5: Generation of Operation-Related Emissions of O3 Precursors, CO, and Particulate Matter	The project would result in decreases in ROG, NOx, and CO, and minor increases in PM10 and PM2.5 between existing (2015) and design (2042) year conditions. Emissions increases are a result of background growth in VMT between 2015 and 2042. Minor increases in all criteria pollutants except NOx are also expected between the Build and No Build Alternatives under design (2042) year conditions as a result of increasing VMT and changes in vehicle speeds.
AQ-6: Potential Temporary Increase in O3 Precursors	The project would result in temporary increases in O3 precursors, CO, PM10, and PM2.5 during construction. Temporary impacts

(ROG and NOX), CO, and Particulate Matter Emissions during Grading and Construction Activities	would be addressed by construction-related PM10 emission minimization measure in Caltrans Standard Specifications Section 14.
AQ-7: Potential for Generation of GHG Contaminant Emissions	The project would result in minor increases in GHG emissions during construction and long-term operation. Operational emission increases over existing conditions are a result of background growth in VMT between 2015 and 2042. Increases between Build and No Build Alternatives under design (2042) year conditions as a result of increasing VMT and changes in vehicle speeds.

6G. TITLE VI CONSIDERATIONS

The proposed project makes provisions for low mobility groups. ADA curb ramps are placed at intersection curb returns. On the north side of the interchange a grade-separated path will be provided to remove conflict at the ramp intersection.

6H. NOISE ABATEMENT DECISION REPORT

The Noise Abatement Decision Report (NADR) presents the preliminary noise abatement decision as defined in the California Department of Transportation (Caltrans) Traffic Noise Analysis Protocol for the US 50/Hazel Avenue Interchange Project. The report has been approved by a California licensed professional civil engineer. The project level noise study report (NSR) (ICF 2017) was approved by Caltrans on February 1, 2017.

Land uses in the project area consist of a mobile home park (Activity Category B), multi-family apartment buildings (Activity Category B), parks (Activity Category C), recreational use areas (Activity Category C), hotels (Activity Category E), and several commercial uses that include no apparent outdoor areas of frequent human use (Activity Category F).

Existing traffic noise levels, expressed in terms of the A-weighted equivalent sound level (dBA $L_{eq}[h]$), were found to range from 57 to 79 dBA $L_{eq}(h)$ at modeled receiver locations. Predicted worst-case traffic noise levels range from 58 to 80 dBA $L_{eq}(h)$ for design year no-build conditions and 58 to 81 dBA $L_{eq}(h)$ for design year build conditions under all 3 alternatives. The highest increase in noise levels is predicted to be 4 decibels (dB), which would not be considered a substantial increase in noise levels.

Traffic noise levels from the proposed project are predicted to approach or exceed the noise abatement criteria (NAC). Pursuant to Caltrans and FHWA regulations and guidance, noise abatement must be considered for land uses affected by traffic noise. For noise-sensitive receptors where traffic noise levels were predicted to approach or exceed the noise abatement criteria, noise abatement in the form of barriers was considered. One noise barrier was evaluated to benefit Activity Category B land uses along the proposed Aerojet Drive off-ramp. All design options were found to be acoustically feasible and met the design goal of 7 dB of noise reduction for at least one receiver at 10 feet. The NADR recommended a wall of 14 feet provided the most benefit at an acceptable cost.

6I. REVERSABLE LANES

Reversible lanes were not considered because no additional lanes are added to SR 50.

7. OTHER CONSIDERATIONS AS APPROPRIATE

Public Hearing Process

A public meeting was held on March 9, 2020 during the circulation of the Draft EIR/EA.

Route Matters

The project will require revised freeway agreements. The project will also require a revised Maintenance Agreement to identify the responsibilities for maintaining the multiuse path and to include the widened portion of the Hazel Avenue Overcrossing to match existing County responsibilities. These agreements will need to be executed prior to the issuance of the encroachment permit.

