

ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT

I-80 Lighting and Median Barrier Project (04-0K160)

Resolution SHOPP-P-2021-05B

(will be completed by CTC)

1. FUNDING PROGRAM

- Active Transportation Program
- Local Partnership Program (Competitive)
- Solutions for Congested Corridors Program
- State Highway Operation and Protection Program
- Trade Corridor Enhancement Program

2. PARTIES AND DATE

- 2.1 This Project Baseline Agreement (Agreement) for the *I-80 Lighting and Median Barrier Project (04-0K160)*, effective on March 25, 2021 (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, *Caltrans*, and the Implementing Agency, *Caltrans*, sometimes collectively referred to as the "Parties".

3. RECITAL

- 3.2 Whereas at its May 13, 2020 meeting the Commission approved the State Highway Operation and Protection Program, and included in this program of projects the *I-80 Lighting and Median Barrier Project (04-0K160)*, the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as Exhibit A and the Project Report attached hereto as Exhibit B, as the baseline for project monitoring by the Commission.
- 3.3 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

4. GENERAL PROVISIONS

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

- 4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.
- 4.2 To adhere, as applicable, to the provisions of the Commission:
- Resolution *Insert Number*, "Adoption of Program of Projects for the Active Transportation Program", dated
 - Resolution *Insert Number*, "Adoption of Program of Projects for the Local Partnership Program", dated
 - Resolution *Insert Number*, "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated
 - Resolution G-20-40, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated 05/13/2020
 - Resolution *Insert Number*, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated

- 4.3 All signatories agree to adhere to the Commission's State Highway Operation and Protection Program, Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.
- 4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.
- 4.5 Caltrans agrees to secure funds for any additional costs of the project.
- 4.6 Caltrans agrees to report on a quarterly basis; after July 2019, reports will be on a semi-annual basis on the progress made toward the implementation of the project, including scope, cost, schedule, outcomes, and anticipated benefits.
- 4.7 Caltrans agrees to prepare program progress reports on a quarterly basis; after July 2019, reports will be on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.
- 4.8 Caltrans agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.
- 4.9 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits during the course of the project, and retain those records for four years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.
- 4.10 The Transportation Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for four years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

5. SPECIFIC PROVISIONS AND CONDITIONS

5.1 Project Schedule and Cost

See Project Programming Request Form, attached as Exhibit A.

5.2 Project Scope

See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

5.3 Other Project Specific Provisions and Conditions

Attachments:


Exhibit A: Project Programming Request Form

Exhibit B: Project Report


SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

I-80 Lighting and Median Barrier Project (04-0K160)

Resolution SHOPP-P-2021-05B


_____ 1/28/2021
Date

Acting District Director
California Department of Transportation


_____ 3/4/2021
Date

Director
California Department of Transportation

_____ Date

Mitchell Weiss
Executive Director
California Transportation Commission

Baseline agreement information was extracted from Caltrans' project data systems. Project description, funding and performance measures are from CTIPS. Project delivery milestones are from PRSM. All information is current and accurate.

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

BASELINE AGREEMENT						Date:	02/19/21 04:48:02 PM
District	EA	Project ID		PPNO	Project Manager		
04	0K160	0416000044		1497F	EL-NAKHAL, DINA H		
County	Route	Begin Postmile	End Postmile	Implementing Agency			
CC	80	0.0	13.5	PA&ED	Caltrans		
				PS&E	Caltrans		
				Right of Way	Caltrans		
				Construction	Caltrans		
Project Nickname							
CC 80 Lights and Median Barrier							
Location/Description							
In various cities, from Alameda County line to 0.6 mile west of Solano County line; also in Alameda County in Albany, from 0.4 mile west to the Contra Costa County line (PM R7.6/8.0). Install lighting and upgrade concrete barrier.							
Legislative Districts							
Assembly:	11, 14		Senate:	07, 09		Congressional:	05
PERFORMANCE MEASURES							
	Primary Asset	Good	Fair	Poor	New	Total	Units
Existing Condition	Safety					0	Collisions Reduced
Programmed Condition	Safety				460	460	Collisions Reduced
Project Milestones						Actual	Planned
Project Approval and Environmental Document Milestone						12/08/20	
Right of Way Certification Milestone							03/18/22
Ready to List for Advertisement Milestone							04/01/22
Begin Construction Milestone (Approve Contract)							10/01/22
FUNDING (Allocated amounts are shaded)							
Component	Fiscal Year	SHOPP					Total
PA&ED	17/18	6,869					6,869
PS&E	20/21	6,869					6,869
RW Support	20/21	296					296
Const Support	21/22	7,327					7,327
RW Capital	21/22	1,339					1,339
Const Capital	21/22	69,791					69,791
Total		92,491					92,491

Project Report

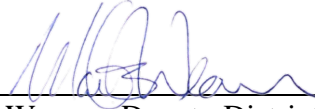
For Project Approval

On Route 80

Between 0.4 mile west of Alameda/Contra Costa County line

And The approach to the Carquinez Bridge

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:



Mark L. Weaver, Deputy District Director,
Right of Way and Land Surveys

APPROVAL RECOMMENDED:

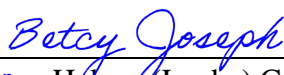


Dina El-Nakhal, Project Manager



Kendall Kitamura, Office Chief, Design Contra Costa

PROJECT APPROVED:

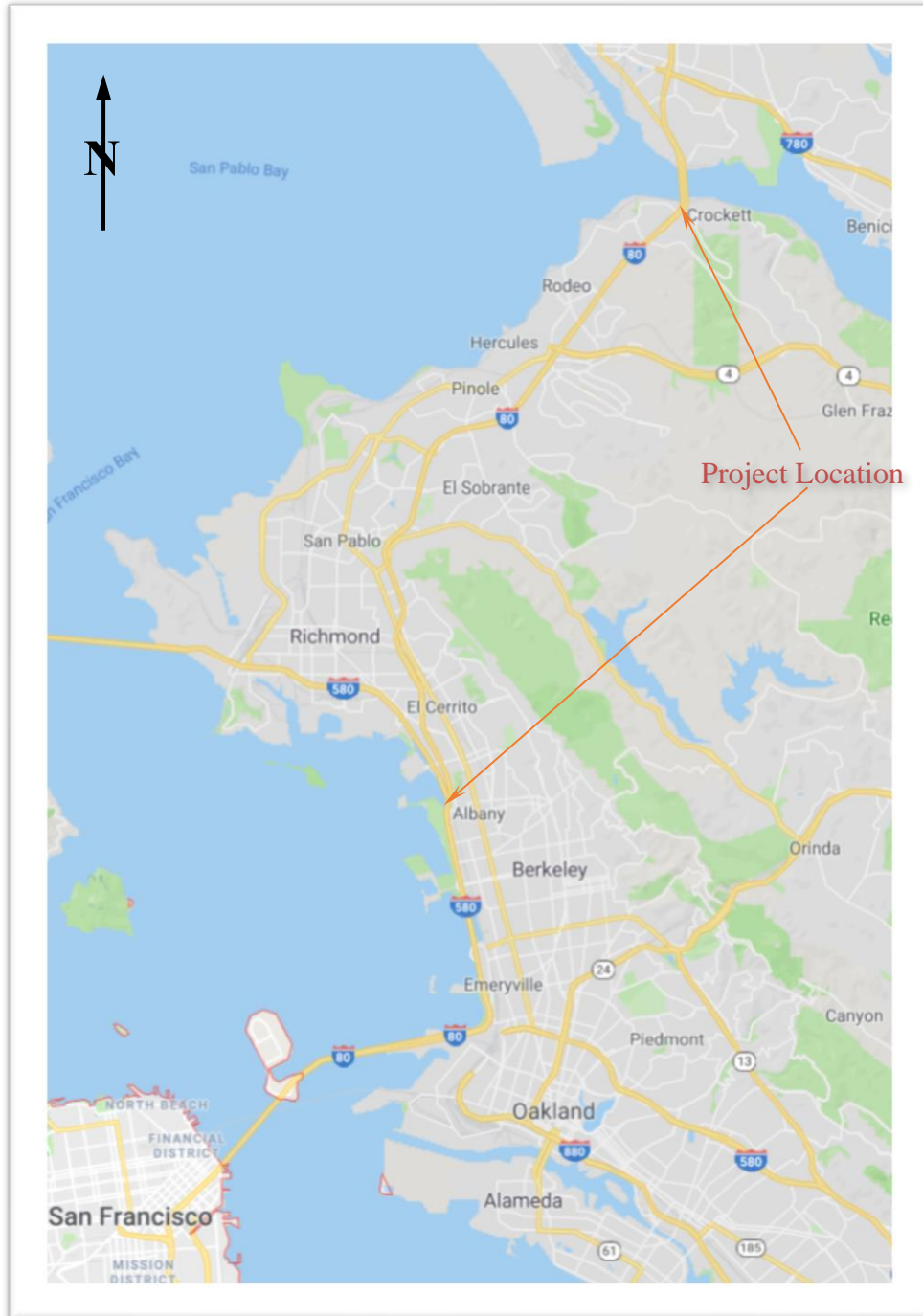


For Helena (Lenka) Culik-Caro
Deputy District Director, Design

12/8/2020

Date

Vicinity Map



In Alameda and Contra Costa Counties in Albany, Richmond, El Cerrito, San Pablo, Pinole, Hercules, and at Rodeo and Crockett, from 0.4 mile west of the Alameda/Contra Costa County line to the approach of Carquinez Bridge.

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.

David C Chan

12/7/2020

*DAVID C CHAN,
REGISTERED CIVIL ENGINEER*

DATE



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1. INTRODUCTION

Project Description:

The project proposes to install freeway safety lighting and upgrade median concrete barriers on Interstate 80 (I-80) from 0.4 mile west of the Alameda County / Contra Costa County line to the approach to the Carquinez Bridge, a distance of about 13.9 miles. Attachment A provides a project location map. The following table lists the key features of the project.

Project Limits	04 - Ala - 80 – PM R7.6/8.0; 04 - CC - 80 – PM 0.0/13.5	
Number of Alternatives	Two (one Build Alternative and the No-Build Alternative)	
	Current Cost Estimate:	Escalated Cost Estimate:
Capital Outlay Support	\$21,361,000	\$21,361,000
Capital Outlay Construction	\$62,200,000	\$69,791,000
Capital Outlay Right of Way	\$1,339,000	\$1,339,000
Funding Source	20.10.201.010	
Funding Year	2018 SHOPP	
Type of Facility	Eight-lane freeway	
Number of Structures	23	
SHOPP Project Output	The SHOPP Performance Measure is 460 collisions reduced over the life of the project (15 years).	
Environmental Determination or Document	Categorical Exemption (CEQA) / Categorical Exclusion (NEPA)	
Legal Description	In Alameda and Contra Costa Counties in Albany, Richmond, El Cerrito, San Pablo, Pinole, Hercules, and at Rodeo and Crockett, from 0.4 mile west of the Alameda/Contra Costa County line to the approach of Carquinez Bridge	
Project Development Category	Category 4B	

Notes:

Ala = Alameda County

CC = Contra Costa County

CEQA = California Environmental Quality Act

NEPA = National Environmental Policy Act

PM = post mile(s)

SHOPP = State Highway Operation and Protection Program

2. RECOMMENDATION

It is recommended that the Project Report be approved and that the project proceed to the Plans, Specifications, and Estimate (PS&E) phase.

3. **BACKGROUND**

Project History

A Project Initiation Report (PIR) for the project was written and approved on May 25, 2017. There was one Build Alternative and the cost was \$53 million. Changes to the project since the PIR include the following:

- The Office of Traffic Safety conducted a Traffic Accident Analysis within the project limits; the analysis concluded that there was a need for 77 additional lights. Some of the lights are to be installed on the bridge rails.
- There are multiple slotted drains that have the potential to be damaged that may require replacement when the median barrier is removed and replaced.
- Compliance with a Context Sensitive Solutions approach suggests an aesthetic treatment on the new, taller median barrier.

Community Interaction

No community meetings have been held for the project, but a Community Impact Assessment report was completed, and letters were sent to community members adjacent to the project affected by the lighting to inform our neighbors about the project. Also, letters were sent to the City of El Cerrito and the City Richmond to notify them. The City of Richmond had no comment; the City of El Cerrito has not yet replied.

Existing Facility

I-80 is a multilane freeway divided by a median barrier. The segment from the beginning of the project limits (in Alameda County [Ala] at post mile [PM] R7.6) to the State Route (SR) 4 separation (in Contra Costa County [CC] at PM 10.0), a distance of about 10.4 miles, has a series of tangents and curves and is generally on a fill section. This segment has one High Occupancy Vehicle (HOV) lane and three mixed-flow lanes in each direction. The remaining northern segment from the SR 4 separation to the Carquinez Bridge (PM 10.0 to 13.5) is mainly on tangent with a short curve and is generally in cut sections. This segment consists of one HOV lane and two mixed-flow lanes in the eastbound direction and one HOV lane and three mixed-flow lanes in the westbound direction. These two segments exhibit different roadway characteristics, which are summarized in Table 3-1.

Table 3-1: Roadway Characteristics of the Two Segments That Constitute the Project Limits

Post Mile Range	Curve Radii Range (ft)	EB No. of Lanes	WB No. of Lanes	Median Width (ft)	Left Shoulder Width (ft)	Right Shoulder Width (ft)
Ala-80–PM R7.6 to CC-80–PM 10.0	1,500–20,000	HOV +3	HOV +3	6 & var	2 & var	10 & var
CC-80–PM 10.0 to PM 13.5	3,000	HOV +2	HOV +3	12 & var	5 & var	10 & var

Notes:

Ala = Alameda County
 CC = Contra Costa County
 EB = eastbound

HOV = High Occupancy Vehicle
 PM = post mile(s)
 var = various
 WB = westbound

Median Barriers

In the southern (or first) segment (Ala-80–PM R 7.6 to CC-80–PM 10.0), the majority of the median barriers in the tangent sections are Type 50 series with concrete headlight glare screen added on top. A short section near the beginning of the project limits (Ala-80–PM R7.77 to 7.98), for a distance of about 1,100 feet, has modular glare screens, and many pieces have been damaged or broken off of the screens. In the curve sections of the first segment, there are Type 50 barriers without glare screens. In the northern (or second) segment (CC-80–PM 10.0 to 13.5), Type 60A median barrier has been installed. The project does not propose to upgrade this barrier.

Structure Geometric Information

There are 23 structures in the first segment (Ala-80–PM R 7.6 to CC-80–PM 10.0). Specifically, there are 13 overcrossings and 10 undercrossings. Table 3-2 lists these structures as described in the Log of Bridges on State Highways.

Table 3-2: Structures in the First Segment (Ala-80–PM R 7.6 to CC-80–PM 10.0) as Described in the Log of Bridges on State Highways

PM	Bridge No.	Mainline on Deck (O) / under Deck (U)	Mainline Tangent (T) / Curve (C)	Structure Name	Bridge Length (feet)	OC Bridge Width (feet)
0.22	28 0114	O	T	Central Avenue UC	200.1	—
0.50	28 0156	U	T	Sacramento Avenue POC	—	9.8
1.00	28 0123	O	C	Carlson Boulevard UC	130.9	—
1.67	28 0034	O	C	Potrero Avenue UC	291.9	—

PM	Bridge No.	Mainline on Deck (O) / under Deck (U)	Mainline Tangent (T) / Curve (C)	Structure Name	Bridge Length (feet)	OC Bridge Width (feet)
2.04	28 0080l	O	T	Cutting Boulevard UC	228.0	—
2.04	28 0080r	O	T	Cutting Boulevard UC	224.0	—
2.50	28 0226	O	T	Ohio Street OH	37.4	—
2.53	28 0081	O	T	47th Street PUC	65.6	—
2.62	28 0082	O	T	Macdonald Avenue UC	148.6	—
2.82	28 0083	O	C	Barrett Avenue UC	166.0	—
2.96	28 0084	O	T	San Pablo Avenue UC	146.9	—
3.40	28 0085	U	C	Solano Avenue OC	—	51.8
3.80	28 0087	U	T	McBryde Avenue OC	—	75.8
4.06	28 0159	U	T	Riverside Avenue POC	—	9.8
4.34	28 0089	U	C	San Pablo Dam Road OC	—	61.3
5.25	28 0122	O	C	El Portal Drive UC	158.1	—
5.99	28 0281l	U	T	Hilltop Drive OC (North)	—	43.6
5.99	28 0281r	U	T	Hilltop Drive OC (South)	—	44.0
6.70	28 0308	U	C	Richmond Parkway OC	—	114.1
7.60	28 0146r	U	T	Appian Way OC (West)	—	35.4
7.62	28 0288l	U	T	Appian Way OC (East)	—	49.5
8.51	28 0121	O	C	Pinole Valley Road UC	115.5	—
9.72	28 0143	O	T	Hercules OH	719.6	—

Notes:

— = not applicable

Ala = Alameda County

CC = Contra Costa County

PM = post mile(s)

OC = overcrossing

OH = overhead

POC = pedestrian overcrossing

PUC = pedestrian undercrossing

UC = undercrossing

4. PURPOSE AND NEED

Purpose:

The purpose of the project is to reduce the number and severity of nighttime collisions and to minimize the glare generated by the high volume of traffic on I-80 within the project limits.

Need:

The two freeway segments that constitute the project limits have been identified for participation in the Roadway Departure Safety Improvement Program in the Alignment Delineation and Lighting (ADL) category. The project qualifies for the Traffic Safety Index for State Highway Operation and Protection Program (SHOPP) program code 201.010.

The SHOPP Performance Measure for the project is 460 collisions reduced over the life of the project (15 years).

4A. Problem, Deficiencies, Justification

Many accidents have occurred at nighttime within the project limits. The Traffic Accident Analysis previously performed for the project limits noted the need for additional lighting. Also, glare from oncoming headlights has been identified as an issue. The project will better illuminate the mainline to reduce the number of nighttime accidents and replace the existing median concrete barriers with different concrete barriers that will reduce glare from the opposite direction.

4B. Regional and System PlanningCorridor Overview

I-80 is a major east-west freeway connecting San Francisco and Sacramento, passing through Alameda County and Contra Costa County between the San Francisco–Oakland Bay Bridge and the Carquinez Bridge. I-80 is vital to commuting, freight, and recreational traffic and is one of the most congested freeway facilities in the region.

Portions of the I-80 freeway near and within the project limits have Classified Landscaped Freeway status. The Classified Landscaped Freeway sections are:

- Ala-80–PM 6.53/8.04
- CC-80–PM 0.07/4.5
- CC-80–PM 4.7/5.54
- CC-80–PM 6.34/6.93
- CC-80–PM 7.04/9.08

Federal and State Planning

Table 4-1 lists the federal and State of California (State) characteristics of I-80 within the project limits.