Permits

The following permits are anticipated to be required prior to construction of the project:

Table 15 – Permits	
Agency	Permit/Approval
United States Fish and Wildlife Service	Coordination and consultation regarding Federal threatened and endangered species
United States Army Corps of Engineers	Section 404 Permit for filling or dredging waters of the United States
State Water Resources Control Board	Construction General Permit Stormwater Pollution Prevention Plan and Municipal Separate Storm Sewer System Permit requirements.
Central Valley Regional Water Quality Control Board	Section 401 Water Quality Certification. Waste Discharge Permit Review and approval of stormwater discharge treatments.
California Department of Fish and Wildlife	1602 Agreement for Streambed Alteration and Coordination Regarding State Species
Sacramento Metropolitan Air Quality Management District	Formal Notification Prior to Construction
City of Rancho Cordova Encroachment Permit	For construction of improvements on local roadways within the City of Rancho Cordova.
Caltrans Encroachment Permit	For construction of improvements within State right-of-way

Cooperative Agreements

Caltrans and the County executed a cooperative agreement on April 13, 2015 for PA/ED, PS&E design, Right of Way Support, Right of Way Capital, Construction Support and Construction Capital.

Separate cooperative agreements will be required for the subsequent landscaping project at the interchange and for the maintenance and operations of the bicycle/pedestrian facilities at the interchange which will be constructed, operated and maintained by the County. The scope and timing of the follow-up landscape project will be determined in the construction cooperative agreement.

Other Agreements

SPTC-JPA

A Construction and Maintenance Agreement (C&M Agreement) will be required for construction of the overhead structure at the SPTC-JPA rail lines.

CPUC

Formal permits are required for the Hazel Avenue Overhead and the Jughandle crossing.

Transportation Management Plan

The Transportation Management Plan (TMP) Datasheet is included as Attachment H. Consistent with district policy and procedures, it is expected that construction of the project, especially staging and traffic control systems, would be coordinated closely with the district TMP coordinator. These traffic control systems would include appropriate work zone measures, including Extinguishable Message Signs (EMS) and/or Changeable Message Signs (CMS). It is also anticipated that there will be a Construction Zone Enhanced Enforcement Program (COZEEP) in place as part of traffic management during construction, including setting and removal of K-rails. It is expected that no work will be allowed on holiday weekends nor the preceding Friday.

The project cannot be constructed without some impact to traffic, primarily due to driver curiosity, construction area signs and controls, and can be reduced with a well-planned stage construction/traffic handling plan and aggressive public awareness during construction. It is anticipated on a project this large that the following traffic control items will be required:

- Temporary striping will be required to shift traffic away from construction zones;
- Temporary railing (Type K) to separate construction zones from traffic;
- Work-period lane closures will be required for mainline US 50 and ramps (i.e. for removing pavement delineation, setting K-rail, pavement conforms, falsework erection and removal, etc.)

Accommodation of Oversize Loads

The project will not reduce the vertical clearance or affect the ability for oversized loads to use US 50 during or following construction.

Graffiti Control

Per a recent Caltrans Traffic Operations Policy Directive, proposed overhead signs will not have walkways installed to decrease the potential for graffiti on overhead signs. For potential graffiti-prone areas along bicycle/pedestrian walkways or access areas, aesthetic or fractured texturing with graffiti coat may be considered to discourage vandals from “tagging” bridges, signs, and walls. Texturing or planting vines may be employed on walls to avoid providing a canvas for graffiti vandals.

Complete Streets

Pedestrian and bicycles are not allowed on the freeway. Shoulders for bicycle use are included on the local roadways. The project adds a new bicycle/pedestrian route along Hazel Avenue that is separated from vehicular traffic between Folsom Boulevard and the American River Bicycle Trail. The new 12-foot-wide facility would run along the east side of Hazel Avenue beginning at the intersection with the jughandle, continue along the east side of the Hazel Avenue overcrossing to cross US 50 and then extend adjacent to the loop on-ramp and be grade separated at the US 50 westbound ramp terminal. The path connects to a Park-n-Ride lot and other existing sidewalks and bicycle paths.