Table 4-1: Federal and State Characteristics of I-80 within the Project Limits

Item	I-80 Characteristic
Functional classification	Interstate
National Highway Freight Network	PHFS Interstate
Trucking designation	STAA
National Highway System	Yes
Scenic Highway	No
Interregional Road System	Yes

Notes:

I-80 = Interstate 80

PHFS = Primary Highway Freight System

STAA = Surface Transportation Assistance Act

State = State of California

Regional Planning

The Metropolitan Transportation Commission (MTC) functions as both the State-designated Regional Transportation Planning Agency and the federal-designated Metropolitan Planning Organization. As such, MTC is responsible for the update of the Regional Transportation Plan (RTP), a long-range planning report for the region that considers financial constraints.

Under Senate Bill 375, along with an updated RTP, each region in California must develop a Sustainable Communities Strategy (SCS) that promotes walk- and bike-friendly, mixed-use commercial and residential development that is close to mass transit, jobs, schools, shopping, parks, recreation and other amenities. MTC's Plan Bay Area (PBA), adopted in July 2013 and updated in July 2017, serves as the San Francisco Bay Area's RTP and SCS. MTC is currently developing Plan Bay Area 2050, the next RTP/SCS update.

Table 4-2 lists planned and ongoing RTP projects that are within or near the Expenditure Authorization (EA) 04-0K160 project limits.

Table 4-2: Planned and Ongoing RTP Projects within or near the EA 04-0K160 Project Limits

County-Route	Sponsor	RTP ID	Description	Cost*	Project Completion Date*
CC-80	CCTA	07-02-0028	I-80 Eastbound and Westbound Pinole Valley Road On-Ramp Improvement: Improve conditions for merging onto the I-80 mainline from the eastbound and westbound Pinole Valley Road on-ramps to address vehicles accelerating uphill after stopping at ramp meter.	\$10M	2022

County-Route	Sponsor	RTP ID	Description	Cost*	Project Completion Date*
CC-80	CCTA	17-02-0026	I-80/Central Avenue Interchange Modification, Phases 1 & 2: Construct new signals and changeable message signs to redirect I-80 westbound on-ramp traffic during weekend peak periods to I-580, connect Pierce Street to San Mateo Street to relocate the traffic signal at Pierce Street / Central Avenue to the San Mateo Street / Central Avenue intersection, and construct other necessary improvements.	\$26M	2020
CC-80	CCTA	17-02-0021	Reconstruct I-80 / San Pablo Dam Road Interchange: Phase 1 involves relocating the El Portal Dr. on-ramp to WB I-80 to the north, extending the auxiliary lane along WB I-80 between the San Pablo Dam Rd. off-ramp and El Portal Dr. on-ramp, and reconstructing the Riverside Ave. pedestrian overcrossing. Phase 2 involves modifications to the McBryde and San Pablo Dam Rd. I/C and includes provisions for bicyclists and pedestrians on San Pablo Dam Rd.	\$120M	2023
CC-80	CCTA	17-02-0010	SR 4 Integrated Corridor Mobility: From I-80 to SR 160, including Adaptive Ramp Metering, advanced traveler information, arterial management system, freeway management system, and connected vehicle applications	\$15M	2020
CC-80 / SR 4	CCTA	17-02-0024	I-80/SR 4 Interchange Improvements, New Eastbound Willow Avenue Ramps: New SR 4 eastbound off-ramp and on-ramp at Willow north of Palm Avenue and removal of Willow Avenue hook ramps	\$25M	2022

Source: Plan Bay Area 2040, Final Project Database: <http://projects.planbayarea.org/explore>.

*Costs and project completion dates are subject to change.

Notes:

CC = Contra Costa County

CCTA = Contra Costa Transportation Authority

EA = Expenditure Authorization

I-80 = Interstate 80

I-580 = Interstate 580

I/C = interchange

ICM = Integrated Corridor Mobility

ID = identification number

RTP = Regional Transportation Plan

SR = State Route

WB = westbound

Local Planning

The Contra Costa Transportation Authority (CCTA) is the designated Congestion Management Agency for Contra Costa County. CCTA develops the long-range Countywide Transportation Plan (CTP), which, together with similar plans from the other eight Bay Area counties, forms the “primary basis” for the RTP/SCS that MTC adopts. In turn, the CTP must consider the most recently adopted RTP/SCS to ensure that the county transportation plans and the regional plan employ a common planning framework.

Future Projects

State Highway Operation and Protection Program

SHOPP is the State’s “fix-it-first” program that funds repairs, safety improvements, some highway operational improvements, and preservation of the State Highway System. The 2020 SHOPP and the 2019 10-Year Book are still in development.

Table 4-3 lists the planned and ongoing projects that are near or within the EA 04-0K160 project limits.

Table 4-3: Planned and Ongoing SHOPP Projects near or within the EA 04-0K160 Project Limits

County	Route	PM Range	Program / Plan	EA/ SHOPP ID	Description / Activity Category	Cost (Construction) (\$K)*	(Projected) SHOPP Cycle
Ala	80	1.99 / 8.04	2017 10-Year SHOPP Plan	15500	Mobility / Traffic Monitoring System	\$110,996	2020
CC	80	7.6 / 12.75	2017 10-Year SHOPP Plan	2022K	Bridge	\$24,612	2020
CC	80	0 / 11	2017 10-Year SHOPP Plan	2020E	Sustainability / Climate Change	\$13,364	2020
CC	80	7.4 / 7.6	2017 10-Year SHOPP Plan	20159	Mobility / Weigh in Motion	\$2,190	2027/28
CC	80	9.8 / 13.5	2021 10-Year SHOPP Plan	3J070	Pavement Rehabilitation	\$60,000	2021/22

Notes:

Ala = Alameda County
 CC = Contra Costa County
 EA = Expenditure Authorization

ID = identification number
 PM = post mile(s)
 SHOPP = State Highway Operation and Protection Program

The pavement rehabilitation project (EA 04-3J070) overlaps the EA 04-0K160 project and both projects will be in construction at the same time. the preparation of a cooperation clause will be required during the PS&E phase.

District 4 Bike Plan

The District 4 Bike Plan, the first of its kind in the state, evaluates bicycle needs on and across the Bay Area’s State transportation network and identifies infrastructure improvements to enhance bicycle safety and mobility and remove some of the barriers to bicycling in the region. The District 4 Bike Plan builds on *Toward an Active California: State Bicycle and Pedestrian Plan (2017)*, and guides District 4 and its partners to develop an integrated bicycle network for the Bay Area.

Table 4-4 lists the planned and ongoing bike projects that are near or within the EA 04-0K160 project limits.

Table 4-4: Planned and Ongoing Bike Projects near or within the EA 04-0K160 Project Limits

County	Route	PM	Location	Description	Tier	Cost
Contra Costa	80	13.7	Carquinez Bridge Trail, Crockett	New separated crossing	Low	>\$7M
Contra Costa	80	5.9	Hilltop Dr., Richmond	Interchange reconstruction, ramps only, Class IIB	Top	>\$7M
Contra Costa	80	3.8	McBryde Ave., Richmond	Minor interchange improvements (signage and striping), Class II	Top	<\$250k
Contra Costa	80	3.4	Solano Ave., Richmond	Minor interchange improvements (signage and striping), Class II	Top	<\$250k
Contra Costa	80	2.8	Barrett Ave., Richmond	Minor interchange improvements (signage and striping), Class IV	Top	\$250k–\$1.5M
Contra Costa	80	2.6	Macdonald Rd., Richmond	Interchange reconstruction, ramps only, Class I	Mid	>\$7M
Contra Costa	80	2.056	Cutting Blvd., Richmond	Minor interchange improvements (signage and striping), Class I	Top	\$250K–\$1.5M
Contra Costa	80	1.7	Potrero Ave., Richmond	Minor interchange improvements (signage and striping), Class II	Top	<\$250k
Contra Costa	80	1.009	Carlson Blvd., Richmond	Minor interchange improvements (signage and striping), Class II	Top	<\$250k

Contra Costa	80	0.298	Central Ave., Richmond	Minor interchange improvements (signage striping), Class I	Top	\$250k–\$1.5M
Alameda	80	6.6	Gilman St., Berkeley	New separated crossing	Top	>\$7M

Notes:

EA = Expenditure Authorization

PM = post mile(s)

4C. Traffic

Current and Forecasted Traffic

The current and forecasted traffic information for the project limits is shown below by segment.

Ala-80 from PM R7.6 to CC-80 at Cutting Boulevard (PM 2.0):

- Count Year (2020) average Daily Traffic (ADT) 237,300
- Construction Year (2022) ADT 238,200
- Design Year (2042) ADT 247,400
- Truck% 4.81%
- 20-year Traffic Index (TI) 14.00
- 20-year Equivalent Single Axle Load (ESAL) 50,547,000

CC-80 from Cutting Boulevard (PM 2.0) to Hilltop Drive (PM 6.0):

- Count Year (2020) ADT 258,600
- Construction Year (2022) ADT 260,100
- Design Year (2042) ADT 275,000
- Truck% 4.00%
- 20-year TI 13.50
- 20-year ESAL) 43,862,000

CC-80 from Hilltop Drive (PM 6.0) to State Route (SR) 4 (PM 10.0)

- Count Year (2020) ADT 245,000
- Construction Year (2022) ADT 246,500
- Design Year (2042) ADT 260,900
- Truck% 4.60%
- 20-year TI 14.00
- 20-year ESAL 59,168,000

CC-80 from SR 4 (PM 10.0) to Crockett (PM 13.5):

- Count Year (2020) ADT 178,700
- Construction Year (2022) ADT 179,700
- Design Year (2042) ADT 189,900
- Truck% 4.37% 5.18%
- 20-year TI 14.00
- 20-year ESAL 47,231,000

Collision Analysis

Accident Data: All Collisions (Combined Eastbound and Westbound)

As shown in the tables below, the accident information classified as “All” considers all collisions, combining data on collisions that occurred in both the westbound direction and the eastbound direction of the project mainline segments, exclusive of the I-80 ramps, in Alameda County from PM R7.60 to PM 8.036 and in Contra Costa County from PM 0.0 to PM 13.5.

Ala-80–PM R7.6 to PM 8.0

All Accident Rates (in Both Directions): Table 4-5 compares the actual accident rates on Ala-80 in both directions from PM R7.60 to PM 8.036 with the average accident rates for similar facilities statewide for the most-recent available 3-year period (October 1, 2016, to September 30, 2019).

Table 4-5: Comparison of Actual Accident Rates on Ala-80 for All Collisions in Both Directions from PM R7.60 to PM 8.036 with Average Accident Rates for Similar Facilities Statewide (October 1, 2016, to September 30, 2019)

Location: Ala-80	Number of Accidents				Actual Accident Rates within the Project Limits (acc/mvm)*			Average Accident Rates for Similar Facilities Statewide (acc/mvm)		
	F	I	F + I	Total	F	F + I	Total	F	F + I	Total
PM R7.6 / 8.036	2	42	44	136	0.024	0.52	1.61	0.004	0.31	0.96

Source: Caltrans TASAS database.

* **Bold** numbers indicate actual accident rates that are higher than the corresponding average accident rates for similar facilities statewide.

Notes:

acc/mvm = accident(s) per million vehicle-miles

Ala = Alameda County

Caltrans = California Department of Transportation

F = fatal accident(s)

I = injury accident(s)

PM = post mile(s)

TASAS = Traffic Accident Surveillance and Analysis System

The collision history of this Ala-80 mainline segment showed that the actual accident rate of 1.61 accidents per million vehicle-miles (acc/mvm) exceeded the statewide average rate of 0.96 acc/mvm. A total of 2 fatalities occurred within this segment during the analysis period.

Primary Collision Factors: The primary collision factors for the 136 collisions that occurred on Ala-80 in both directions from PM R7.60 to PM 8.036 were as follows: 95 (69.9%) were due to speeding, 24 (17.6%) were coded as “other violations,” 10 (7.4%) involved influence of alcohol, 4 (2.9%) were coded as improper turns, 2 (1.5%) were coded as “other than driver,” and 1 (0.7%) was coded as “unknown.”

Types of Collisions: Of the total 136 collisions that occurred on Ala-80 in both directions from PM R7.60 to PM 8.036, 94 (69.1%) were rear-end type, 31 (22.8%) were sideswipe, 9 (6.6%) were hit-object type, 1 (0.7%) was overturn, and 1 (0.7%) was coded as “other.”

CC-80–PM 0.0 to PM 13.5

All Accident Rates (in Both Directions): Table 4-6 compares the actual accident rates on CC-80 in both directions from PM 0.0 to PM 13.5 with the average accident rates for similar facilities statewide for the most-recent available 3-year period (October 1, 2016, to September 30, 2019).

Table 4-6: Comparison of Actual Accident Rates on CC-80 for All Collisions in Both Directions from PM 0.0 to PM 13.5 with Average Accident Rates for Similar Facilities Statewide (October 1, 2016, to September 30, 2019)

Location: CC-80	Number of Accidents				Actual Accident Rates within the Project Limits (acc/mvm)*			Average Accident Rates for Similar Facilities Statewide (acc/mvm)		
	F	I	F + I	Total	F	F + I	Total	F	F + I	Total
PM 0.0 / 13.5	13	807	820	2,539	0.005	0.34	1.05	0.004	0.29	0.90

Source: Caltrans TASAS database.

* **Bold** numbers indicate actual accident rates that are higher than the corresponding average accident rates for similar facilities statewide.

Notes:

acc/mvm = accident(s) per million vehicle-miles
 Caltrans = California Department of Transportation
 CC = Contra Costa County
 F = fatal accident(s)

I = injury accident(s)
 PM = post mile(s)
 TASAS = Traffic Accident Surveillance and Analysis System

In this CC-80 segment of the project, the actual total accident rate of 1.05 acc/mvm is higher than the average total accident rate statewide of 0.90 acc/mvm. A total of 13 fatalities occurred in this segment during the analysis period.

Primary Collision Factors: The primary collision factors for the 2,539 collisions that occurred on CC-80 in both directions from PM 0.0 to PM 13.5 were as follows: 1,295 (51.0%) were due to speeding, 676 (26.6%) were coded as “other violations,” 297 (11.7%) were due to improper turns, 125 (4.9%) were due to influence of alcohol, 93 (3.7%) were coded as “other than driver,” 30 (1.2%) were coded as “unknown,” 12 (0.5%) were due to improper

driving, 7 (0.3%) were “following too closely,” and 4 (0.2%) were failure to yield.¹

Types of Collisions: Of the total 2,539 collisions that occurred on CC-80 in both directions from PM 0.0 to PM 13.5, 1,349 (53.1%) were rear-end type, 718 (28.3%) were sideswipe, 344 (13.5%) were hit-object type, 53 (2.1%) involved overturns, 39 (1.5%) were broadside type, 15 (0.6%) were head-on type, 14 (0.6%) coded as “other,” and 7 (0.3%) were auto-pedestrian.

Selective Accident Analysis: Driving in Darkness

The following discussion focuses on a safety evaluation of specific collision histories and patterns within the project limits. In particular, this section discusses how the project aims to reduce the severity and frequency of these issues.

The PIR identified that a significant number of accidents within the project limits were occurring during periods of darkness, and the PIR showed that glare from the headlights of oncoming vehicles was the main contributing factor for these accidents.

The accident data for periods of darkness were retrieved separately for each direction (westbound and eastbound) of the project segments to assess how the existing illumination was related to accidents.

Ala-80–PM R7.6 to PM 8.0 Westbound

Accident Rates in Westbound Direction during Periods of Darkness:

Table 4-7 compares the actual accident rates on Ala-80 in the westbound direction during periods of darkness from PM R7.60 to PM 8.036 with the average accident rates for similar facilities statewide under similar conditions for the most-recent available 3-year period (October 1, 2016, to September 30, 2019).

¹ Percentages may not add to 100.0 because of rounding.

Table 4-7: Comparison of Actual Accident Rates on Ala-80 in Westbound Direction during Periods of Darkness from PM R7.60 to PM 8.036 with Average Accident Rates for Similar Facilities Statewide under Similar Conditions (October 1, 2016, to September 30, 2019)

Location: Ala-80	Number of Accidents				Actual Accident Rates within the Project Limits (acc/mvm)*			Average Accident Rates for Similar Facilities Statewide (acc/mvm)		
	F	I	F + I	Total	F	F + I	Total	F	F + I	Total
PM R7.6 / 8.036	0	6	6	10	0.000	0.14	0.24	0.002	0.12	0.36

Source: Caltrans TASAS database.

* **Bold** numbers indicate actual accident rates that are higher than the corresponding average accident rates for similar facilities statewide.

Notes:

acc/mvm = accident(s) per million vehicle-miles

Ala = Alameda County

Caltrans = California Department of Transportation

F = fatal accident(s)

I = injury accident(s)

PM = post mile(s)

TASAS = Traffic Accident Surveillance and Analysis System

Table 4-7 shows that the actual total accident rate of 0.24 acc/mvm for driving in the westbound direction during periods of darkness is lower than the average total accident rate of 0.36 acc/mvm for similar facilities statewide under similar conditions.

Primary Collision Factors: The primary collision factors for the 10 collisions that occurred on Ala-80 in the westbound direction during periods of darkness from PM R7.60 to PM 8.036 were as follows: 4 (40%) were due to influence of alcohol, 4 (40%) were due to speeding, 1 (10%) was due to “other violations,” and 1 (10%) was due to “other than driver.”

Types of Collisions: Of the 10 collisions that occurred on Ala-80 in the westbound direction during periods of darkness from PM R7.60 to PM 8.036, 5 (50%) were rear-end type, 3 (30%) hit-object type, and 2 (20%) were sideswipe.

Ala-80–PM R7.6 to PM 8.0 (Eastbound)

Accident Rates in Eastbound Direction during Periods of Darkness:

Table 4-8 compares the actual accident rates on Ala-80 in the eastbound direction during periods of darkness from PM R7.60 to PM 8.036 with the average accident rates for similar facilities statewide under similar conditions for the most-recent available 3-year period (October 1, 2016, to September 30, 2019).

Table 4-8: Comparison of Actual Accident Rates on Ala-80 in Eastbound Direction during Periods of Darkness from PM R7.60 to PM 8.036 with Average Accident Rates for Similar Facilities Statewide under Similar Conditions (October 1, 2016, to September 30, 2019)

Location: Ala-80	Number of Accidents				Actual Accident Rates within the Project Limits (acc/mvm)*			Average Accident Rates for Similar Facilities Statewide (acc/mvm)		
	F	I	F + I	Total	F	F + I	Total	F	F + I	Total
PM R7.6 / 8.036	1	10	11	32	0.024	0.26	0.76	0.002	0.12	0.36

Source: Caltrans TASAS database.

* **Bold** numbers indicate actual accident rates that are higher than the corresponding average accident rates for similar facilities statewide.

Notes:

acc/mvm = accident(s) per million vehicle-miles

Ala = Alameda County

Caltrans = California Department of Transportation

F = fatal accident(s)

I = injury accident(s)

PM = post mile(s)

TASAS = Traffic Accident Surveillance and Analysis System

Table 4-8 shows that the actual total accident rate of 0.76 acc/mvm for driving in the eastbound direction during periods of darkness is higher than the average total accident rate of 0.36 acc/mvm for similar facilities statewide under similar conditions.