Pedestrian Facilities

Facility Type and Location	Meets ADA Standards?	If Facility Does Not Meets ADA Standards, What Features are not ADA Compliant?	Status of Each Noncompliant Location
US 50	NO	NA	Pedestrians are not allowed on the freeway
Hazel Avenue	YES	Sidewalk is adjacent to the roadway and matches the roadway profile grade	NA
Curb Ramps	YES	New curbs ramps at all intersections will meet ADA Standards	NA

Bicycle facilities

Location	Deficiency
US 50	NA- Bicycles are not allowed on the freeways
Hazel Avenue	6-foot minimum shoulders will be added to accommodate bicycles

Transit facilities

Location	Deficiency
Sacramento Regional Transit Hazel Light Rail Station	None
Sacramento Regional Transit Hazel to Downtown Express Bus Service	No bus stops within the project limits

Climate Change Considerations

Operational Green House Gas (GHG) emissions would decrease relative to the No Build Alternative under opening year (2022) conditions. This is a GHG benefit. While emissions are projected to slightly increase under horizon year (2042) conditions, emissions would not exceed SMAQMD’s land use threshold of 1,100 metric tons CO₂e. The project would also be consistent with the following strategies indicated in the 2016 MTP/SCS.

The proposed project is listed in the 2016 MTP/SCS and its design concept and scope is consistent with the project description in the MTP/SCS (Sacramento Area Council of Governments 2016a). The Final EIR for the 2016 MTP/SCS demonstrates that projects identified in the MTP/SCS meet CARB’s issued SB 375 GHG targets for the SACOG region in 2020 and 2035 (Sacramento Area Council of Governments 2016b). GHG emissions associated with the MTP/SCS, including those projects identified in the MTP/SCS, would therefore be less than significant. Accordingly, the proposed project’s project-level GHG emissions would be consistent with SB 375. This impact is considered less than significant. No mitigation is required.

Other Caltrans Projects in the Vicinity

Caltrans has two fiber optic projects, 03-3H330 and 03-1H820, that will end and start at Hazel Avenue along US 50. The work for these projects will occur within the shoulder area of US 50 and the contractor will have the option to utilize cut and cover or jack and bore for construction. These projects began construction in 2020 and will be complete prior to the construction of this project.

8. FUNDING, PROGRAMMING AND ESTIMATE

Funding

The project will be funded with a mix of funding types including local development impact fees or capital improvement funds, local Sacramento County Measure A transportation sales tax funds, potential state funds or grants, and potential federal funding.

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

Programming

The following table indicates the proposed Capital and Support Cost for the Proposed Project.

Fund Source	Fiscal Year Estimate								
	Prior	17/18	18/19	19/20	20/21	21/22	22/23	Future	Total
2014-2023									
Component	In thousands of dollars (\$1,000)								
PA&ED Support	550	750	500						1,800
PS&E Support					6,800	3,400			10,200
Right-of-Way Support						2,700			2,700
Construction Support							7,300	4,900	12,200
Right-of-Way Capital						11,900			11,900
Construction Capital							34,800	21,000	55,800
Total	550	750	500		6,800	18,000	42,100	25,900	94,600

The support cost ratio is 28%.