Primary Collision Factors: The primary collision factors for the 32 collisions that occurred on Ala-80 in the eastbound direction during periods of darkness from PM R7.60 to PM 8.036 were as follows: 21 (65.6%) were due to speeding, 8 (25.0%) were coded as “other violations,” 2 (6.3%) were due to influence of alcohol, and 1 (3.1%) was due to improper turn.

Types of Collision Factors: Of the 32 collisions that occurred on Ala-80 in the eastbound direction during periods of darkness from PM R7.60 to PM 8.036, 21 (65.6%) were rear-end type, 9 (28.1%) were sideswipe, and 2 (6.3%) were hit-object type.

CC-80–PM 0.0 to PM 13.5 (Westbound)

Accident Rates in Westbound Direction during Periods of Darkness:

Table 4-9 compares the actual accident rates on CC-80 in the westbound direction during periods of darkness from PM 0.0 to PM 13.5 with the average accident rates for similar facilities statewide under similar conditions for the most-recent available 3-year period (October 1, 2016, to September 30, 2019).

Table 4-9: Comparison of Actual Accident Rates on CC-80 in Westbound Direction during Periods of Darkness from PM 0.0 to PM 13.5 with Average Accident Rates for Similar Facilities Statewide under Similar Conditions (October 1, 2016, to September 30, 2019)

Location: CC-80	Number of Accidents				Actual Accident Rates within the Project Limits (acc/mvm)*			Average Accident Rates for Similar Facilities Statewide (acc/mvm)		
	F	I	F+I	Total	F	F+I	Total	F	F+I	Total
PM 0.0 / 13.5	5	148	153	443	0.004	0.13	0.37	0.001	0.11	0.34

Source: Caltrans TASAS database.

* **Bold** numbers indicate actual accident rates that are higher than the corresponding average accident rates for similar facilities statewide.

Notes:

acc/mvm = accident(s) per million vehicle-miles
 Caltrans = California Department of Transportation
 CC = Contra Costa County
 F = fatal accident(s)

I = injury accident(s)
 PM = post mile(s)
 TASAS = Traffic Accident Surveillance and Analysis System

Table 4-9 shows that the actual total accident rate of 0.37 acc/mvm for driving in the westbound direction during periods of darkness is higher than the average total accident rate of 0.34 acc/mvm for similar facilities statewide under similar conditions.

Primary Collision Factors: The primary collision factors for the 443 collisions that occurred on CC-80 in the westbound direction during periods of darkness from PM 0.0 to PM 13.5 were as follows: 179 (40.4%) were due to speeding, 120 (27.1%) were coded as “other violations,” 74 (16.7%) were due to improper turn, 38 (8.6%) were due to influence of alcohol, 25 (5.6%) were coded as “other than driver,” 4 (0.9%) were coded as “unknown,” 1 (0.2%) was coded as “follow too close,” 1 (0.2%) was due to failure to yield, and 1 (0.2%) was due to improper driving.²

Types of Collision: Of the 443 collisions that occurred on CC-80 in the westbound direction during periods of darkness from PM 0.0 to PM 13.5, 188 (42.4%) were rear-end type, 134 (30.2%) were sideswipe, 84 (19.0%) were hit-object type, 14 (3.2%) were overturns, 12 (2.7%) were broadside, 5 (1.1%) were head-on type, 3 (0.7%) were auto-pedestrian, and 3 (0.7%) were coded as “other.”

CC-80–PM 0.0 to PM 13.5 (Eastbound)

Accident Rates in Eastbound Direction during Periods of Darkness:

Table 4-10 compares the actual accident rates on CC-80 in the eastbound direction during periods of darkness from PM 0.0 to PM 13.5 with the average

² Percentages may not add to 100.0 because of rounding.

accident rates for similar facilities statewide under similar conditions for the most-recent available 3-year period (October 1, 2016, to September 30, 2019).

Table 4-10: Comparison of Actual Accident Rates on CC-80 in Eastbound Direction during Periods of Darkness from PM 0.0 to PM 13.5 with Average Accident Rates for Similar Facilities Statewide under Similar Conditions (October 1, 2016, to September 30, 2019)

Location: CC-80	Number of Accidents				Actual Accident Rates within the Project Limits (acc/mvm)*			Average Accident Rates for Similar Facilities Statewide (acc/mvm)		
	F	I	F+I	Total	F	F+I	Total	F	F+I	Total
PM 0.0 / 13.5	5	159	164	538	0.004	0.14	0.45	0.001	0.11	0.34

Source: Caltrans TASAS database.

* **Bold** numbers indicate actual accident rates that are higher than the corresponding average accident rates for similar facilities statewide.

Notes:

acc/mvm = accident(s) per million vehicle-miles

Caltrans = California Department of Transportation

CC = Contra Costa County

F = fatal accident(s)

I = injury accident(s)

PM = post mile(s)

TASAS = Traffic Accident Surveillance and Analysis System

Table 4-10 shows that the actual total accident rate of 0.45 acc/mvm for driving in the eastbound direction during periods of darkness is higher than the average total accident rate of 0.34 acc/mvm for similar facilities statewide under similar conditions.

Primary Collision Factors: The primary collision factors for the 538 collisions that occurred on CC-80 in the eastbound direction during periods of darkness from PM 0.0 to PM 13.5 were as follows: 250 (46.5%) were due to speeding, 120 (22.3%) were coded as “other violations,” 72 (13.4%) were due to improper turns, 71 (13.2%) were due to influence of alcohol, 20 (3.7%) were coded as “other than driver,” 4 (0.7%) were coded as “unknown,” and 1 (0.2%) was due to failure to yield.

Types of Collision: Of the 538 collisions that occurred on CC-80 in the eastbound direction during periods of darkness from PM 0.0 to PM 13.5, 260 (48.3%) were rear-end type, 151 (28.1%) were sideswipe, 91 (16.9%) were hit-object type, 13 (2.4%) were due overturns, 11 (2.0%) were broadside, 5 (0.9%) were head-on type, 5 (0.9%) were coded as “other,” and 2 (0.4%) were auto-pedestrian.³

Conclusion

A significant number of accidents (10 + 32 + 443 + 538 = 1023) of the total collisions (136 + 2539 = 2675) occurred under dark conditions. That is a 38.2% occurrence in darkness. There were 14 fatal accidents and 11 occurred in the dark. The majority of the accidents involve speeding and other

³ Percentages may not add to 100.0 because of rounding.

violations. Rear ends, sideswipes and hit objects were the primary types of collisions. All 3 types of collisions can be improved by night time illumination and glare reduction. This median barrier and lighting project will improve night time visibility and light up dark accident locations.

5. ALTERNATIVES

5A. Viable Alternatives

The project has two alternatives: One Build Alternative and the No-Build Alternative. This section focuses on the Build Alternative.

Proposed Engineering Features

The Build Alternative, the Programmable Project Alternative, will place 401 lights approximately 200 feet apart. See Attachment B for typical cross sections; see Attachment C for layouts.

The project proposes to install light-emitting diode (LED) lighting to provide luminosity along the I-80 mainline within the project limits. Lighting Standard Type 32, a luminaire with one mast arm, will generally be placed near the outside shoulders. Lighting Standard Type 21D with double luminaire mast arm will be placed in the median where outside luminaire placement is not possible. The intervals between lighting will generally be about 200 feet. The project will install total of approximately 401 lights.

Each light to be placed in the median will be supported by a 12-foot deep cast-in-drilled-hole (CIDH) pile in a Type 60G Barrier (Modified). The lights near the outside shoulder will have a foundation 8 feet in the ground, and the aboveground part will be breakaway. To provide wire connections to the proposed lighting, trenching will be done to depths of about 30 inches in the dirt areas, and jacking will be done more than 18 inches below the bottom of the pavement structural sections.

As part of the project, the existing median concrete barriers will be removed and a new barrier will be installed from east of the overhead sign (Ala-80-PM R7.652) at the beginning of the project to CC-80-PM 10.0, just west of the I-80/SR 4 separation structure.

The Type 60MG Concrete Barriers will be installed in the tangent sections to reduce glare from the opposite direction, and Type 60G (Modified) will provide support for the light poles. The Type 60M Concrete Barriers will be used for the curve sections due to horizontal sight distance requirements. On structure decks, Type 60A and Type 60GA are proposed to replace the existing concrete barriers.

The existing slotted drains underneath the median concrete barrier may be damaged because of the barrier removal. New slotted drains may need to be

installed to replace the ones that are damaged. The existing HOV signs will be replaced along with the barriers. Midwest guardrail system and other safety devices will be installed and upgraded at various locations.

To install the lighting and upgrade the median barriers, traffic lanes in both directions will need to be shifted out from the mostly 6-foot wide median to provide construction space. Pavement recommendations call for cold-planing and resurfacing for the asphalt pavement and grinding for the concrete pavement before new stripes are placed for the restored traffic lanes. A Capital Preventive Maintenance (CAPM) pavement rehabilitation project was just completed in 2019 from CC-80–PM 0.0 to PM 9.8. The current project will cold-plane and replace the top 0.10-foot layer of open-graded pavement because of pavement scaring due to stage construction. See Attachment K for Materials Report.

Nonstandard Design Features

The project proposes to maintain the existing nonstandard features. The approval date for the Existing Features to Remain: Memo to File is August 23, 2020. The details of the nonstandard features to remain are discussed below.

Stopping Sight Distance (M1)

The existing posted speed for the corridor is 65 miles per hour (mph), and the project will maintain this existing speed. The design speed for freeways in urban areas varies from 55 mph to 80 mph. The design speed for the project is 70 mph. The existing horizontal and vertical curves along I-80 within the project limits provide stopping sight distances that vary from 311 feet to greater than 750 feet (40 mph to 70 mph), and the project will maintain the existing vertical curve sight distances.

Median Width (M2)

Nonstandard median widths of 6 feet to 12 feet are proposed between “WB3” Station (Sta.) 296+00 and “WB6” Sta. 1125+00, where the project conforms to existing conditions. Table 5-1 lists the existing and proposed median widths within the project limits.

Table 5-1: Existing and Proposed Median Widths

Page Number*	Location	Existing Median Width	Proposed Median Width
P1 to P10	"WB3" 396+00 to "WB4" 516+00	6	6
P12 to P27	"WB4" 548+00 to "WB5" 756+00	6	6

P30 to P41	"WB5" 791+00 to "AM4" 954+00	6	6
P41 to P54	"AM4" 954+00 to "WB6" 1122+00	12	12

* "Page Number" refers to the layout page number; see Attachment C.

Left Paved Shoulder Width (M3) and Minimum Horizontal Clearance to Objects (M4)

Nonstandard left paved shoulder widths and minimum horizontal clearance are present at four locations in the median. The barrier at the left paved shoulder is the minimum horizontal clearance. Table 5-2 lists the standard, existing, and proposed left shoulder widths within the project limits.

Table 5-2: Standard, Existing, and Proposed Left Shoulder Widths

Page Number*	Location	Standard Left Shoulder Width (ft)	Existing Left Shoulder Width (ft)	Proposed Left Shoulder Width (ft)
P1 to P10	"WB3" 396+00 to "WB4" 516+00	10	2	2
P12 to P27	"WB4" 548+00 to "WB5" 756+00	10	2	2
P30 to P41	"WB5" 791+00 to "AM4" 954+00	10	2	2
P41 to P54	"AM4" 954+00 to "WB6" 1122+00	10	5	5

* "Page Number" refers to the layout page number; see Attachment C.

Interchange Spacing: Urban Areas (M5) and Minimum Weaving Length (M6)

There are 14 locations within the project limits where nonstandard interchange spacing exists (see Table 5-3). The project proposes to maintain the existing interchange spacing. Also, there are eight locations within the project limits where the existing weaving length along I-80 is less than 2,000 feet. These locations are listed in Table 5-3.

Table 5-3: Interchange Spacing and Weaving Lengths within Project Limits

Page Number*	Location	Existing Interchange Spacing (miles)	Standard Interchange Spacing (miles)	Proposed Interchange Spacing (miles)	Weaving Length Existing/Proposed (ft)
P4 to P7	"AM2" 431+00 to "AM2" 472+00	0.78	1	0.78	1,932

Page Number*	Location	Existing Interchange Spacing (miles)	Standard Interchange Spacing (miles)	Proposed Interchange Spacing (miles)	Weaving Length Existing/ Proposed (ft)
	Central Ave. to Carlson Blvd.				
P7 to P9	"AM2" 472+00 to "EB3" 509+00 Carlson Blvd. to Potrero Blvd.	0.67	1	0.67	1,570
P9 to P11	"EB3" 509+00 to "EB3" 528+00 Potrero Blvd. to Cutting Blvd.	0.37	1	0.37	N/A
P11 to P13	"EB3" 528+00 to "AM3" 558+00 Cutting Blvd. to Macdonald Ave.	0.58	1	0.58	1,650
P13 to P14	"AM3" 558+00 to "AM3" 576+00 Macdonald Ave. to San Pablo Ave.	0.34	1	0.34	N/A
P14 to P16	"AM3" 576+00 to "AM3" 599+30 San Pablo Ave. to Solano Ave.	0.45	1	0.45	900
P16 to P17	"AM3" 599+30 to "AM3" 619+50 Solano Ave. to McBryde Ave.	0.39	1	0.39	N/A
P17 to P19	"AM3" 619+50 to "AM3" 648+50 McBryde Ave. to San Pablo Dam Rd.	0.54	1	0.54	1,300
P19 to P23	"AM3" 648+50 to "AM3" 697+00 San Pablo Dam Rd. to El Portal Drive	0.91	1	0.91	2,820
P23 to P26	"AM3" 697+00 to "AM3" 735+00 El Portal Drive to Hilltop Drive	0.73	1	0.73	1,290
P26 to P29	"AM3" 735+00 to EB4 775+50 Hilltop Drive to Richmond Parkway	0.77	1	0.77	1,640
P29 to P32	"EB4" 775+50 to "AM4" 821+50	0.84	1	0.84	1,660

Page Number*	Location	Existing Interchange Spacing (miles)	Standard Interchange Spacing (miles)	Proposed Interchange Spacing (miles)	Weaving Length Existing/ Proposed (ft)
	Richmond Parkway to Appian Way				
P32 to P36	"AM4" 821+50 to "AM4" 869+50 Appian Way to Pinole Valley Road.	0.91	1	0.91	2,540
P41 to P44	"AM4" 951+00 to "AM4" 984+50 Rte. 80/SR 4 separation to Willow Ave.	0.67	1	0.67	2,000

* "Page Number" refers to the layout page number; see Attachment C.

Notes:

N/A = not applicable

Interchange Type (M7)

The project proposes to maintain the existing nonstandard partial interchange at the interchanges listed in Table 5-4.

Table 5-4: Existing Nonstandard Partial Interchanges within Project Limits

Page Number*	Interchange	Station
P9	Potrero Blvd.	"EB3" 509+00
P11	Cutting Blvd.	"EB3" 528+00
P14	Macdonald Ave.	"AM3" 558+00
P16	Solano Ave.	"AM3" 599+30
P17	McBryde Ave.	"AM3" 619+50

* "Page Number" refers to the layout page number; see Attachment C.

5B. Rejected Alternatives

The No-Build Alternative was rejected because it would not satisfy the project purpose and need.

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. Hazardous Waste

A hazardous material disposal site will be specified in the special provisions for hazardous waste disposal for the project. Soil and/or groundwater sampling will be conducted during the final Design phase of the project to evaluate the potential presence of hazardous materials in soil and groundwater within the study area.

6B. Value Analysis

A Value Analysis study was conducted July 20, 2020 to July 23, 2020 for the project, as its cost is more than the \$25 million threshold (including capital and support costs) for conducting such a study. The VA team developed 5 alternatives for improvement of the project.

Three alternatives were rejected. The increase light mast spacing was rejected as the current spacing of 200 ft was maximum spacing for the required illuminance. Implementation of ten 55-hour weekend closures to facilitate paving construction operations was rejected as closing the freeway is not possible as there are no alternate routes. The increase of the RHMA pavement depth from 0.1 feet to 0.2 feet was rejected as the freeway has either been rehabilitated or will be by another project.

One alternative that was accepted from the VA Study was to implement ten 55-hour weekend closures to facilitate paving construction operations. The use of 55-hour weekend closures will be investigated during PS&E.

6C. Resource Conservation

Non-contaminated materials such as the concrete from the barriers will be recycled and possibly reused as aggregate. Also, sign panels will be reused. Any materials that cannot be salvaged will become the property of the contractor and must be disposed of outside of the State right of way, in accordance with the California Department of Transportation (Caltrans) Standard Specifications Section 4-1.13.

Energy-efficient construction methodologies will be used to the extent practicable through planning and implementation of best practices during the project delivery process. Fuel-efficient measures for both construction equipment and traffic management will be used during delays or for detours.

6D. Right of Way

General

A Right of Way Data Sheet has been prepared for the project based on the project scope of work and on the maps provided by the Division of Design (see Attachment G). The Right of Way Data Sheet provides the estimated cost information for the project and notes that it is not anticipated that the project will require additional right of way.

Railroad

Both Bay Area Rapid Transit District (BART) and BNSF Railway (BNSF) railroad tracks are within the project limits. Work will occur over the tracks at PM 2.5 (Ohio Street Overhead) and PM 9.72 (Hercules Overhead). Due to this

work, Right of Way Agreements will need to be executed for plan review and flagging expenses. The project contractor will be responsible for adhering to BART and BNSF flagging requirements and providing the required proof of insurance. A railroad “Short Clause” will need to be inserted into the contract special provisions. Contractor personnel and equipment will be required to stay clear of the railroad tracks.

Utilities

Verification of utilities will be required. The need for potholing will be ascertained after the verification process is completed. Per the current project scope, approximately 100 potholes will be needed for the project. It is not anticipated that the project will require utility relocations.

6E. Environmental Compliance

The project is Categorical Exempt under Class 1 of the California Environmental Quality Act (CEQA) and Categorical Excluded under the National Environmental Policy Act (NEPA). The Categorical Exemption / Categorical Exclusion was approved and signed on October 21, 2020 (see Attachment D).

The project as proposed is unlikely to result in significant environmental effects. Due to the proximity of San Francisco Bay to the project limits, it is suggested that the project maintain the greatest visual access possible to the bay.

Some frontside and backside shielding of electroliers will mitigate the effect of the new lights on homes adjacent to the freeway. Twenty-four existing light fixtures will be replaced with backside shielding and LED bulbs of 3,000K in a habitat area for the California red-legged frog as a mitigation measure.

The project will require a formal Section 7 Consultation with the United States Fish and Wildlife Service. A Letter of Concurrence was issued on October 20, 2020.

Environmentally Sensitive Area: CC-80–PM 11.3 to PM 12.4

The Project Development Team proposed to include lighting installations at locations in a majority of the project segments. Those locations included this segment of CC-80, which includes an Environmentally Sensitive Area (ESA).

However, after proposing to include lighting installations in this segment, studies indicated that endangered species with light sensitivities exist within this segment. The studies also revealed that light installations within this area would adversely impact those species.

Because this segment of I-80 does not contain any “high accident concentration locations,” and because the collision analysis revealed that there is no significant

accident pattern that can be directly attributed to poor visibility due to the absence of illumination in this segment, proposed lighting in this segment was eliminated.