Estimate

The preliminary un-escalated costs are listed below:

	Alternative 1
Roadways	\$37.6M
Structures	\$18.2M
Right of Way & Utilities	\$11.9M
Total Capital Costs	\$67.7M
Project Report/ Environmental Document	\$1.8M
PS&E Design (15%)	\$10.2M
Right of Way (4%)	\$2.7M
Construction Support (18%)	\$12.2M
Total Support Costs	\$26.9M
Total Project Costs	\$94.6M

9. DELIVERY SCHEDULE

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation (Target/Actual)
PROGRAM PROJECT	M015	July 2015	Actual
BEGIN ENVIRONMENTAL	M020	September 2017	Actual
NOTICE OF PREPARATION (NOP)	M030	September 2017	Actual
CIRCULATE DED EXTERNALLY	M120	February 2020	Actual
PA & ED	M200	January 2021	Actual
PROJECT PS&E	M377	2021	Target
RIGHT OF WAY CERTIFICATION	M410	2022	Target
READY TO LIST	M460	2023	Target
AWARD	M495	2023	Target
APPROVE CONTRACT	M500	2023	Target
CONTRACT ACCEPTANCE	M600	2025	Target
END PROJECT	M800	2025	Target

10. RISKS

A risk register has been developed for the project as part of the PA&ED process and is included in Attachment I. The risks having the greatest impact on the project include:

- Acquisitions of parcels taking longer than anticipated. Due to the large number of parcels and businesses that will be affected by the project, condemnation procedures are likely. This could delay the start of construction by up to one year.
- Utility companies' schedule/workload delays utility relocation process.

11. EXTERNAL AGENCY COORDINATION

Federal Highway Administration (FHWA)

FWHA approvals are not anticipated at this time. The proposed project is not located on the Interstate System and NEPA delegation will be coordinated through Caltrans.

Sufficient funding is expected to be reasonably available or identified at the time of the circulation and/or approval of the environmental determination/document to allow for the inclusion of the fully funded preferred alternative in the financially constrained SACOG RTP and Federal Transportation Improvement Plan (FTIP).

Additionally, it is possible that the project will provide air quality improvements and congestion relief and therefore will be eligible for funding through the Congestion

Mitigation and Air Quality Improvement (CMAQ) Program that is included within the FTIP.

The project requires the following coordination:

US Army Corps of Engineers

Department of the Army Permit
Clean Water Act Section 404

California Department of Fish and Wildlife

California Fish and Game Code Section 1602
Lake or Streambed Alteration Agreement

California Public Utilities Commission

General Order 131-D Permit to Construct / Notice of Construction (if greater than 2000' of relocations of 50 KV lines are required)
Rule 3.7 Formal Application to construct a new Highway/Rail Crossing (Hazel & Jughandle locations)

Regional Water Quality Control Board

Clean Water Act Section 401
Water Quality Certification

Local Agency

Cooperative Agreements with State of California.

Railroads

Railroad Agreements for new grade-separated crossing and relocated at-grade crossing (Design Review and Construction & Maintenance Agreement)

12. PROJECT REVIEWS

Scoping team meeting _____ *	Date	<u>03/03/2011</u>
*Scoping team meeting attendance roster included as Attachment M.		
District Maintenance _____	Gerald Kracher	Date _____
Headquarters Project Delivery Coordinator _____	Jesus Mora	Date _____
Project Manager _____	John Holder	Date _____
FHWA _____	Scott McHenry	Date _____
District Safety Review _____	Kevin Espinoza	Date _____
Constructability Review _____		Date _____

13. PROJECT PERSONNEL

To facilitate coordination with team members and to provide contact information for any questions or concerns on the PR included herein is contact information for individuals responsible for the preparation of this document:

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Julia K. Green, Senior Environmental Planner	(530) 741-5181	julia_green@dot.ca.gov

14. ATTACHMENTS

- A. Location Map (1)
- B. Geometric Drawing (2)
- C. Advance Planning Studies (7)
- D. Preliminary Cost Estimate (10)
- E. Right of Way Data Sheet / Utility Information Sheets (9)
- F. Environmental Document (915)
- G. Traffic Operations Report (63)
- H. Transportation Management Plan Data Sheet (8)
- I. Risk Register (1)
- J. Initial Site Assessment (342)
- K. Storm Water Data Report (65)
- L. Scoping Team Meeting Attendance Roster (1)