Water Quality

The project will comply with the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) permit and the Construction General Permit. The preparation of a Storm Water Pollution Prevention Plan (SWPPP) will be required because the disturbed soil area (DSA) of the project is estimated to be greater than 1 acre.

Construction Site BMPs will be implemented to address temporary water quality impacts from the project. These BMPs will include measures for soil stabilization, sediment control, non-stormwater management, waste management and materials pollution control, job site management, drainage inlet protection, and ESA protection. Dewatering may prove to be a necessity for the project. The project doesn't require a Clean Water Act (CWA) Section 401 certificate, as the project will not require any in-water work. The project does not require Treatment BMPs because the New Impervious Surface associated with the project is less than 1 acre and a Section 401 certificate will not be required.

A separate project has been programmed to implement Full Trash Capture devices to the Maximum Extent Practicable, as about half of the roadway within the project limits is identified as a moderate Significant Trash Generation Area (STGA) and the project construction cost is above \$5 million.

A Stormwater Data Report has been prepared to summarize the proposed measures. The approved signature sheet is provided as Attachment F.

Highway Planting

Construction activities (including incidental work and staging) should avoid landscape impacts to preserve existing trees and vegetation. Replacement planting will be required to replace damaged and dead planting resulting from construction activities. Existing irrigation facilities will be repaired and made functional.

Replanting, where required, will meet the standards set by both Caltrans and the Bay Conservation and Development Commission (BCDC) (where applicable), including a minimum plant establishment period of 1 year for replanting done under the roadway contract and a replanting cost under \$300,000. Replanting work with a cost of \$300,000 or more will be completed under a separate contract with a 3-year minimum plant establishment period. Mature trees, shrubs, and other plantings that exist within the project limits will be protected from damage to the maximum extent possible to maintain Classified Landscaped Freeway status.

Visual/Aesthetics

The aesthetic treatment of the median barrier is a minimization measure that is an environmental commitment to lessen the visual impacts of the project. The project will include aesthetics in the median barrier design along I-80 between PM 7.6 and PM 8.0 in Alameda County and PM 0.0 to PM 10.5 in Contra Costa County to help minimize the impacts caused by view blockage. The proposed 56-inch high median barrier will block views to the bay and the hills causing visual impacts to the local communities. The aesthetics will be compatible with the median design along the corridor through multiple communities and compatible with adjacent projects. The aesthetic treatment will be designed and implemented with the concurrence of the District Landscape Architect. The estimated cost of the aesthetic treatment is \$3 million.

6F. Air Quality Conformity

Construction emissions will not be significant with the implementation of feasible control measures, as specified in the Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines. Implementing appropriate dust control measures and measures to reduce diesel exhaust will satisfy the BAAQMD CEQA requirements for transportation projects. The Caltrans Standard Specifications and Special Provisions will include the requirement to minimize or eliminate dust through application of water or dust palliatives.

The project is exempt from the requirement to determine air quality conformity per Title 40 Code of Federal Regulations (CFR) Section 93.126 (Table 2). Therefore, an air quality study is not required.

6G. Title VI Considerations

The California State Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers. This project will comply with Title VI throughout the life of the project.

Also, the project will not cause disproportionately high and adverse effects on any minority or low-income populations. The project will not reduce or limit access to businesses or residences, including shopping areas, schools, hospitals, or recreation areas.

6H. Noise and Vibration

The project will not add a new through travel lane or change the highway alignment. Therefore, the project is not a Type I project per 23 CFR 772. Noise abatement (e.g., a permanent noise barrier) does not need to be considered, and a noise study report is not required.

6I. Life-Cycle Cost Analysis

The project does not involve pavement rehabilitation or widening, so Life-Cycle Cost Analysis does not apply.

6J. Reversible Lanes

The project does not qualify as a capacity-increasing project or a major street or highway realignment project. Reversible lanes have not been considered for the project.

7. OTHER CONSIDERATIONS AS APPROPRIATE

Public Hearing Process

No public meeting was required as part of the environmental process. A Community Impact Assessment report was completed, and letters were sent to community members adjacent to the project affected by the lighting. Also, letters were sent to the city of El Cerrito and the city Richmond to keep the locals informed about the project. The City of Richmond had no comment; the City of El Cerrito has not yet replied.

Route Matters

Freeway Agreements and New Connections

Changes to the current freeway agreements are not anticipated, as the project will not change freeway access. The current freeway agreements are still valid.

Route Adoptions

The project will not require any route adoptions.

Relinquishments

Relinquishments are not anticipated as part of the project.

Permits

The project will comply with the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) permit and the Construction General Permit. The preparation of a Storm Water Pollution Prevention Plan (SWPPP) will be required because the disturbed soil area (DSA) of the project is estimated to be greater than 1 acre.

Cooperative Agreements

Cooperative agreements are not required for construction of the project.

Other Agreements

Parts of the project limits are within Bay Conservation and Development Commission Permit (BCDC) jurisdiction. The south end of the project limits (south of Central Avenue in El Cerrito) and the north end of the project limits (the approach to the Carquinez Bridge) are in BCDC jurisdiction. The route is also a BCDC scenic drive. Other BCDC components include industrial areas around I-80 and a creek (at PM 0.743). However, a BCDC permit is not required.

Report on Feasibility of Providing Access to Navigable Rivers

The U.S. Coast Guard does not classify any creeks within the project limits as navigable.

Public Boat Ramps

There are no public boat ramps within the project limits.

Transportation Management Plan

The purpose of the Transportation Management Plan (TMP) is to provide a comprehensive method of reducing traffic disruption and relieving congestion around the proposed project area during construction. The TMP and associated lane closure charts for the project will be prepared during the PS&E phase. The Transportation Management Plan Data Sheet is provided as Attachment H.

Stage Construction

The project will be constructed in two stages with nighttime lane closures. The traffic will be shifted right and K-rail installed to allow room in the median to construct the concrete barrier and replace any damaged slotted drains. Then, the median will be shifted back to do the outside work (see Attachment B). The project will require nighttime ramp closures.

Accommodation of Oversize Loads

I-80 is able to accommodate oversized loads. The project will not result in any permanent restrictions to the movement of oversized loads.

Graffiti Control

Some of the areas within the project limits have been subject to graffiti (e.g., graffiti has been applied to signs, retaining walls, noise barriers). Current measures such as the use of textured and/ or stained surfaces will be used to discourage graffiti.

Asset Management

Under Federal (Moving Ahead for Progress in the 21st Century now Fixing America’s Surface Transportation Act) and State legislation (Senate Bill 486, Chapter 917), Caltrans is required to prepare a robust asset management plan to guide the development of the SHOPP. The nomination of this project in the SHOPP Tool for the 10-year SHOPP Plan and future SHOPP cycle aligns with the Caltrans Asset Management Plan. Table 7-1 shows the performance measures when this project was programmed. Table 7-2 shows the proposed performance measures for this project at project approval.

Table 7.1 – Performance Measures of the Project at the Programming Milestone

<i>Activity Detail</i>	<i>Unit of Measurement</i>	<i>Quantity</i>	<i>Assets in Good Cond</i>	<i>Assets in Fair Cond</i>	<i>Assets in Poor Cond</i>	<i>New Asset Added</i>
Lighting	EA	0				324
Median Barrier	LF	54,885				54,885

Table 7.2 – Proposed Performance Measures of the Project

<i>Activity Detail</i>	<i>Unit of Measurement</i>	<i>Quantity</i>	<i>Assets in Good Cond</i>	<i>Assets in Fair Cond</i>	<i>Assets in Poor Cond</i>	<i>New Asset Added</i>
Lighting	EA	0				401
Median Barrier	LF	54,885				54,885

The SHOPP Performance Measure for the project is 460 collisions reduced over the life of the project (15 years) (see Attachment M). The program advisor has reviewed the change and noted that 77 additional lights increased the performance measure of this project from 396 collisions reduced to 460 collisions reduced over the life of the project (15 years). All types of collisions can be improved by night time illumination and glare reduction. This median barrier and lighting project will improve night time visibility and light up dark accident locations.

Complete Streets

Pedestrian and Bicycle Facilities

The project scope focuses on installing highway lighting and minimizing vehicle's oncoming glare; pedestrian and bicycle improvements are not feasible within the project scope. This is a freeway and bicycle and pedestrian access is prohibited.

Public Transportation Services and Facilities

The project scope focuses on installing highway lighting and minimizing vehicle's oncoming glare; public transportation improvements are not feasible within the project scope. However, the project will not impact or prevent future transportation investments to develop or enhance public transportation on the State Highway System.

Climate Change Considerations

Greenhouse gas (GHG) emissions analysis determined that the project is qualitative (see California Executive Order B-30-15) and does not require use of the Federal Highway Administration's (FHWA) Infrastructure Carbon Estimator tool to calculate GHG emissions.

The scope and nature of the proposed project are relatively minor. The project is not expected to create additional roadway capacity, so it is not expected to result in increased operational emissions of GHGs. Although the project would generate construction emissions of GHGs, the GHG emissions would be short term.

Construction emissions are unavoidable, but they will be reduced to the extent practicable through planning and implementation of best practices during the project delivery process. The following items are appropriate or applicable to the project:

- Use of energy-efficient construction methodologies
- Use of water-efficient construction methodologies
- Use of fuel-efficient measures for both construction equipment and traffic management during delays or detours
- Use of locally available building materials to reduce GHG emissions

Broadband and Advance Technologies

The proposed improvements for the project will not impact the accommodation of wired broadband facilities, fueling opportunities for zero-emission vehicles, or provisions for infrastructure-to-vehicle communications for transitional or full autonomous vehicles.

Other Appropriate Topics

Maintenance and Worker Safety

Although maintenance work will be necessary after project completion, it is not anticipated that the maintenance workers will be exposed to high-speed traffic.

Maintenance and Freeway Agreements

This project does not modify or require new maintenance or freeway agreements.

8. FUNDING, PROGRAMMING AND ESTIMATE

Funding

It has been determined that the project is eligible for federal-aid funding. The project is proposed for funding under the 2018 SHOPP Safety Improvements Program 201.010.

Programming

The following table lists the programmed costs for the project by fiscal year.

Fund Source	Fiscal Year Estimate								
	Prior	20/21	21/22	22/23	23/24	24/25	25/26	Future	Total
20.XX.201.010									
Component	In thousands of dollars (\$1,000)								
PA&ED Support	6,869	—	—	—	—	—	—	—	6,869
PS&E Support	—	6,869	—	—	—	—	—	—	6,869
Right of Way Support	—	296	—	—	—	—	—	—	296
Construction Support	—	—	7,327	—	—	—	—	—	7,327
Right of Way	—	—	1,339	—	—	—	—	—	1,339
Construction	—	—	69,791	—	—	—	—	—	69,791
Total	6,869	7,165	78,457	—	—	—	—	—	92,491

Notes:
— = not applicable

PA&ED = Project Approval and Environmental Document

PS&E = Plans, Specifications, and Estimate

The escalation rate is 3% per year. The support cost ratio is 30%.

Estimate

A Project Planning Cost Estimate has been prepared for this report. The current total capital outlay cost is \$69,791,000, and capital outlay support cost is \$21,361,000. See Attachment E for details.

The cost increase from \$53 million to \$69.8 million because of these changes to the project since the PIR:

- The Office of Traffic Safety conducted a Traffic Accident Analysis within the project limits; the analysis concluded that there was a need for 77 additional lights. Some of the lights are to be installed on the bridge rails.
- There are multiple slotted drains that have the potential to be damaged that may require replacement when the median barrier is removed and replaced.
- Compliance with a Context Sensitive Solutions approach suggests an aesthetic treatment on the new, taller median barrier.

The programmed right of way capital amount is \$1,339,000. The Right of Way Data Sheet estimate for the right of way capital amount is \$339,000. Right of Way capital funds has been set aside to be used for power source acquisition and railroad coordination, if required. The Project Manager prepared a Project Change Request (PCR) approved in November 20, 2020 for this programmed amount.

9. DELIVERY SCHEDULE

The following table lists the project milestones, their dates, and their current designations.

Project Milestones		Milestone Date (Month/Day/Year)	Milestone Designation(Ta rget/Actual)
PROGRAM PROJECT	M015	05/25/2017	Actual
BEGIN ENVIRONMENTAL	M020	07/26/2018	Actual
PA&ED	M200	12/14/2020	Target
BEGIN STRUCTURE	M215	10/01/2020	Target
PS&E TO DOE	M377	10/01/2021	Target
DRAFT STRUCTURES PS&E	M378	09/01/2021	Target
PROJECT PS&E	M380	12/01/2021	Target
RIGHT OF WAY CERTIFICATION	M410	01/01/2022	Target
READY TO LIST	M460	04/01/2022	Target
HEADQUARTERS ADVERTISE	M480	06/01/2022	Target
AWARD	M495	09/01/2022	Target
APPROVE CONTRACT	M500	10/01/2022	Target
CONTRACT ACCEPTANCE	M600	10/01/2024	Target
END PROJECT EXPENDITURES	M800	11/30/2026	Target
FINAL PROJECT CLOSEOUT	M900	08/11/2028	Target

Notes:
DOE District Office Engineer
M = milestone

PA&ED = Project Approval and Environmental Document
PS&E = Plans, Specifications, and Estimate

10. RISKS

The overall project risk is considered low to moderate, as identified in the project Risk Register (Attachment J).

The primary project risks are as follows:

- Unanticipated utilities may be encountered during construction and may require relocation or a construction work-around, either of which could result in additional project costs or schedule delays.
- Unanticipated aerially deposited lead material may be encountered during construction and may require mitigation, removal, and disposal outside the project limits. This may result in additional costs for the project.
- Nesting bird surveys may be needed. Environmental analyses may need additional time and may delay the project delivery schedule.
- Acquiring special materials needed for the project may encounter longer-than-expected lead times from suppliers, resulting in additional costs or schedule delays.

The project will install new lights, so a power sources from Pacific Gas and Electric Company (PG&E) will be needed. It will be essential for the project to coordinate early and closely with PG&E to avoid project delays.

To install lighting and upgrade the median barriers, traffic lanes in both directions will need to be shifted out from the (mostly) 6-foot wide median to provide construction space. Pavement recommendations call for cold-planing and resurfacing before the new stripes are placed for the restored traffic lanes. Future Express Lanes have been planned for this corridor, and the construction schedules for those projects are close to the schedule for this project. To minimize duplication of pavement and striping work, it is essential to coordinate between the projects.

The constructability of the project will be challenging, as much of the project work to install the lighting and upgrade the barriers will be in the 6-foot wide median of the busy freeway. Detailed scenarios for construction staging will need to be studied in the PS&E phase to refine the project cost and schedule.

One of the potential risks of the project is that some portions of the existing outside shoulders might fail due to the traffic shifting to them required for the project (especially, the shifting of truck traffic). If the outside shoulders fail, they would have to be either repaired or reconstructed before the outside shoulders are opened to permanent traffic.

Another potential risk of the project concerns damage to and reconstruction of the existing median pavement and drainage-related appurtenances.

These risks may affect both the cost estimate and the schedule of the project.

11. EXTERNAL AGENCY COORDINATION

Federal Highway Administration

This project is considered to be a Delegated Project in accordance with the current Joint Stewardship and Oversight Agreement between FHWA and Caltrans.

Other Agencies

The project requires the following coordination:

U.S. Fish and Wildlife Service

- Biological Assessment
- Letter of Concurrence from the U.S. Fish and Wildlife Service (USFWS) is required because of the impact of the lights on sensitive species. Habitat for the California red-legged frog and Alameda whipsnake runs adjacent to I-80 near San Pablo Dam Road, past Willow Avenue, and up to the Carquinez Bridge. The project lighting will affect this habitat, so the project consulted with USFWS regarding potential impacts.

Railroads

- Railroad Agreements
- Railroad Short Clause for separated-grade crossings

12. PROJECT REVIEWS

Table 12-1 lists the types of project reviews, the reviewers, and the dates of the reviews.

Table 12-1: Types of Project Reviews, Reviewers, and Dates of Reviews

District Program Advisor	Saif Mamoon	4/13/2020
District Maintenance	David Ambuehl	4/13/2020
Project Manager	Dina El-Nakhal	4/13/2020
Project Delivery Coordinator	Robert Effinger	4/13/2020
District Design Liaison	Bach-yen Nguyen	4/13/2020
District Safety Review	Hai Xu	4/13/2020
Constructability Review	Rob Kobal	4/13/2020
Traffic Safety	Elizabeth Del Rosario	4/13/2020

Electrical Design	Robert Hsu	4/13/2020
Environmental Planner	Brooklyn Klepl	4/13/2020
Highway Operations	Michael Kerns	4/13/2020

The review of the Caltrans Headquarters Project Delivery Coordinator commented that this Project Report and its associated Existing Nonstandard Features to Remain: Memo to File should emphasize that the project is a safety project. The District Program Advisor was concerned about the rising cost of the project estimate. The constructability review expressed concern about the lead time required to order the needed electrical items and recommended a 55-day (i.e., fast) start to the contract after award.

13. PROJECT PERSONNEL

Table 13-1 lists the names, titles/functional units, and telephone numbers of the project personnel.

Table 13-1: Names, Titles/Functional Units, and Telephone Numbers of the Project Personnel

Name	Title/Functional Unit	Telephone Number
Dina El-Nakhhal	Project Manager	(510) 286-6247
Wahida Rashid	Senior Environmental Planner	(510) 286-5935
Brooklyn Klepl	Environmental Planner	(510) 286-3883
Denis Coghlan	Biology	(510) 286-5434
Lydia Mac	D4 Landscape	(510) 286-5934
Brandon Johnson	D4 Landscape	(510) 286-5920
Ping Tsai	Right of Way Project Coordinator	(510) 286-5467
George Acquaye	Branch Chief, Design Contra Costa	(510) 286-4972
Bahman Zarechian	Traffic Safety	(510) 286-4422
Elizabeth Del Rosario	Traffic Safety	(510) 286-4589
Eric Kawakita	D4 Hydraulics	(510) 286-6331
Parviz Boozarpour	Branch Chief, D4 Electrical Design	(510) 286-4772
Robert Hsu	D4 Electrical Design	(510) 286-5743
Mohammad Zabolzadeh	D4 Materials	(510) 286-4831
Luis Tacuri	D4 Materials	(510) 622-1755
John Moore	Branch Chief, Geotechnical West	(510) 622-8472
Samuel Awad	Geotechnical West	(510) 622-5443
Wilfung Martono	D4 Water Quality	(510) 286-5167
Jiayi Pan	D4 Water Quality	(510) 286-5686
Hanna Khoury	D4 Utility	(510) 622-5456
David Neumann	Structures Design Details	(916) 227-8460

Notes:

D4 = District 4

14. ATTACHMENTS (138)

- A. Project Location Map (1)
- B. Typical Sections (1)
- C. Layouts (55)
- D. Environmental Determination/Document (8)
- E. Project Planning Cost Estimate (9)
- F. Stormwater Data Report (29)
- G. Right of Way Data Sheet (8)
- H. Transportation Management Plan Data Sheet (2)
- I. Risk Register (2)
- J. Materials Report (15)
- K. Asset Management (3)
- L. Project Change Request (5)